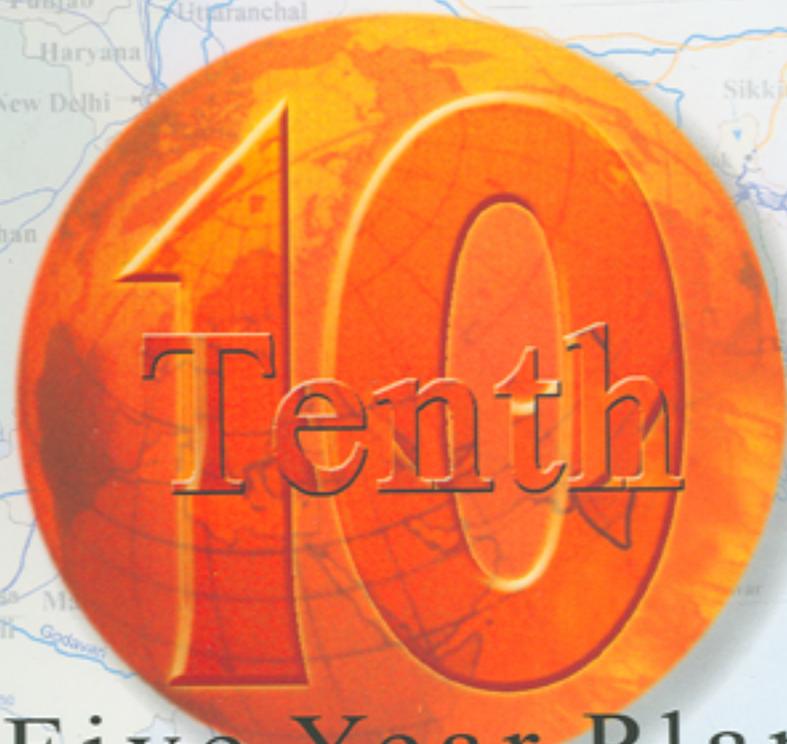


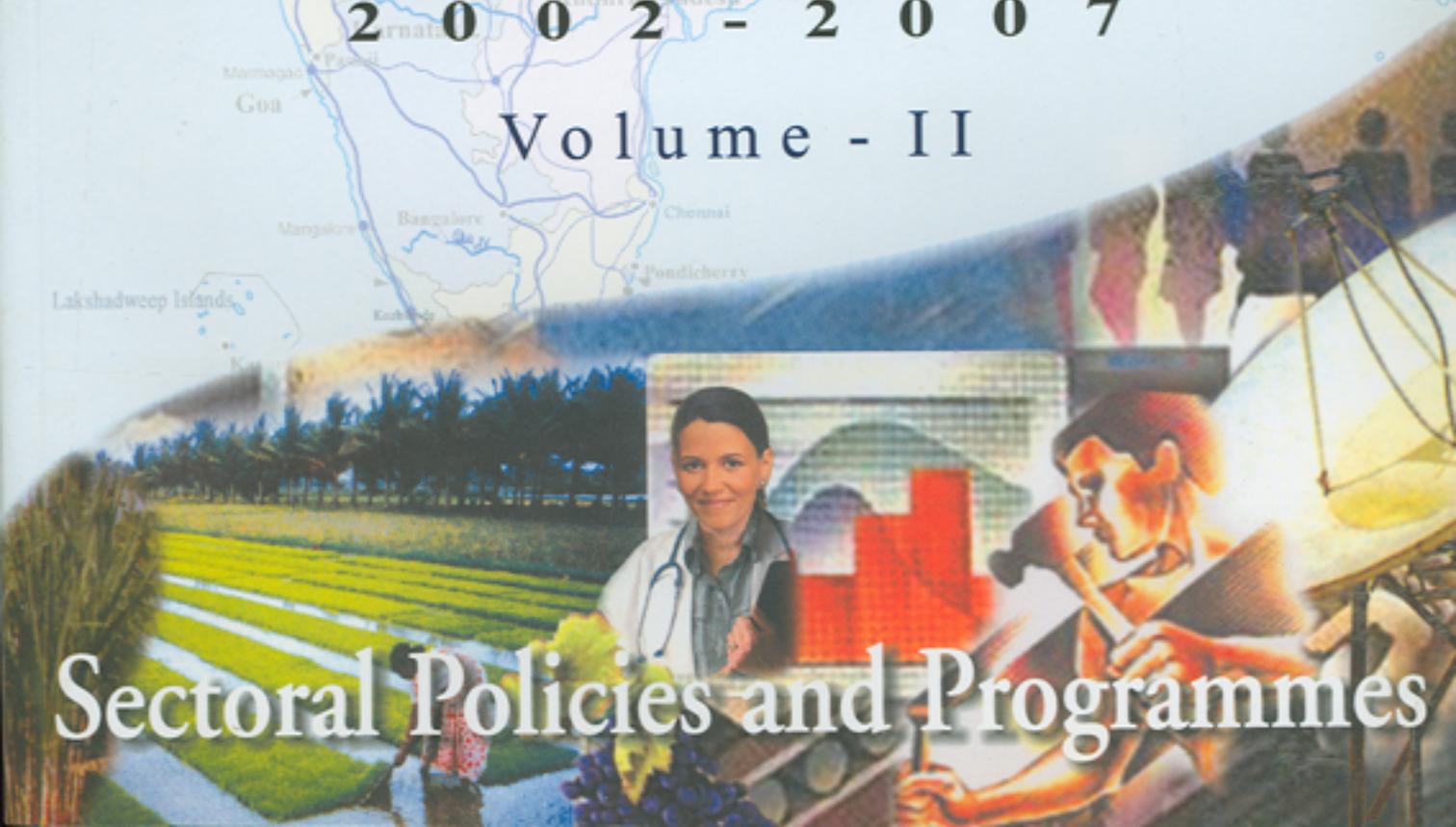
Planning Commission
Government of India
New Delhi



Five Year Plan

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Volume - II



Sectoral Policies and Programmes

CHAPTER 1.1

OVERVIEW

1.1.1 The Tenth Five Year Plan has been formulated in the context of the Prime Minister's vision of doubling per capita income in the country within the next ten years, and also of creating 100 million employment opportunities during the same period. These are certainly ambitious targets, especially in view of the fact that GDP growth has decelerated to below 6 per cent at present and the pace of work creation has slowed down to 1.1 per cent per annum during the latter half of the 1990s. Nevertheless, it is believed that the Indian economy does possess the potential to realise these targets, provided that appropriate policy and programmatic interventions are carried out within the specified time frames.

1.1.2 The Approach Paper had proposed that the Tenth Plan should aim at an indicative target of 8 per cent average GDP growth for the period 2002-07 as the first step towards achieving the ultimate aim of doubling per capita income by 2012. This will require the growth rate to accelerate further to 9.3 per cent per year during the Eleventh Plan period. The National Development Council (NDC) affirmed its faith in the latent potentialities of the Indian economy by approving the 8 per cent growth target for the Tenth Plan period.

1.1.3 The Approach Paper also recognised that economic growth cannot be the only objective of national planning, and development objectives should be specified in the broader sense of enhancement of human well-being. To reflect the importance of these dimensions in development planning, the NDC has approved that, in addition to the 8 per cent growth target, certain additional quantifiable targets relating to poverty, employment, social and environmental indicators should also be considered as being central to the attainment of the objectives of the Plan.

1.1.4 It is important to emphasise that these human development-related targets of the Plan, which are extremely important and are being introduced for the first time in Indian planning, are intimately linked to the growth objective, and attainment of one may not be possible without the attainment of the others. For example, high rates of growth are essential if we want to provide a sufficient expansion of sustainable gainful employment opportunities to our expanding labour force and to ensure a sufficient increase in incomes of the poor and the disadvantaged. It is equally true that high growth rates may not be sustainable if they are not accompanied by a dispersion of purchasing power which can provide the demand needed to support the increase in output. Similarly, improvements in social and environmental indicators are essential for the sustainability of the growth process; while the latter provides the resources for undertaking the necessary investments for the former.

1.1.5 Furthermore, there are cross-linkages that exist within the set of social and environmental indicators, which need to be given due recognition. For instance, environmental degradation can have serious consequences on the health status of the population; while environmental protection and rejuvenation will be difficult without the awareness that is brought about through education.

1.1.6 The essence of planning is to weave all these seemingly disparate strands into a cohesive and well-knit strategy so that the various cross-linkages operate in a synergistic manner in order to attain the ultimate objective of all development initiatives – namely human development. Conceptually, the aggregative objectives and targets that are set for the nation can be thought as being comprised of two sets of sub-targets – across

sectors and across regions – which are consistent with the aggregates. Thus, there are at least three broad dimensions in which a Plan needs to be presented – the national aggregates, the sectoral requirements, and the state-wise distributions. Furthermore, the conduct of policies and design of programmes for attaining the targets must also reflect this tri-dimensionality.

1.1.7 For the reasons enumerated above, the Tenth Five Year Plan is being presented in three volumes. The first volume covers the broad perspective and strategy of development, the macroeconomic and economy-wide issues relating to growth, investment and employment, and certain general observations on institutional design, governance and implementation methodologies. Although state-wise break-ups are provided for a few critical areas in Volume-I in order to motivate the consistency requirement, the detailed analysis of state-level issues is taken up in Volume-III. Similarly, certain broad sectoral targets and requirements are also provided in Volume-I for consistency purposes, but the detailed description of each of the key sectors of the economy forms the substance of this volume.

1.1.8 Volume-II, therefore, gives the details of the sectoral policies and programmes that are necessary to attain the Plan objectives. The individual sectoral chapters review the existing policies and programmes, identify shortcomings and suggest new policy and programmatic initiatives to overcome the shortcomings and accelerate the pace of progress. Although each of the chapters gives a fair degree of detail regarding the specific programmes, projects and schemes, it should not be thought that these are cast in stone. All planning is based on an *a-priori* appraisal of emerging trends and the initial programme content reflects the strategy to address these. During the course of the Plan, however, as new developments occur, suitable changes can and should be made in the content and design of the plan programmes.

1.1.9 The purpose of this chapter is not to summarise the contents of the various chapters of this volume nor is it an executive summary. Its

principal objective is to give a flavour of how the sectoral initiatives fit into the realisation of the planning themes enumerated in Volume-I. An effort is also made to highlight certain cross-cutting issues, such as gender equity, decentralisation, governance and institutional reforms, which may get obscured in the details provided in the individual chapters. The presentation is structured around three broad themes – (a) Growth, Poverty and Employment; (b) Social Development and Quality of Life; and (c) Sustainability of Growth and Development.

Growth, Poverty and Employment

1.1.10 Volume-I of the Plan addresses the issue of growth, its sectoral structure and resource requirements in considerable detail. However, it must be borne in mind that the sectoral growth rates proposed in Volume-I, and which add up to the aggregate growth rate of the economy, are unlikely to be achieved only through macroeconomic measures. In practically all cases, sector-specific interventions are essential to achieve the desired results.

1.1.11 Furthermore, although growth has strong employment generation and direct poverty reducing effects, the frictions and rigidities in the Indian economy can make these processes less effective. The Tenth Plan is therefore formulated in a manner which explicitly addresses the need to ensure equity and social justice through a sector-specific focus. There are three main dimensions to this strategy:

- (i) Agricultural development to be viewed as a core element of the Plan since growth in this sector is likely to lead to the widest spread of benefits, especially to the rural poor.
- (ii) Ensuring rapid growth of those sectors which are most likely to create gainful employment opportunities and dealing with the policy constraints which discourage growth of employment. Particular attention is to be paid to the policy environment influencing a range of sectors which have a large employment potential.

These include sectors such as agriculture in its extended sense, construction, tourism, transport, SSI, retailing, IT- and communication-enabled services, and a range of other new services.

- (iii) Continuing need to supplement the impact of growth with special programmes aimed at special target groups which may not benefit sufficiently from the normal growth process. Such programmes have long been part of our development strategy and they will be continued in the Tenth Plan.

1.1.12 In so far as agriculture is concerned, the first, and possibly the most important, area of focus must be to raise the cropping intensity of our existing agricultural land. Climatically India is fortunate in that it is possible to have multiple crops practically all over the country. The critical problem here is water. However, water resources are also under severe strain. Despite large investments in irrigation in the past, only about 40 per cent of the agricultural area is irrigated. Moreover, capacities of existing projects are also getting eroded due to insufficient expenditure on maintenance and upgradation. Bringing wasteland and degraded lands into productive use is also an important component of accelerating agricultural growth. The initiatives that need to be taken in these two aspects are discussed along with other sustainability issues.

1.1.13 The second priority must be the development of other rural infrastructure that supports not only agriculture, but all rural economic activities. Of all forms of rural infrastructure, the impact of rural roads in widening the opportunities and alternatives available to our people has a dominant effect. This activity is labour intensive and its direct contribution to employment creation can be considerable. However, while constructing rural roads, connectivity of public health centres, schools, market centres, backward areas, tribal areas and areas of economic importance should be given priority. Acceleration in the rural electrification programme is also essential for improving irrigation and for giving a boost to non-farm economic activities.

1.1.14 The third area that needs attention is the development and dissemination of agricultural technologies. Research on bio-technology to develop high potential varieties/materials, achieving breakthrough in pulses and oilseeds, control of diseases in plants and animals, development of marine fish resources and exploitation of deep sea fishing potential are areas of focus. The extension system is to be reformed comprehensively, and support provided to greater private initiatives through agri-clinics. Extensive use will also be made of IT and print media to disseminate agricultural technologies. In order to encourage agricultural diversification and minimisation of wastage, considerable focus will be placed on post-harvest technologies and marketing infrastructure.

1.1.15 However, none of this will be possible without reconsideration of the various rules and regulations that govern agricultural trade, which frequently act against the interests of the farmers and distort their incentive structure. Some of the measures necessary are:

- Encouragement to contract farming
- Removing restrictions placed by the Agricultural Produce Marketing Act on agricultural markets in private and cooperative sectors and on direct marketing by farmers
- Adoption of the Multi-State Cooperative Act 1984 by all States for functional and financial autonomy of cooperatives
- Amendment of the Essential Commodities Act, 1955 making it enforceable only for emergencies, for specified periods and specific products
- Increasing credit flow by making Kisan Credit Cards available to all farmers

1.1.16 Although rapid and sustained agricultural growth will in itself create the conditions for steady reduction in poverty, it will be necessary to continue pursuing direct employment and poverty alleviation programmes for the foreseeable future. However, it is also necessary to reorient the poverty alleviation programmes in a manner that they contribute more

efficiently to the creation of rural assets, both private and community. It is therefore proposed that the various poverty alleviation schemes be rationalised into three main initiatives:

- Self-employment through the Swarna-jayanti Gram Swarozgar Yojana (SGSY), which would adopt a process oriented approach involving micro-finance and micro-credit flows through social mobilisation and group formation. This scheme should also contribute significantly to the objective of gender equity since the participation of women in self-help groups has been most encouraging.
- Wage employment through the Sampurna Grameen Rozgar Yojana (SGRY), which will focus on the creation of rural infrastructure and on calamity relief.
- Guaranteed employment in the most distressed districts of the country through the Jai Prakash Rozgar Guarantee Yojana (JPRGY).

1.1.17 It should be noted, however, that the success of these schemes, particularly the latter two, depends critically upon the effectiveness of the public works structures that exist at the state level. Unfortunately, most of the State public works departments (PWDs) have deteriorated in recent years, and efforts will have to be made to restore the original mandate for which they were established.

1.1.18 The industrial sector will have to grow at around 10 per cent to achieve the Tenth Plan target of 8 per cent growth for GDP. This represents a major acceleration from its past performance. The Tenth Plan must therefore focus on creating an industrial policy environment in which private sector companies, including erstwhile public sector companies, can become efficient and competitive. An important policy issue relates to the need to extend industrial liberalization, which has been extensively implemented at the Central level, to the state level also. Industry circles frequently complain that the administration of regulation at the state level is extremely cumbersome and subjects entre-

preneurs to frequent harassment. The transactions cost imposed by this system, including costs on account of corruption spawned by excessive regulation, are very large. What is more, they are especially burdensome for small-scale units. Radical changes are needed in these areas.

1.1.19 Small scale industry has a vital role to play in the process of industrialization and in achieving a broader regional spread of industry by providing a vehicle for entrepreneurship to flourish and a valuable entry point for new entrepreneurs. Since SSIs are generally more employment intensive per unit of capital than large scale industry they are also a source of much-needed employment. Khadi and village industries in particular have an important role to play, especially in promoting non-farm employment in rural areas. The policy of reservation of certain products for SSI also needs to be reconsidered. While doing so, however, the effect on employment should be carefully considered, since the present employment situation is not comfortable. There is also a need for preferential opportunity to extend investment limits for SSI units with immediate effect, while restricting entry of new large units until later.

1.1.20 There must also be recognition that the relationship between the large and the small units is not always adversarial, and that quite often there is a strong complementarity between the two. There are, however, a number of policy distortions which obscures or even prevents the operation of such complementarities. The extent of ancillarisation in India, although increasing in recent years, is well below the potential. Policies which impede this relationship must be identified and removed. Equally important is the need to ensure that adequate credit is made available to SSI units

1.1.21 An important source of growth and employment is the construction industry, particularly in housing which is also important for improving the quality of life. The potential of this sector has been repressed by a number of policy restrictions, which need to be addressed. The principal measures that need to be taken are:

- Urban Land Ceiling Act to be repealed in all states

- Repeal of Rent Control Act for all new tenants and adoption of Model Rent Control Act for existing tenants
- Revision of outdated municipal laws and regulations restricting land use
- Rationalisation of property tax and stamp duty rates
- Simplify and modernise the system of land/property registration

1.1.22 In so far as the services sector is concerned, the two largest – trade and transport – are at present driven primarily by developments in the production sectors of agriculture and industry, and will no doubt keep pace with them. However, considerable additional dynamism to a number of services sectors can be imparted through the proper development of tourism in the country. At present, although the total tourism activity is quite large, it is nowhere near its potential, especially with regard to international tourism. Development of this sector requires an integrated, inter-sectoral approach, which is unfortunately missing today. It is, therefore, not only necessary to remove the existing barriers to private investment in this sector, but also to take a private-public partnership approach to developing world class tourist circuits.

1.1.23 The other services sector which is performing strongly at present is Information, Communication and Entertainment (ICE), which is expected to continue to do well in the future in view of our inherent strengths. However, care has to be taken to ensure not only that the infrastructural needs of this sector are met, but also that its human resource development and skill requirements are satisfied by the training and educational system. The other imperative is to see that the access to and benefits of this sector, which is presently mainly in urban areas, is spread to the rural areas as well.

1.1.24 Most of the other services sectors are addressed in the section on Social Development, but it should be mentioned that these sectors are expected to provide a significant proportion of growth and employment in the coming years, and their investment and infrastructural requirements will have to be consciously addressed.

1.1.25 The energy-transport infrastructure will be a major constraint on any effort to achieve a significant acceleration on the growth of GDP in the Tenth Plan period. Since these are non-tradable services, the necessary expansion in supply must come from increased domestic production. Furthermore, in a globally competitive environment, the quality of these services in terms of both price and reliability are as important as availability, and it is well known that we face serious problems on both counts.

1.1.26 In order to improve matters, the government invited private investors in power generation in the hope that private investment would fill the gap. However, it soon became evident that significant volumes of private investment cannot be attracted in an environment where the independent power producer is expected to sell power to a public sector distributor which may not be in a position to pay for the power purchased. The result has been that the inflow of private investment has been much below the targeted level. Since the financial problems of the State Electricity Boards have worsened over the Ninth Plan period, even this volume cannot be expected to continue unless State Governments undertake serious reforms in the power sector, including, especially distribution, to make the sector financially viable. Fortunately, consensus is beginning to emerge on what needs to be done in this area and a handful of States have started the process of reform. The Centre will have to assist this process through legislative changes and financial support to the investment requirements. In particular, the Electricity Bill, 2001 and the Coal Mines (Nationalisation) Amendment Bill, 2000 need to be enacted expeditiously.

1.1.27 The optimum mix of power generation in terms of primary energy sources is an important issue for long term planning of the power sector. Over the years, the balance between thermal and hydro-electricity has shifted steadily against hydro-electricity which now accounts for only 24 per cent of total power generation whereas an ideal level would be much higher. Special efforts need to be made to restore the balance. Hydro-electricity not only avoids carbon emissions, it is also particularly

well suited to dealing with situations where there are large peaking deficits. India has large untapped hydro resources and although there are environmental constraints in tapping these resources, a concerted effort at exploiting this potential—while at the same time protecting against environmental damage and ensuring fair resettlement compensation—is definitely needed.

1.1.28 Atomic energy is another important source of electric power which has environmental advantages and is also likely to be economical in the longer run. At present, nuclear energy accounts for only 2.4 per cent of total electricity generation. This is far too low. It is desirable to plan for a significant expansion in nuclear power generation capacity. An expanded programme would also make it possible to reduce costs of construction.

1.1.29 Considering India's continental size, geography and resource endowment, it is natural that Railways should have a lead role in the transport sector - not to mention other considerations such as greater energy efficiency, eco-friendliness and relative safety. However, Indian Railways has experienced a continuous decline in its position relative to the road transport system. Some reduction in share in favour of road transport was to be expected and is in line with trends elsewhere, but there is reason to believe that in India this has been excessive. This has happened primarily because of policy distortions, which need to be corrected urgently.

1.1.30 The most important policy distortion is the skewed tariff policy which overcharges freight movement in order to subsidise ordinary passenger traffic. The heavy cross subsidization of passenger fares cannot fully be justified on either economic or social grounds since the beneficiaries of the subsidy are not necessarily the poor. This is accompanied by an investment strategy which has placed excessive emphasis on opening new lines for passenger traffic and not enough emphasis on expanding capacity in areas where there is potential commercial traffic. The net result has been an alarming deterioration in the financial condition of the Railways and an inability to undertake the

investment needed to improve Railway transport services. The major initiatives in this sector are:

- Setting up of a Rail Tariff Regulatory Authority
- Increase capacity of high density corridors before expanding the network
- Focus on the core activity of providing transport services and hived off all peripheral activities

1.1.31 The Indian road network is not up to the requirement of rapid growth in an internationally competitive environment in which Indian industry must compete actively with other developing countries. Improvement in the national highway network is therefore given high priority in the Tenth Plan. Completion of the ongoing work on the Golden Quadrilateral and the related North-South and East-West corridor projects have top priority, but it is necessary to plan and take preliminary action for expressways to be built in future on those sections where they can be commercially justified.

1.1.32 There are a number of areas of concern which affect the efficiency of road transport operations. These include the need for reform of state road transport corporations to make them more efficient, rationalisation of road transport taxation structure which will support cost-effective road transport systems, restraining of overloading of trucks, control of encroachments and unplanned ribbon development, and promoting road safety. Particular emphasis needs to be given to removing all unnecessary policy and procedural hindrances to greater private participation in road transport operations, especially in rural areas, without compromising on road safety considerations.

1.1.33 The civil aviation sector also needs to be given careful consideration. As the economy moves towards higher value-added products, particularly in agriculture, an increasing proportion of the produce will have to move by air, both within the country and abroad. In addition, the more remote and inaccessible regions of the country, such as the North-east, can realise their true potential when such a transition becomes possible. The aviation

policy and planning must, therefore, be reassessed in order to make it consistent with the emerging needs of the economy.

1.1.34 Telecommunications is a critical part of infrastructure and one that is becoming increasingly important, given the trend of globalisation and the shift to a knowledge-based economy. Telecommunications policy in the Tenth Plan must, therefore, provide the IT and related sectors with world class telecommunications at reasonable rates. With its technological and cost advantages, Internet telephony should be opened up. Tariff rebalancing with the objective of cost based pricing, transparency and better targeting of subsidies should be the guiding principles for tariffs. Convergence of data, voice and image transmission and use of wide bandwidth and high speed Internet connectivity have added new dimensions which need to be taken into account in the policy regime. Such convergence of services and single licence regime is needed to optimise the utilization of resources with least cost of provision and to encourage competition across the country in services and among the service providers.

Social Development and Quality of Life

1.1.35 Most of the monitorable targets of the Tenth Plan relate to significant improvements in social indicators, particularly in the areas of education, health and family welfare. These are not only important in themselves, but they also have an important bearing on the achievement of the growth and employment targets. These sectors are highly employment intensive and are also perceived to be particularly suitable for providing employment to women. In most of these areas, public investment will continue to be critical for some time to come, but efforts have to be made to improve the quality of the services.

1.1.36 There has been less than adequate decentralisation of the functions of Government, to the detriment of the delivery of a number of key services. The spirit of the 73rd and 74th Constitutional Amendments has not been observed in many of the states. It is believed that little improvement will

be possible until such decentralisation becomes effective, both in terms of functions and resources. But decentralisation cannot stop at the level of Panchayati Raj Institutions (PRIs) and urban local bodies (ULBs). The potential of civil society organisations, such as health and education committees to name only a few, to improve delivery of services is vast, and advantage must be taken of these possibilities through appropriate devolution of functions and authority.

1.1.37 Performance in the field of education is one of the most disappointing aspects of India's developmental strategy. Out of approximately 200 million children in the age group of 6-14 years, only 120 million are in schools and net attendance in the primary level is only 66 per cent of enrolment. This is completely unacceptable and the Tenth Plan aims at a radical transformation in this situation. Education for all is one of the primary objectives of the Tenth Plan. The principal vehicle for this is the Sarva Siksha Abhiyan, which is being launched in cooperation with State Governments, and which aims at providing universal elementary education by the end of the Plan.

1.1.38 It is also important to ensure that provision is made for the eventual out-turn from the elementary stream so that the transition from the school to the work place can be made with the least disruption. For this, it is necessary to expand the secondary stream with particular emphasis on vocational training. Since most of the public resources during the Tenth Plan period will be devoted to elementary education, encouragement must be given to private sector, charitable trusts and religious bodies to step into this area. Plans must, however, be made for expanding the secondary stream in public schools for the Eleventh Plan period.

1.1.39 Mere establishment of schools and hiring of teachers will not lead to an improvement in education if teachers remain absent as happens in many parts of the country, especially in rural areas. It is therefore essential that control over schools and teachers should be transferred to local bodies which have a direct interest in teacher performance.

Planning, supervision and management of education would have to be through local bodies at district, block and village levels. Efforts should also be made for social mobilization of local communities for adult literacy campaigns and for promotion of primary education.

1.1.40 The university and higher education sector also needs attention. Although the number of universities has expanded, and many of the universities continue to maintain high standards of education, it is a matter of serious concern that the expansion in quantity has been accompanied by a fall in quality. Modernization of syllabi, examination reforms and greater attention to issues of governance of universities and colleges, all require urgent attention. Part of the problem facing universities is the inadequate provision of budgetary resources from the Government. Since budget resources are limited, and such resources as are available need to be allocated to expanding primary education, it is important to recognize that the universities must make greater efforts to supplement resources from the Government. Nevertheless, external funding can be accessed for quality improvement in the Indian Institute of Technology (IITs), other engineering colleges and Polytechnics.

1.1.41 Improvement in the health status of the population has been one of the major thrust areas in social development programmes of the country. This was to be achieved through improving the access to and utilization of Health, Family Welfare and Nutrition Services with special focus on under-served and under-privileged segments of population. Technological improvements and increased access to health care have resulted in steep fall in mortality, but the disease burden due to communicable diseases, non-communicable diseases, environmental pollution and nutritional problems continue to be high. In spite of the fact that norms for creation of infrastructure and manpower are similar throughout the country, there remain substantial variations between States and districts within a State in the availability and utilization of health care services and health indices of the population.

1.1.42 There will be a continued commitment to provide essential primary health care, emergency

life saving services, services under the national disease control programmes and the National Family Welfare Programme free of cost to individuals based on their needs and not on their ability to pay. At the same time, suitable strategies will have to be evolved, tested and implemented for levying and collecting charges and utilizing the funds obtained for health care services from people above poverty line.

1.1.43 The major innovations during the Tenth Plan period in the field of health care will be:

- Exploring alternative systems of health care financing
- District-based differential strategy for health care provision
- Mainstreaming Indian Systems of Medicine & Homeopathy (ISM&H) practitioners in the system

1.1.44 One of the major factors responsible for poor performance in hospitals is the absence of personnel of all categories who are posted there. It is essential that there is appropriate delegation of powers to Panchayati Raj Institutions (PRIs) so that there is local accountability of the public health care providers, and problems relating to poor performance can be sorted out locally.

1.1.45 A relatively neglected issue involving the quality of life is the state of the urban areas in the country. Although some attention has been paid in the past to mega-cities and to small towns, the larger towns and smaller cities have been bypassed. During the Tenth Plan, specific measures are proposed to address some of these problems:

- Urban Reforms Incentive Fund
- City Challenge Fund to meet infrastructure requirements
- Pooled Finance Development Facility for smaller local bodies to access market resources
- Rejuvenation of culturally significant cities

1.1.46 While planning for the social development of the country as a whole, cognizance needs to be

taken of the fact that there are segments of our population which may not be able to take full advantage of the facilities or who may have special needs. Women and children and disadvantaged sections have requirements which have to be addressed specifically.

1.1.47 In particular, the intra-household disadvantages faced by women and children need to be recognised and redressed. It is proposed that during the Tenth Plan, the following measures be taken:

- National Plan of Action to operationalise the Women's Empowerment Policy
- National Policy and Charter for Children
- National Commission for Children to ensure protection of their rights
- National Nutrition Mission
- Pilot project for providing food-grains to under-nourished pregnant and lactating mothers and to adolescent girls

1.1.48 For socially disadvantaged groups, including tribals, who have their own special needs, the following action is proposed during the Tenth Plan:

- Institute a National Charter for Social Justice
- Eradicate manual scavenging by 2007
- National Policy and Plan of Action for empowering Tribals
- National Plan for protection and development of primitive tribal groups.

1.1.49 In addition to the above, a special component plan is proposed for the disabled and a national programme for demand reduction for substance abusers. Furthermore, appropriate legislation will have to be passed for protection of the aged.

Sustainability of Growth and Development

1.1.50 Agricultural development is not only central to the attainment of the growth objective, it

is also critical for the sustainability of the development process. In recognition of this, the Plan proposes that emphasis should be placed on sustainable development of our natural resources, particularly land and water. Public investment in irrigation has fallen significantly over successive Plan periods. This is largely due to resource constraints faced by governments both at the Centre and the States. However, resources are not the only problem. Potential irrigation projects are located in areas which are either more difficult or environmentally more sensitive, which makes it difficult to implement new irrigation projects. The Tenth Plan aims at a revival of major and medium irrigation capacity and on water management. Greater attention will also be paid to rain water harvesting and increasing the irrigation potential through scientific watershed development and minor irrigation. There is also considerable scope to improve the efficiency of the existing irrigation infrastructure through better and more participative management practices.

1.1.51 Some of the measures which are expected to lead to the desired results are:

- Development of a Perspective Plan for rain-fed and degraded areas
- Rain water harvesting and conservation
- Efficient use of water, including judicious utilisation of ground water potential
- Organic farming
- Thrust on utilisation of wastelands and degraded lands
- Diversification of cropping systems

1.1.52 In so far as governance issues are concerned, the Tenth Plan emphasises people's participation in land and water management. Two major initiatives to foster this are:

- Lok Nayak Jai Prakash Narayan Land and Watershed Mission for holistic development of degraded and wastelands with emphasis on integration of conservation and production systems.

- A new scheme on greening of wastelands through people's participation.

1.1.53 Forests are natural assets and provide a variety of benefits to the economy. Recorded forest area is about 23 per cent of the geographical area of the country but 41 per cent of these are degraded, and hence unable to play an important role in environmental sustainability and in meeting the forest produce needs of the people, industry and other sectors.

1.1.54 The problems and constraints in forestry development include lack of awareness about multiple roles and benefits of forests; no linkage between management and livelihood security of the people; low level of technology; inadequate research and extension, weak planning capability, wastage in harvesting and processing, market imperfections, overemphasis on government involvement and control, low level of people's participation and NGOs involvement, lack of private sector participation, unwanted restrictions on felling,

transport and marketing of forest produce grown by the people, lack of inter-sectoral coordination and weakness and conflicting roles of public forest administration.

1.1.55 The importance of tourism in generating growth and employment impulses has already been mentioned, but care has to be taken to ensure that increased tourist activities do not lead to unnecessary social and environmental problems. Thus, legislation for sustainable development of tourism and a regulatory framework for the protection of the tourism industry, the consumer and the environment will have to be put in place.

1.1.56 The broader issue of sustainability has a number of other dimensions relating to air and water pollution by the different production sectors of the economy. These have been addressed by various laws and regulations, and the need of the hour is to obtain better enforcement through improved governance.

CHAPTER 2.1

SECTORAL OVERVIEW

2.1.1 The process of development in any society should ideally be viewed and assessed in terms of what it does for the average individual. The decade of the 1990s saw a visible shift in the focus of development planning from the mere expansion of the production of goods and services and the consequent growth of per capita income to planning for enhancement of human well-being. It is now realized that Human development is about much more than the rise or fall of national incomes. It is about the quality of life, the level of human well-being and the access to basic social services.

2.1.2 There has been, in recent years, a conceptual broadening of the notions of human well-being and deprivation. The notion of well-being has shifted away from just material attainments, or the means for development, to outcomes that are either desirable in themselves or desirable because they support better opportunities for people. There is today a broad-based consensus to view human development in terms of *three critical dimensions* of well-being. These are related to *longevity* – the ability to live a long and healthy life; *education* – the ability to read, write and acquire knowledge and *command* over resources – the ability to enjoy a decent standard of living and have a socially meaningful life. Similarly, poverty is viewed not only in terms of lack of adequate income but as a state of deprivation that prevents people from effective participation in the development process. Good education, health, nutrition and low fertility help reduce poverty by increasing the opportunities to generate incomes.

2.1.3 In view of the above, there has been a renewed focus on development indicators in the area of education and health attainments – which are critical for capacity building – and other social and environmental consequences that have a direct bearing on the state of well-being. Progress in these

social sectors is both a vital yardstick and a key element in the reduction of poverty.

2.1.4 India has shown substantial improvement in the fields of education and health. Nonetheless, indicators continue to suggest low levels of literacy and school enrolments, high levels of infant mortality, maternal mortality and malnutrition. Despite mounting of food grains with government agencies, food and nutritional security at the household level continues to be a major problem for a substantial section of population. Moreover, within India, the inter-State and intra-State disparities are still large. Rural urban differences are also wide. The poor, rural women, disabled persons and people belonging to scheduled castes (SCs) and scheduled tribes (STs) continue to stand out as the most vulnerable sections of society.

FOOD AND NUTRITIONAL SECURITY

2.1.5 It is well over a decade since the country attained self-sufficiency in food production. Unfortunately, the food security at the national level has not resulted in nutritional security of individuals especially those from the vulnerable groups from the poorer segment of population.

2.1.6 Despite the food grain production going up from 175 million tonnes in the 1980s to 206 million tonnes in the 1990s, the growth rate in the per capita availability of food grains has come down. Further, food consumption of the poor in India has gone down in the last 10 years. While lack of purchasing power is the major factor for continuing food and nutrition insecurity, the contribution of inequitable distribution of food stuffs between different segments of population and within the households remains an important cause of under-nutrition. This is a very serious matter in view of the huge public stock of food grains. There is a strong case for using these stocks for reducing widespread malnutrition

among the vulnerable sections of the society without adversely affecting food security.

2.1.7 Universal screening of the vulnerable segments of the population to identify families/ individuals who are undernourished and providing them with subsidized foodgrains from available foodstocks will reduce prevalence of severe grades of under-nutrition.

2.1.8 Unfortunately, despite hefty increases in the annual food subsidy, all is not well with the Public Distribution System (PDS) with 36 per cent diversion of wheat, 31 per cent diversion of rice and 23 per cent diversion of sugar on an all India basis being reported during the last review held in 2001.

2.1.9 There is need for several legal and policy changes, including a Central legislation to ban controls and restrictions on all kinds of trade in agricultural commodities within the country. Common markets are coming into vogue all over the world. The entire country should be treated as one big market. This will remove market distortions. The Food Corporation of India should be allowed to intervene in the market for food-grains within a predetermined price band with a view to moderate prices as well as to facilitate management of its surplus food stocks.

2.1.10 The Government is taking steps to increase the off-take of food grains from the Central Pool under welfare schemes along with the Public Distribution Schemes. These welfare schemes are mainly Annapurna, Sampoorna Gramin Rozgar Yojana (SGRY), Food For Work programme, Integrated Child Development Services (ICDS), Mid-Day Meal Programme for school children, SC/ ST Hostels scheme, World Food Programme etc. As per the data of the Department of Food and Public Distribution (April, 2002) the off-take of wheat and rice from the Central Pool under the above-mentioned welfare schemes between April, 2001 and March, 2002 was 71846 lakh tonnes.

HEALTH & FAMILY WELFARE AND NUTRITION

2.1.11 For a society, a transition from high incidence of morbidity and mortality to a state where people generally enjoy a long and disease free life

is considered a desirable and valued social change. Improvement in the health and nutritional status of the population has been one of the major thrust areas for the social development programmes of the country. This has been achieved through improving the access to and utilization of health, family welfare and nutrition services with special focus on the under-served and under-privileged segments of the population. Over the past five decades, India has built up a vast health infrastructure and manpower at the primary, secondary and tertiary care levels in the Government, voluntary and private sectors manned by professionals and para-medicals trained in the country. During this period, the country has increased investment in medical education, which has ensured that India has a large manpower from the super-specialists to the auxiliary nurse midwife (ANM). Technological advances and improvement in access to health care technologies, which are relatively inexpensive and easy to implement, has resulted in a steep decline in mortality. As a result there was substantial improvement in the health indices of the population.

2.1.12 For an average Indian the *life expectancy* at birth has nearly doubled in the last five decades from 32.1 years in 1951 to 62.4 years in 1997.

Year	Life Expectancy at birth(years)
1951	32.1
1997	62.4*

*refers to 1996

2.1.13 However, there are significant inter-state, inter-district and rural-urban differences in life expectancy at birth. In Kerala a person at birth is expected to live for over 73 years, Punjab comes second with life expectancy estimated at 67.4 years. On the other hand, the life expectancy at birth in Bihar, Assam, Madhya Pradesh and Uttar Pradesh has been in the range of 55-60 years. The rural urban difference in the life expectancy at birth is less than a year in Kerala whereas in Assam, Bihar, Madhya Pradesh and Orissa, this difference is around 8 to 10 years.

2.1.14 The *Infant Mortality rate* (IMR) is another indicator of health. As per the 1981 census, the IMR was estimated at 115 per 1000 live births (122 for males and 108 for females). The IMR declined

to 70 infants per 1000 live births in 1999 (Sample Registration System). India is in the middle of its demographic transition. For the country as a whole, the crude death rates have been declining since 1921, but the decline in crude birth rates has happened with a considerable lag and is remarkably slow, beginning only after 1941. The gap between fertility and mortality has resulted in the rapid growth of India's population over the last five decades. The country's population as per the latest census is 1.027 billion as on march 1, 2001.

2.1.15 The annual average growth in population has been declining since 1971. It was 2.26 per cent in the period 1971-81, 2.13 per cent in the period 1981-91 and has declined to 1.95 per cent in 1991-2001. Though there is a visible reduction in the population growth rate and it now seems to be on a secular decline, the future pace of deceleration in fertility and mortality is by no means certain. Much of this uncertainty comes from the fact that there are considerable differences in fertility across States. While there are States that have already attained replacement level of fertility or are close to attaining it, five States namely, Bihar, Uttar Pradesh, Madhya Pradesh, Rajasthan and Orissa, accounting for nearly 40 per cent of country's population in 2001, will contribute well over 50 per cent of the population growth in the next decade. The performance of these States will determine the time and the magnitude at which the country's population stabilizes.

FAMILY WELFARE

2.1.16 The current high population growth rate continues to be so due to:

- The large size of the population in the reproductive age-group (estimated contribution 60 per cent);
- Higher fertility due to unmet need for contraception (estimated contribution 20 per cent); and
- High wanted fertility due to prevailing high IMR (estimated contribution about 20 per cent).

2.1.17 While the population growth contributed by the large population in the reproductive age group will continue in the foreseeable future, the remaining 40 per cent of the growth can be substantially reduced by meeting the unmet

needs for contraception (estimated to be 16 per cent) and felt needs for maternal and child health to reduce IMR.

2.1.18 Reduction in fertility, mortality and population growth rate are major objectives of the Tenth Plan. These objectives will be achieved through meeting all the felt needs for health care of women and children. Three of the eleven monitorable targets for the Tenth Plan are demographic indices; reduction in IMR to 45 per 1000 live births by 2007 and 28 per 1000 live births by 2012, reduction in maternal mortality ratio

All felt needs for FW services will be met through :

- ☒ restructuring the existing infrastructure
- ☒ ensuring skill upgradation of the personnel
- ☒ providing good quality integrated reproductive and child health services
- ☒ improving the logistics of supply
- ☒ operationalising the referral system
- ☒ involvement of the PRI in planning, monitoring and midcourse correction of the programme at local level
- ☒ effective Intersectoral coordination between concerned sectors.
- ☒ effective Information, Education, Communication & Motivation

to two per 1000 live births by 2007 and one per 1000 live births by 2012 and reduction in decadal growth rate of the population between 2001-2011 to 16.2. The steep reduction in mortality and fertility envisaged are technically feasible with in the existing infrastructure and manpower as has been demonstrated in several States/districts. All efforts are being made to provide essential supplies, improve efficiency and ensure accountability especially in the states where performance is currently sub-optimal so that there is incremental improvement in the performance. It is imperative that the goals set are achieved within the time-frame as these goals are essential prerequisites for improving the quality of life and human development. In view of the massive differences in the availability and utilisation of health services and in the health indices of the population, a differential strategy is envisaged so that there is incremental improvement in all districts. This, in turn, are expected to result in substantial improvement in state and national indices and enable the country to achieve the goals set for the Tenth Plan.

NUTRITION

2.1.19 Over half the children under the age of five years in India are moderately or severely malnourished, 30 per cent of new born children are significantly underweight and nearly 60 per cent of pregnant women are anemic. This situation prevails despite the country having attained self-sufficiency in food production for well over a decade. The prevalence of under nutrition - a condition resulting from inadequate intake of food or essential nutrients resulting in deterioration of physical growth and health – is widespread. Protein/energy malnutrition is the most common form of malnutrition among children in the age group of 0-4 years. Iron deficiency anemia is quite common in children as well as women particularly pregnant women. *Under-nutrition in pregnant women and low birth weight rate has not shown any decline.* A critical consequence of the widespread incidence of malnourishment is the impact it has on cognitive development and learning achievements, reducing the capacity to work and productivity among adults and enhancing mortality and morbidity among children. However, nutritional deficiency diseases viz., Kwashiorkor, marasmus, pellagra, lathyrism, beriberi and blindness due to severe Vitamin-A deficiency, have become rare.

2.1.20 In the Tenth Plan there will be focus on nutrition education. Research efforts will be directed towards defining the nutritional requirements for Indians. Due to major alterations in life styles and dietary intake, there is a consequent increase in the prevalence of obesity and non-communicable diseases. Nutrition monitoring and surveillance will be given high priority so that it will be possible to closely monitor the impact of on-going demographic, developmental, economic transition and ecological and life style changes on nutritional and health status of the population. Based on the data, it will be possible to identify beneficial and adverse trends and initiate appropriate interventions to fully exploit the beneficial circumstances and effectively tackle emerging problems.

CONCLUSION

2.1.21 With the 1990s, the country has entered an era of dual disease burden. On the one hand, there are communicable diseases which have become

more difficult to combat due to insecticide resistance among vectors, resistance to antibiotics in many bacteria and the emergence of new diseases such as HIV. On the other hand, increasing longevity and changing life style have resulted the in increasing prevalence of non-communicable diseases.

2.1.22 Thus India's post-independence achievement in longevity and health is a story of mixed success. With all the resources, trained manpower and even a reasonable health infrastructure at its command, a large part of the country continues to suffer from disease burden, morbidity as well as high mortality. The pace of improvement in health services does not compare favorably with most developing countries in East Asia and Latin America where life expectancy is approaching levels of the developed world. *India's approach to Health Sector development has not been sufficiently integrated with the over all process of development.* This is reflected, in the absence of an adequate policy framework that conceives and exploits inter and intra-sectoral synergies between development processes directed at improving the availability of drinking water, sanitation, public hygiene, access to elementary education, nutrition and poverty alleviation, on the one hand, with awareness and access to public health and medical services on the other. In States where inter-sectoral linkages that influence health attainments of people, have existed for historical reasons, or have been consciously forged as a part of planned effort, the results relating to health attainments have been impressive.

2.1.23 *The major focus in the Tenth Plan will be to improve the efficiency of the existing health care system, quality of care, logistics of supplies of drugs and diagnostics and promotion of the rational use of drugs. The focus will also be on evolving, implementing and evaluating systems of health care financing so that essential health care based on need is available to all at affordable cost.*

ACCESS TO SAFE DRINKING WATER AND SANITATION

2.1.24 Millions of people in the country suffer from water borne diseases on account of lack of access to safe drinking water. As per the Census of India, if a household has access to drinking water supplied from a tap, hand-pump/tube well within or outside

the premises, it is considered having access to safe drinking water. The 1991 Census reported that 62 per cent of households in India have access to safe drinking water. This is a considerable improvement over the corresponding level of 38 per cent in 1981. The accessibility to safe drinking water was quite low in Kerala and in parts of the North East. (Much of Kerala's drinking water requirements are met from wells). Despite good monsoons for the last 12 years and high priority on the part of the Government on the programme of augmenting the supply of drinking water by way of funds and attention, the problem of potable drinking water has remained unresolved and is in fact, becoming more serious every year. Independent studies and reports show scarcity of drinking water in about half of the villages in India. What is even more distressing is the fact that this gap has been increasing over the years despite heavy investment.

2.1.25 As per the 1991 Census, less than one-fourth of households in the country had a toilet facility within the premises of the residence. The proportion was less than 10 per cent for rural households and around 64 per cent among the urban households. Apart from the availability of safe drinking water, the lack of sanitation particularly sewage and disposals of solid waste has been observed as the main reason for prevailing ill health and morbidity levels in the country. There are inter-State variations as well. At one end is Kerala with 51 per cent of the households having access to toilet facilities, at the other end is Orissa with less than 10 per cent of households with similar access.

EDUCATION

2.1.26 The 1990s could be called the watershed decade as far as basic education is concerned. Provisional results of the 2001 Census show the highest jump of 13.17 per cent in the literacy rate since 1951, with the average literacy rate going up from 52.21 per cent in 1991 to 65.38 per cent in 2001. (The male literacy rate is 75.85 per cent and female literacy rate is 54.16 per cent.)

Year	Literacy rate (per cent)
1951	16.67
2001	65.38

2.1.27 However, India's educational development is a mixed bag of remarkable successes and glaring gaps. Out of 200 million children in the age group of 6-14 years, 42 million children do not attend schools. There are problems relating to high drop out rates, low-levels of learning achievement and low participation of girls. Coupled with this are various systemic issues like inadequate school infrastructure, high teacher absenteeism, large-scale teacher vacancies, inadequate equipment like teaching-learning material etc. The policy focus and public intervention in provisioning of educational services has not been given the attention it deserves. Even after 50 years of planned effort in this sector nearly one-third of population or close to 300 million persons in the age group 7 years and above are illiterate. The literacy rates for the SC and ST population is much lower than the rest of the population. As against the overall literacy rate of 52.2 per cent in 1991, the literacy rate for SCs and STs was only 37.4 per cent and 29.6 per cent respectively. There is also rural urban variation in the literacy rates. (59 per cent in rural areas as compared to 80 per cent in urban areas as per 2001 census). In addition, inter-State variation in literacy rates also persist.

2.1.28 The Govt. of India is committed to universalizing elementary education. As per the Sixth All India Educational Survey, 1993, 94 per cent of the total rural population was served by primary schools. Concerted efforts towards Universalisation of Elementary Education (UEE) have resulted in the manifold increase in institutions, teachers and students. During the period 1950-51 to 1999-2000, the number of primary schools increased by more than three times from 2,10,000 in 1950-51 to 6,42,000 in 1999-2000 whereas the number of upper primary schools increased 15 times from 13,600 in 1950-51 to 1,98,000 in 1999-2000.

2.1.29 Various incentive schemes like provision of mid-day meals, free uniforms, textbooks, scholarships etc. are being implemented by Central and State Governments to increase enrolment/retention and reduce dropouts. The main scheme, viz., the Centrally-sponsored programme of Nutritional Support to Primary Education, commonly known as the Mid-day Meal Scheme was launched in 1995 for increasing enrolment, retention and attendance and simultaneously improving the nutrition status of the children. The scheme

envisages provision of 100 gms of raw wheat/rice per child per school day throughout the country. At present, only 6 States and Union Territories are providing cooked meals to children. Efforts are being made to extend it to the remaining States and Union Territories. At the school stage, both at elementary and secondary level schemes are being implemented for education of the disabled children.

2.1.30 To fill the gaps in elementary education mentioned above, the Government of India launched the Sarva Siksha Abhiyan (SSA), in the year 2000-2001, a key programme through which goals of elementary education sector are going to be met. It is a significant step towards providing elementary education to all children in the age group of 6-14 years by 2010. The Sarva Siksha Abhiyan is a time bound initiative of the Central Government, in partnership with the States, the local Government and the community for achieving the goal of Universalisation of Elementary Education (UEE). The Abhiyan seeks to bring about convergence of the existing institutional effort for elementary education at the State and district level. The programme seeks functional decentralization right down to the school level in order to improve community participation. The programme would cover the entire country. The duration of the programme in every district will depend upon the District Elementary Education Plan (DEEP) reflecting the specific needs of each District.

ADULT LITERACY/NATIONAL LITERACY MISSION

2.1.31 The National Literacy Mission (NLM) is engaged in the task in providing functional literacy to the non-literates in the 15-35 age group. The NLM was set up in May 1988. Over 561 districts (fully or partially) took up the literacy programme. More than 10 million volunteers were mobilized and 91.53 million people in the above age group were made literates upto December 2001 since the launching of the NLM. The goal of the NLM is to attain full literacy, i.e. a sustainable threshold level of 75 per cent by 2005. Functional literacy implies imbibing values of national integration, conservation of environment, women's equality, observance of small family norms, etc. The purposeful and effective education under the literacy campaign gives rich dividends in increased

productivity, improvement in health care, family stabilization and general betterment of social and political life of the community. The District Literacy Societies (Zilla Saksharta Samiti) is the nodal agency for adult education. It involves voluntary agencies, professionals from the region, members of the community, Mahila Mandals, Small-Scale Industries and PRIs in the literacy campaigns.

2.1.32 The Constitution of India envisages provision of free and compulsory education for children. The Central Government has introduced the 93rd Constitution Amendment Bill, 2001 for enacting the Fundamental Right to Free and Compulsory Education for children in the age group of 6-14 years. Both Houses of Parliament have passed the Bill. Till this initiative, there was no Central Act on compulsory education, though, fourteen States and four Union Territories had passed laws making elementary education compulsory in their entire State or in certain notified areas. The enactment of a Central legislation would result in adequate provisioning of public resources for improving the accessibility of children to schools, quality up-gradation, and mitigating the costs of school attendance. This would increase school enrolment and retention over successive classes by acting as a deterrent to parents from pre-mature withdrawal of the children from schools and would go a long way in bringing about attitudinal changes among parents towards their children's education.

2.1.33 While school education is an important and a critical factor, we have to go beyond elementary and secondary education. In view of the growing problem of unemployment, vocationalisation of curriculum is necessary to ensure that a disjunction does not take place between the educational system and the workplace. Vocational Education and skill development will be given importance at all levels of education, especially at the secondary school stage. The Tenth Plan will focus on detailed vocational surveys, proper identification of marketable trades, strengthening vocational institutes of various Ministries and Departments and better institute-industry linkages. Steps will be taken for better networking and pooling in resources among Industrial Training Institute (I.T.Is), Polytechnics and Apprenticeship Schools, Boards of Technical Education and Engineering Colleges.

2.1.34 The University and Higher Education Sector also needs attention. Although the number of universities has expanded and many of the universities continue to maintain high standards of education, it is a matter of serious concern that there has been a fall in academic standards. The academic results have not risen consistently in relation to increase in numbers of universities/colleges. Modernization of syllabi, examination reforms and greater attention to issues of governance of universities and colleges all require urgent attention.

2.1.35 The modern economy, which is the knowledge-economy, requires highly educated people. We need high quality scientists, engineers and managers. For running a knowledge society and a technology intensive economy, we need renewed efforts to build institutions of higher education of the highest quality, upgrade and modernize our Indian Institutes of Technology (IITs) and Indian Institutes of Management (IIMs) and other professional colleges. There is a need to step up our capabilities and capacities in new technology areas like biotechnology, nano-technology, bio-informatics, etc. This is likely to lead trained manpower demand for more than 3 million knowledge workers by 2010. Higher education, general and technical education must have links with all industrial and societal endeavours. Towards this end, a large number of centers of excellence to turn out quality manpower in areas relevant to industry and society need to be established with a triangular partnership of academia, industry and government. Education through technology-based learning making full use of developments in Information & Communication Technologies (ICT) such as video-conferencing, web-based learning will accelerate the pace of learning.

EMPOWERMENT OF WOMEN, CHILDREN AND SOCIALLY DISADVANTAGED GROUPS

2.1.36 Societies and cultures and nations have often been evaluated on the basis of how they have been treating their women, children, disabled persons and the deprived in the course of their development. In multi-cultural and multi-religious, linguistically and ethnically pluralistic societies an additional consideration has been the well-being of the minorities and the excluded. The Government is committed to

empowerment of women; development of children; empowerment of socially disadvantaged groups which include the SCs and STs, Other Backward Classes (OBCs) and the Minorities; and empowerment of persons with disabilities.

2.1.37 In pursuance of the avowed objective of empowering the *women* as agents of socio-economic change, the National Policy on Empowerment of Women was adopted in April, 2001. On this basis, the National Plan of Action, is being implemented which includes the following strategies, (a) create an enabling environment for women to exercise their rights both within and outside their homes; (b) to reserve one-third of seats for women in the Lok Sabha and State Legislative Assemblies (c) to adopt a special strategy for the Women Component Plan to ensure that at least 30% of funds and benefits flow to women from all development sectors (d) to organize women into self-help groups as a mark of the beginning of empowering them (e) to accord high priority and ensure easy access to maternal and child health services (f) to initiate steps for eliminating gender bias in all educational programmes; and to institute plans for free education of girls upto college levels including professional levels (g) to equip women with necessary skills in modern upcoming trades which would make them economically independent and self-reliant (h) to increase women's access to credit through setting up of Development Bank for women entrepreneurs in the small and tiny sectors.

2.1.38 The Government is committed to the development of *children* by placing the young child at the top of the country's development agenda. Time and again, it has reaffirmed its priority for development of early childhood services as an investment in country's human resource development. To achieve the above objective, the following strategies have been adopted: (a) a National Charter for Children ensuring that no child remains illiterate, hungry or lacks medical care will be instituted (b) to universalize ICDS as the mainstay of development strategy (c) to bring down the Infant Mortality Rate to less than 60 per 1000 and the child mortality rate to below 10 per 1000 (d) to universalize supplementary feeding programme (e) to view girl's education as a major

intervention for breaking the vicious inter-generational cycle of gender and socio-economic disadvantages and (f) to strengthen and expand the schemes for adolescent girls.

2.1.39 The *socially disadvantaged groups* are being empowered by adopting a three-pronged strategy for social empowerment, economic empowerment and grant of social justice. Education being the most important and effective instrument for socio-economic empowerment, high priority is being accorded to improve the educational status of SCs and STs. The gap between literacy rates of SC/STs and that of the general population, unfortunately continues to persist. The female literacy rate of these communities continues to be very low. Various incentives are being provided to students belonging to SCs/STs, OBCs and Minorities for increasing their participation in education. These include construction of hostels for SC/ST boys and girls, Ashram schools for STs, Coaching/tuition facilities, book banks, merit scholarships (pre-matric and post-matric), modernization of madarasas / maktaps and the implementation of the area-intensive programme of the Ministry of Human Resources Development for education of minorities in 41 minority concentrated districts. Special thrust has been given for employment and income generation programmes to make the socially disadvantaged groups economically independent and self-reliant. These include promoting entre-preneurship and technical support, grant of loans and credit facilities. To eliminate exploitation/ suppression and provide protection, various legislative measures have been introduced like the Protection of Civil Rights Act, 1955 and the Prevention of Atrocities Act, 1989. So far 19 States have appointed special Cells/ Squads to ensure effective implementation of these Laws. The three special strategies of Special Component Plan (SCP) for SCs: Tribal Sub-Plan, (TSP) for STs and the Special Central Assistance (SCA) to SCP and TSP have been receiving attention right from their initiation in the Seventies; they are the most effective mechanism to ensure flow of funds and benefits for SCs and STs from the development sector/programmes.

2.1.40 In the context of tribal communities, certain issues have remained largely unattended: (i) land alienation and non-restoration (ii) indebtedness (iii) tribal forest rights (iv) involuntary displacement due to development projects and lack of proper rehabilitation (v) survival protection and development of primitive tribal groups. There is a proposal to formulate a comprehensive National Policy for Empowering Tribals, which will lay down responsibilities and accountabilities of the different wings of the Government.

2.1.41 Keeping in view the special issues/problems being faced by the disabled in the Tenth Plan, the focus will be on effective implementation of the Persons with Disabilities Act, 1995 to ensure social justice to disabled with equitable terms. Strengthening and consolidation of the reach-out and extension programmes through the National Programme for Rehabilitation of Persons with Disabilities (NPRPD) will also be given attention.

CONCLUSION

2.1.42 In addition to the attainments in the above-mentioned social sectors, a critical factor that ensures human well-being and sustained development, is good governance. There is a general acceptance that human deprivation and inequalities are not merely due to social and economic reasons but are on account of political factors rooted in poor governance. There are States in the country that have seized governance initiatives in the recent past to register important gains in human development, while others have squandered opportunities despite their natural advantage and favourable initial conditions. Poor governance which is manifested in (a) poor management of economies/persisting fiscal imbalances/disparities in the pace and level of development across regions and districts; (b) threat to life and personal security in face of inadequate State control on law and order; (c) lack of sensitivity, transparency, accountability in State machinery; and (d) lack of credibility etc. has contributed to gaps between inherent potentialities of people and actual realization.

CHAPTER 2.2

ELEMENTARY EDUCATION

2.2.1 Education is a critical input in human resource development and is essential for the country's economic growth. Though the major indicators of socio-economic development viz., the growth rate of the economy, birth rate, death rate, infant mortality rate (IMR) and literacy rate, are all interconnected, the literacy rate has been the major determinant of the rise or fall in the other indicators. There is enough evidence even in India to show that a high literacy rate, especially in the case of women, correlates with low birth rate, low IMR and increase in the rate of life expectancy. The recognition of this fact has created awareness on the need to focus upon literacy and elementary education programmes, not simply as a matter of social justice but more to foster economic growth, social well-being and social stability

REVIEW OF PAST PERFORMANCE

2.2.2 Article 45 of the Constitution stipulates that the 'State shall endeavour to provide, within a period of 10 years from the commencement of the Constitution, for free and compulsory education for all children until they complete the age of 14 years.' However, the task of providing basic education for all, with concrete plans of action, gained greater momentum only after the National Policy of Education (NPE), 1986 (revised in 1992). With the World Declaration on Education for All (EFA) adopted in Jomtein in 1990, basic education in all its facets (Early Child Care Education (ECCE), elementary education, education for adolescents, adult education, gender equality and quality improvement) has been the focus of international attention. These international developments, together with several positive developments within the country, brought the need for recognising basic education as a fundamental right of every citizen to the centre stage. With the launching of the National Policy on Education in 1986, the Government

initiated a move to start a number of missions. The National Literacy Mission, started in 1988, was one such mission. It had the following aims:

- Increase motivation, which is the central issue in literacy;
- secure participation by creating a positive environment and through mass mobilisation;
- increase the involvement of voluntary agencies and enhance the quality of existing programmes with improved techno-pedagogic inputs;
- launch a mass movement for expanding the Mass Functional Literacy Programme (MFLP), hitherto confined to university, college and secondary/higher secondary schools, to include different sections of society;
- ensure the availability of quality learning materials, aligned to mission goals;
- universalise the outreach of literacy learning facilities to all parts of the country by 1990; and
- establish a Mission Management System for monitoring and for corrective action.

2.2.3 The central government, in partnership with state governments, has initiated a number of programmes to fulfill the Constitutional obligation and national aspirations.

Growth of Literacy

2.2.4 Over the decades, literacy rates have shown substantial improvement. The total literacy rate, which was only 16.67 per cent in 1951 rose to 52.21 per cent in 1991. The provisional results of

the 2001 Census indicate that the literacy rate has gone up to 65.37 per cent - 75.85 per cent for males and 54.16 per cent for females. For the first time, the number of illiterates has, in absolute terms, decreased by 31.9 million. The number of literates, on the other hand, has increased by 203.6 million between 1991 and 2001. During the period, the female literacy rate increased by 14.87 per cent as against 11.72 per cent in the case of males, thus reducing the male-female literacy gap to 21.7 per cent from 24.84 per cent in 1991. All states have, without exception, registered an increase in literacy rates of both males and females during the last decade. Table 2.2.1 gives the literacy rates over the decades:

Table 2.2.1
Literacy Rates 1951 – 2001

	Male	Female	Total
1951	24.95	7.93	16.67
1961	34.44	12.95	24.02
1971	39.45	18.69	29.45
1981	56.50	29.85	43.67
1991	64.13	39.29	52.21
2001(provisional)	75.85	54.16	65.37

Enrolment Trends

2.2.5 Enrolment at the primary level (grades I to V) increased from 19.16 million in 1950-51 to 113.61 million in 1999-2000. In comparison, the growth in enrolment at the upper primary level (grades VI to VIII) has been much more impressive, although it is still not adequate to attain the Constitutional goal of universal enrolment of children up to the age of 14. From 3.12 million in 1950-51, enrolment at the upper primary level increased to 42.06 million in 1999-2000, indicating a 13.5 times increase as against six times at the primary level. The percentage share of girls in total enrolment, both at the primary and upper primary levels, has increased consistently between 1950-51 (28.1 per cent) and 1999-2000 (43.6 per cent). However, girls' share in total enrolment at the upper primary level (40.4 per cent) continues to be lower than their share at the primary level in 1999-2000.

Enrolment Ratios

2.2.6 The Gross Enrolment Ratio (GER) at the primary and upper primary levels improved significantly between 1950-51 and 1999-2000, from 42.6 to 94.9 in the case of primary levels and from 12.7 to 58.79 for upper primary levels. The gap between boys and girls in GER at the primary and upper primary levels has declined significantly from 28.5 and 29.6 percentage points respectively in 1990-91 to 19 and 18 in 1999-2000.

2.2.7 The Net Enrolment Ratios (NER), obtained by subtracting the number of underage and overage children enrolled in grades I-V and VI-VIII, were significantly lower than GER in the case of both boys and girls. The NER for boys and girls was 78 per cent and 64 per cent respectively at the primary level in 1997-98. The overall NER at the primary level was 71 per cent, which suggests that at least 29 per cent of children in the 6-10 age group continued to remain out of school in 1997-98. Educationally backward states, and, within them, backward districts, have lower NER than the all-India average.

Educational facilities

2.2.8 The availability of schooling facilities is measured by a set of indicators concerning access. Existing norms stipulate that a habitation (cluster of households) is entitled to have a primary school, if it has a population of 300 and more and has no school within a distance of one km. Upper primary schools are to be located at a distance of three km from habitations with a population of 500 and more. These norms are often relaxed in case of hilly and tribal areas, difficult terrains and border districts.

2.2.9 During the period 1950-51 to 1999-2000, the number of primary schools has increased by more than three times from 2,10,000 in 1950-51 to 6,42,000 in 1999-2000 whereas the number of upper primary schools increased by about 15 times from 13,600 in 1950-51 to 1,98,000 in 1999-2000. The ratio of upper primary school to primary schools came down from 1:15 in 1950-51 to 1:3.2 in 1999-2000.

2.2.10 The total number of teachers increased from 6,24,000 in 1950-51 to 3.2 million in 1999-2000, an increase of more than five times. The number of female teachers increased from 95,000 in 1950-51 to 11,52,000 in 1999-2000, an increase of more than 12 times. The percentage of female teachers to total teachers, which was 15.2 per cent at the primary level and 15.1 per cent at upper primary level in 1950-51 has increased to 35.6 and 36.1 per cent respectively in 1999-2000. However, the teacher-pupil ratio (TPR) has worsened over the years. During 1950-51, the TPR in primary schools was 1:24, and 1:20 in middle schools. In 1999-2000, this ratio has increased to 1:43 in primary schools and 1:38 in upper primary schools.

2.2.11 Despite an increase in the number of habitations and population, the coverage of both primary and upper primary schools, in line with the norms, has increased significantly. Of the one million rural habitations in the country, 5,28,000 had a primary school within the habitation itself in 1993-94. About 83.4 per cent habitations had a primary school/section within a one km distance. Presently, about 1,00,000 habitations remain unserved as per prescribed norms. The alternative and innovative programme envisages opening of non-formal education (NFE) centres in habitations where opening of a full-fledged school is not economically feasible or academically viable. Over a period of time, infrastructure and other facilities in schools have also improved significantly although a large number of primary and upper primary schools continue to suffer from deficiencies, making it difficult for them to function smoothly and preventing them from providing optimal conditions for teaching and learning.

REVIEW OF NINTH PLAN

2.2.12 The Ninth Plan regarded education as the most crucial investment in human development. The Prime Minister's Special Action Plan gave emphasis to the total eradication of illiteracy, equal access to and opportunity of education up to the school-leaving stage, improvement in the quality of education at all levels, and the need for expansion and improvement of infrastructural facilities. The

thrust areas in the Ninth Plan included UEE, full adult literacy, raising the quality of education at all levels and improving learner achievement. The Plan also emphasised improvement of the educational status of disadvantaged groups, including scheduled castes (SC) and scheduled tribes (ST), girls and disabled children and the removal of regional disparities. In addition, it stressed the vocationalisation of education, revision of the curriculum to meet emerging challenges in information technology and support for development of centres of excellence at the tertiary level.

2.2.13 Elementary education was given the highest priority in sub-sectoral allocations within the education sector, indicating a strong reiteration of the country's resolve to achieve the goal of EFA during the Plan period. The goal was sought to be achieved through several measures, which included:

- Amendment of the Constitution to make elementary education a fundamental right;
- decentralisation of planning, supervision and management of education through local bodies at the district, block and village levels;
- social mobilisation of local communities for adult literacy through campaigns and for promotion of primary education;
- convergence of different schemes for UEE;
- stronger partnership with non-government organisations (NGOs) and voluntary organisations;
- advocacy and media campaign for UEE;
- provision of opportunities for non-formal and alternative education for out-of-school children in the most backward areas and for unreached segments of the population in response to local needs and demands; and
- universal participation and retention rather than universal enrolment. The goal of UEE was enlarged to include provision of education of a satisfactory quality to all children.

Achievements of Ninth Plan

2.2.14 As a result of the various intervention strategies, the progress in terms of access was impressive. According to the Sixth All-India Education Survey (1993), 94 per cent of the rural population living in 8.84 lakh habitations now has a school within a walking distance of one km. and 85 per cent have an upper primary school within a walking distance of three km. The situation has improved significantly thereafter. During the first three years of the Ninth Plan (1997-2000), over 43,000 new schools were opened and 1,30,000 new teachers recruited at the primary level, while more than 21,000 new schools and 1,02,000 teachers added in the upper primary schools. The GER at the primary level increased from 90.6 per cent in 1996-97 to 94.9 per cent in 1999-2000, while it declined from 62.4 per cent to 58.8 per cent at the upper primary level during the same period. The dropout rate at the primary level declined from 42.4 per cent in 1998-99 to 40.3 per cent in 1999-2000, while in the upper primary stage it fell from 56.8 per cent to 54.5 per cent.

2.2.15 Despite the significant improvement in access to elementary education in the Ninth Plan, the achievement is short of target as the Plan had envisaged additional enrolment of 25 million children in the primary stage and 16 million children in the upper primary stage. It had also targeted the construction of 75,000 school buildings/additional classrooms at the elementary stage and the appointment of 2,36,000 teachers at the primary level and 1,75,000 teachers at the upper primary level.

PROGRAMMES/SCHEMES

Operation Blackboard

2.2.16 The Operation Blackboard scheme, started in 1987-88, which aimed at improving the classroom environment by providing infrastructural facilities, additional teachers and teaching-learning material to primary schools and by provision of a third teacher to schools where enrolment exceeded 100, has been extended to upper primary schools. A total of 5,23,000 primary

schools and 1,27,000 upper primary schools have been provided funds for the development of academic infrastructure (teaching-learning material). Besides, 1,50,000 posts of additional teachers for single teacher primary schools, 76,000 posts of additional teachers at the upper primary stage and 83,000 posts of third teachers have been sanctioned so far.

Restructuring and Reorganisation of Teacher Education

2.2.17 The scheme of Restructuring and Reorganisation of Teacher Education, started in 1987, aims to strengthen the institutional base of teacher training by taking up special programmes for training of teachers in specified areas and other non-institutional training programmes. Other objectives of the scheme are: setting up District Institutes of Education and Training (DIETs) to provide academic and resource support to elementary school teachers and non-formal and adult education instructors; and establishment of Colleges of Teacher Education (CTEs) and Institutes of Advanced Studies in Education (IASEs) for pre-service and in-service training for secondary school teachers. The scheme also envisages strengthening State Councils of Educational Research and Training (SCERT); orienting teachers in the use of Operation Black-board material; and implementation of the Minimum Levels of Learning (MLL) strategy.

2.2.18 Under this scheme, 471 DIETs, 86 CTEs, 38 IASEs have been sanctioned so far. More than 1.9 million teachers have been trained under the Special Orientation Programme of School Teachers in the use of Operation Blackboard material and implementation of the MLL strategy. The scheme has recently been revamped with greater thrust on improving the quality of teacher training institutions in partnership with states. The revised scheme provides for more assistance to states; memorandums of understanding (MoU) with states to improve the efficiency of key resource institutes; widening the scope of the Special Orientation Programme for school teachers; and enhancing the capacities of existing personnel for the management of teacher education programmes.

District Primary Education Programme (DPEP)

2.2.19 The District Primary Education Programme (DPEP), launched in 1994, is assisted by the World Bank, European Commission, Department for International Development (DFID) of the United Kingdom, the Netherlands and the United Nations International Children's Emergency Fund (UNICEF). It aims at operationalising the strategies for achieving UPE/UEE through district-specific planning and disaggregated target setting in low female literacy districts and builds on the successful Total Literacy Campaign (TLC) which has created a favourable climate for universalisation. Eighty-five per cent of the funds for the project come from external agencies through the central budget and the remaining 15 per cent is given by the concerned state governments. The programme components include construction of classrooms and new schools, opening of the non-formal/alternative schooling centres, appointment of new teachers, and setting up of early childhood education (ECE) centres, strengthening of SCERTs and DIETs, and setting up of block resource centres/cluster resource centres. It also comprises teacher training, interventions, development of teaching-learning material, research and a thrust on education of girls, SC/ST etc. A new initiative of providing integrated education to disabled children and distance education for teacher training has also been incorporated in the DPEP scheme.

2.2.20 Under DPEP, 21,000 new formal schools and over 67,000 new alternative schools have been opened, covering 2.5 million children, and 20,000 bridge courses conducted. The programme has set up over 10,000 ECE centres and strengthened more than 50,000 pre-primary centres of anganwadis. DPEP has provided training to over three million community members and about one million teachers. About 27,700 school buildings, 37,000 classrooms and 11,100 resource centres have been completed or are in progress in DPEP districts. The programme now covers about 50 per cent of the children in the primary stage in over 271 districts in 18 states.

Shiksha Karmi Project and Lok Jumbish Project in Rajasthan

2.2.21 Two externally-aided projects for basic education are the Shiksha Karmi and Lok Jumbish projects in Rajasthan. Both are innovative projects aimed at the universalisation of elementary education together with a qualitative improvement in remote and socially backward villages with a primary focus on gender. The projects address some of the major obstacles in achieving UEE, namely, teacher absenteeism, high drop-out rate, working children, uninteresting teaching methods, lack of contextual learning materials, low motivation and competence of teachers, a centralised and inflexible approach etc. There is a special emphasis on community participation in these projects. The Village Education Committees (VECs) have contributed a great deal to the improvement of the school environment, augmentation of infrastructure and facilities, larger enrolment of children through school mapping and micro-planning in the Shiksha Karmi schools. The Shiksha Karmi project covers 2,708 villages in 147 blocks spread over 31 districts and has been responsible for a seven-fold increase in the enrolment of children in schools taken over by the project.

2.2.22 The Lok Jumbish project has been able to set up innovative management structures incorporating the principles of decentralisation and delegation of authority as well as building partnerships with local communities and the voluntary sector. The project has also made a positive contribution to quality improvement through the development of improved MLL-based textbooks for Classes I-IV, which are also being used in all schools in Rajasthan. It has conducted school mapping in 8,921 villages, opened 2,560 Sahaj Shiksha Centres covering 47,000 children and started 529 new primary schools and 268 upper primary schools. The programme has also strengthened 239 pre-school centres of anganwadis and formed over 7,600 Mahila Groups.

Mahila Samakhya

2.2.23 Another externally-assisted programme with a specific focus on gender is Mahila Samakhya,

started in 1989 in five States. It aims to promote women's education and empowerment of women in rural areas, particularly women in socially and economically marginalised groups. It endeavours to create a learning environment where women can collectively affirm their potential, gain and strength to demand information and knowledge, and move forward to change and take charge of their lives. Mahila Samakhya has reached the poor and marginal women who have been able to overcome social barriers and are addressing issues such as child marriage, child labour, and violence against women. A pool of aware women has been created through the Mahila Shikshan Kendras and there is an ever-increasing demand for literacy and education for their daughters and granddaughters. This has had a beneficial social impact like delaying the age of marriage of girls. The programme is currently implemented in over 9,000 villages in 53 districts spread over ten states.

Mid-Day Meal Scheme

2.2.24 The National Programme of Nutritional Support to Primary Education commonly known as the Mid-day Meal programme was launched in 1995. It aims to give a boost to universalisation of primary education by increasing enrolment, retention and attendance and simultaneously improving the

nutritional status of students in primary classes. Under the scheme, cooked meals are served with calorie value equivalent to 100 gm of wheat or rice per student per school day. The honour of starting the Mid-day Meal scheme in elementary schools in the country goes to Tamil Nadu (See Box 2.2.1).

2.2.25 The number of children covered under the programme has risen from 33.4 million in about 3,22,000 schools in 1995-96 to 105.1 million students in 7,92,000 schools spread over 576 districts in 2000-01. It is targeted to cover 107.2 million children in 578 districts during 2001-02. Over 15 lakh tonnes of food grains were lifted for the scheme during 2000-01 compared to 14 lakh tonnes in 1999-2000. Currently, only six states - Gujarat, Kerala, Orissa, Tamil Nadu, Chhattisgarh (174 tribal blocks) and Madhya Pradesh - and the Union Territory of Pondicherry are providing hot cooked meals under the programme. In Delhi, ready-to-eat food is being distributed. The remaining states/ Union Territories are distributing food grains (wheat/ rice). States like Himachal Pradesh, Kerala, Madhya Pradesh and Karnataka were able to lift 95.7 per cent, 92.9 per cent, 87.8 per cent and 86.6 per cent of food grains respectively under the scheme in 2000-01 while some others such as Arunachal Pradesh, Gujarat, Jharkhand and Delhi lifted only 12.78 per cent, 25.17 per cent, 30.33 per cent and 33.98 per cent food grains respectively.

Box 2.2.1

Mid-day Meal Scheme in Tamil Nadu

The Mid-day Meal scheme in Tamil Nadu was started on a humble scale way back in 1925-26 by the Corporation of Madras with the aim to improve school attendance. Subsequently, philanthropists and voluntary organisations were urged to start free school lunch centres in villages and towns all over the state. In July 1956, the school lunch programme was launched as a 'people's movement' for organised charity as part of the 'School Improvement Efforts'. Impressed by the public response, the Government of Tamil Nadu (erstwhile Madras) took up the school lunch programme in 1957 and issued detailed rules for running the programme, which have been revised several times since then. In year 1961, the state started receiving CARE (Cooperative for American Relief Everywhere) food commodities for feeding 500,000 children through the school lunch programme. In 1978, 1.86 million children in 32,000 schools were covered and this number increased to 2.03 million in 33,306 schools in 1980-81.

The state achieved another milestone in 1982 with the launch of Nutritious Meal Programme for schoolchildren in classes 1st to Xth. This programme is being implemented through Nutritious Meal Centres located in schools and all children who are willing to enroll are fed. During 2001-02, 5.80 million children were enrolled for the Mid-day Meal Scheme.

2.2.26 The Mid-day Meal scheme has been evaluated by different agencies at different points of time. The Operations Research Group, evaluated the scheme in July 1999 in ten states with the support of UNICEF and found that the scheme has attracted SC/ST children and children belonging to lower income groups to school. The Planning Commission also commissioned two studies in April 2000 to measure the impact of the scheme and found that a cooked meal programme was preferable not only from the health point of view but also because it attracted more children to schools. Similarly, other studies conducted by the National Council of Educational Research and Training (NCERT) and Public Report on Basic Education (PROBE) have also upheld the view that the scheme has had a positive impact in the direction of universalisation of primary education.

2.2.27 Despite the fact that the scheme has increased enrolment as well as retention of students, it has not been successful in achieving its ambitious targets for nation-wide coverage. Some of the weaknesses of the programme are:

- Non-provision of a cooked meal.
- Enrolment data, which is to be provided by the states each year and on the basis of which food grains are allocated for ten academic months, is not available. This is evident in the fact that there is a mismatch between the allocation and lifting of food grains.
- Inability of states to arrange the timely delivery of food grains. A major reason for this is the non-availability of funds with the implementing agencies to meet the initial expenditure on transportation charges, which is later reimbursed by the central government. This particularly affects schools in far-flung areas.
- Community participation in the implementation of the programme is lacking because of poor awareness and advocacy, among other things.
- Since the initial arrangement for Management Information System (MIS) through

the National Informatics Centre NET (NICNET) did not take off, close monitoring and supervision of the programme was negligible, resulting in furnishing of erratic reports on utilisation as well as beneficiaries covered under the scheme.

Non-Formal Education (NFE) and EGS & AIE

2.2.28 The scheme of non-formal education (NFE), introduced in 1977-78 on a pilot basis and expanded in subsequent years, focused on out-of-school children in the 6-14 age group who have remained outside the formal system due to socio-economic and cultural reasons. The scheme was initially limited to ten educationally backward states, covering urban slums, hilly, tribal and desert areas. The scheme has many lacunae – lack of enthusiasm of teachers, poor quality of training, ambiguity in curriculum and text-books, lack of community participation, weak management system, insufficient outlay, a lack of emphasis on mainstreaming etc. Moreover, most NFE centres were in habitations already served by formal schools.

2.2.29 The programme was revised and renamed the Education Guarantee Scheme and Alternative and Innovative Education (EGS & AIE) in 2000. It provided for opening EGS schools in habitations where there are no schools within a radius of one km. The EGS&AIE scheme will support diversified strategies for out-of-school children including bridge courses, back-to-school camps, seasonal hostels, summer camps, mobile teachers and remedial coaching. The investment cost per child per year has been increased from Rs. 375 to Rs. 845 at the primary level centre and from Rs. 580 to Rs. 1,200 at the upper primary level.

Janshala (GOI-UN) Programme

2.2.30 The Janshala (GOI-UN) Programme is a collaborative effort of the Government of India (GOI) and five United Nations (UN) agencies – UN Development Programme (UNDP), UNICEF, UN Economic and Social Commission (UNESCO), International Labour Organisation (ILO) and UNFPA. It provides programme support to the on-

going efforts towards achieving UEE. UNDP, UNICEF and UNFPA have committed to contribute \$ 20 million for the programme while UNESCO and ILO have offered technical know-how. Janshala is a community-based primary education programme that aims to make primary education more accessible and effective, especially for girls and children in deprived communities, marginalised groups, SCs/STs, minorities, working children and children with special needs. The programme covers 139 blocks in nine states – Andhra Pradesh, Jharkhand, Karnataka, Madhya Pradesh, Chhattisgarh, Maharashtra, Orissa, Rajasthan and Uttar Pradesh – with a total project outlay of Rs. 103.29 crore. The programme is to run for five years, from 1998 to 2002. At the state level, the programme is implemented through existing structures of educational administration. Janshala has started a large number of alternative schools in small and remote habitations in the programme areas, besides evolving strategies and setting up schools with community participation in the urban slums of Jaipur, Hyderabad, Ajmer, Bharatpur, Puri and Lucknow. Other major areas of achievement are in teacher training, multi-grade teaching, intervention for education of the disabled, setting up of block and cluster resources centres and strengthening capacities at the state, district and block level.

Sarva Shiksha Abhiyan

2.2.31 The Sarva Shiksha Abhiyan was launched towards the end of the Ninth Plan to achieve the goal of UEE through a time-bound integrated approach, in partnership with states. The medium-term goals for the scheme are given in Box 2.2.2. The programme, which aims to provide elementary education to all children in the 6-14 age group by 2010, is an effort to improve the performance of the school system and provide community-owned quality elementary education in the mission mode. It also envisages bridging of gender and social disparities at the elementary level. The Sarva Shiksha Abhiyan has a special focus on the educational needs of girls, SCs and STs and other children in difficult circumstances.

2.2.32 Under the programme, habitation plans, prepared after micro-planning, household surveys,

Box 2.2.2

Objectives of Sarva Shiksha Abhiyan

- All children to be in schools, Education Guarantee Scheme centres, alternate schools, back-to-school camps by 2003;
- all children to complete five years of primary schooling by 2007;
- all children to complete eight years of schooling by 2010;
- focus on elementary education of satisfactory quality with emphasis on education for life;
- bridge all gender and social disparities at the primary stage by 2007 and at the upper primary level by 2010; and
- universal retention by 2010.

school mapping and diagnostic studies, form the basis for the District Elementary Education Plans (DEEP). Funds released to states would be channelised to registered societies at the state level. The Sarva Shiksha Abhiyan is expected to accord the highest priority to community monitoring, transparency in programme planning and implementation of capacity building at all levels as also to the adoption of a mission approach by the mainstream Education Department functionaries. A National Mission for Sarva Shiksha Abhiyan was constituted in November 2000 with the Prime Minister as the Chairman and the Minister for Human Resource Development as Vice-Chairman.

2.2.33 The scheme is expected to absorb most of the existing programmes, including externally-aided programmes, within its overall framework with the district as the unit of programme implementation. To make the approach totally holistic and convergent, efforts would be made to dovetail programme implementation at the district level with all other departments. This would include programmes for children in the 0-6 age group under the Department of Women and Child Development, sports-related interventions of the Ministry of Sports and Youth Affairs, establishment of public libraries under the Department of Culture and nutrition and health programmes of the Ministry of Health.

Box 2.2.3**INNOVATIVE PROGRAMMES IN EDUCATION IN DIFFERENT STATES**

Several state governments have designed innovative programmes to improve the quality of education in schools.

HEAD START

The Rajiv Gandhi State Mission in Madhya Pradesh has introduced a project on a pilot basis for using computers to improve the quality of teaching in rural elementary schools through indigenous customised educational software. The idea is to integrate the use of computers with classroom activities to improve the child's comprehension of difficult parts of each subject as well as to instill computer literacy. A syllabus mapping the difficult areas of learning has been developed and educational software on this for all subjects is being prepared for use in the academic year 2002-03.

Started in November 2000, 648 Head Start centres were operationalised in middle schools that have a primary section and serve as Jan Shiksha Kendras or school cluster resource centres for primary schools in a radius of eight km. A total of 2,358 teachers have been given training in computer-enabled education.

GYANKALASH

The District Primary Education Programme in Himachal Pradesh, in collaboration with All India Radio, Shimla, has started a 15-minute bi-weekly programme called Gyankalash to provide academic support to primary teachers. The programme helps in improving the teachers' access to the knowledge, especially those in the remote areas as it is impossible to reach them through conventional means.

In the first phase of Gyankalash, topics were identified and radio scripts developed in workshops organised for the purpose. Resource persons, teacher educators from state and district level, practising teachers in secondary and primary schools participated in the workshops.

In the next phase, teachers and students from government primary schools were involved in the production and broadcast of the spots.

In order to motivate teachers, certificates were given to teachers on the successful completion of the training under different phases of Gyankalash.

NALI KALI

The Nali Kali programme in Karnataka was introduced in privately managed schools in 1999. Under the programme, learning takes place in an interactive situation in accordance with age-wise competency. Children are divided into groups and they master one level of competency, then move to another group to learn the next level of competency. Children learn at their own pace and the move from one level of competency to another is not dependent on the whole group's learning achievement. All teaching-learning processes involve songs, games, survey, story telling and use of educational toys. This method effectively eliminates the formal system of roll calls, examination, promotions, ranking – all these now deemed unhealthy – at least between the of 5 and 14.

Table 2.2.2
Financial Performance during Ninth Five Year Plan

(Rs. crore)

S. No.	Sub-sector	Eighth Plan (Expenditure)		Ninth Plan (outlay)		Expenditure Ninth Plan					Total Anticipated Expenditure Ninth Plan
		Rs. crore	% age	Rs. crore	% age	1997-98	1998-99	1999-00	2000-01	2001-02	
1.	Elementary Education	4,006.55	47.0	16,369.59	65.7	2,234.94	2,749.83	2,851.97	3,117.39	3,569.16	14,523.29
2.	Adult Education.	7,18.14	8.4	630.39	2.5	78.85	72.29	87.08	108.16	174.00	520.38

(Note) : percentage expenditure under Elementary Education and Adult Education during the Eighth Plan is expenditure under these sub-sectors expressed as percentage of total expenditure in the education sector. Similarly %age outlay under these sub-sectors during the Ninth Plan is outlays for these sub-sectors expressed as percentage of total outlay of the education sector).

Source : Report of the Mid-Term Appraisal of the Ninth Five Year Plan, Planning Commission
Department of Elementary Education and Literacy

2.2.34 The financial performance of the elementary education sector during the Ninth Plan is summarised in Table 2.2.2.

GOALS, TARGETS AND STRATEGIES FOR THE TENTH PLAN

Goals and Targets

2.2.35 In the elementary education sector, the Sarva Shiksha Abhiyan is in place with clear focus and medium-term goals as specified in Box 2.2.2. The Tenth Plan targets in respect to elementary education are:

- All children in the 6-14 age group should have access to primary schools, upper primary schools or their alternatives within a walking distance of one km and three km respectively.
- All children in the 3-6 age group must have universal access to early childhood care and education centres.
- Need-based expansion of upper primary education facilities, particularly for the disadvantaged sections. There should be

one upper primary school for every two primary schools.

- All schools should have buildings, toilets, drinking water, electricity, playgrounds, blackboards and other basic facilities. There must be provision of one classroom for every teacher at the elementary stage.

Universal Enrolment

- Enrolment of all children in schools or alternative arrangements by 2003.
- All children to complete five years of primary schooling by 2007.

Universal Retention

- Universal retention in the primary stage by 2007.
- Dropout rate to be reduced to less than 10 per cent for grades VI-VIII by 2007.

Universal Achievement

- Improve the quality of education in all respects (content and process) to ensure reasonable learning outcomes at the elementary level, especially in literacy, numerics and in life skills.

Equity

- Bridge all gender and social gaps in enrolment, retention and learning achievement in the primary stage by 2007 and reduce the gap to 5 per cent in the upper primary stage by 2007.
- Special interventions and strategies to include girls, SC/ST children, working children, children with special needs, urban deprived children, children from minority groups, children below the poverty line, migratory children and children in the hardest-to-reach groups.

STRATEGIES FOR UNIVERSALISATION OF ELEMENTARY EDUCATION

2.2.36 The strategies and interventions during the Tenth Plan will mainly be guided by three major considerations: (a) magnitude of the task; (b) present challenges; and (c) the existing administrative and policy framework and the one that will be in place during the Plan period.

2.2.37 **Magnitude of the Task:** The Working Group on Elementary and Adult Education for the Tenth Five-Year Plan has estimated that in order to achieve the goal of UEE by 2010, enrolment at the primary level needs to grow at an average annual growth rate of 1.12 per cent for boys and 4.16 per cent for girls during the Plan period. At the upper primary level, the growth rate must be 4.62 per cent for boys and 8.03 per cent for girls. The average

growth rate for boys and girls taken together should be 2.51 per cent at the primary and 6.08 per cent at the upper primary levels. The year-wise estimated additional enrolment during the Plan period are given in Table 2.2.3.

2.2.38 **Present Challenges:** Achieving the goal of UEE poses three main challenges: (i) access to basic education for the unreached segments and social groups; (ii) qualitative improvement in content and processes so as to raise learning achievements; and (iii) tackling high drop-out and low retention rates in primary and upper primary schools.

2.2.39 **Administrative and Policy Framework:** The administrative and policy framework needs to be guided by the following concerns.

- The national resolve to provide free and compulsory education of satisfactory quality to all children up to the age of 14 years, as stipulated in the National Policy on Education;
- The 93rd Constitutional amendment making the right to elementary education a fundamental right and enforcing it through necessary statutory measures; and
- The spirit of the 73rd and 74th Constitutional amendments setting the stage for greater decentralisation of power and a significantly enhanced role for local bodies, community organisations as well as voluntary agencies in the efforts towards UEE.

Table 2.2.3
Year-wise Estimated Additional Enrolment

(in million)

Year	Additional Enrolment					
	Primary (Grade I-V)			Upper Primary (Grades VI-VIII)		
	Boys	Girls	Total	Boys	Girls	Total
2002-03	0.67	2.01	2.68	1.14	1.44	2.58
2003-04	0.67	2.10	2.77	1.19	1.54	2.73
2004-05	0.67	2.18	2.85	1.25	1.67	2.92
2005-06	0.69	2.27	2.96	1.31	1.81	3.12
2006-07	0.69	2.37	3.06	1.37	1.95	3.32
Total	3.39	10.93	14.32	6.26	8.41	14.67

2.2.40 Given this backdrop, the Tenth Plan strategy for achieving UEE must have the following salient features:

2.2.41 **Holistic and Convergent Approach :** As the existing policies and programmes are either for specific target groups/regions, there is need for an all-comprehensive programme covering the entire country. The Sarva Shiksha Abhiyan is such a programme and will be the main vehicle for achieving the goals of UEE.

2.2.42 **Community Participation in UEE Programmes :** The involvement of the community will be made more systematic by involving the panchayati raj institutions (PRIs) and urban local bodies. Further down the hierarchy, VECs, Mother-Teacher Associations (MTA) and Parent-Teacher Associations (PTA) would have a formal role in the management of schools in the village.

2.2.43 **Target-Groups Oriented Strategy :** The Tenth Plan will lay emphasis on identifying the problem areas and formulating a separate strategy for each area, under the overall umbrella of the Sarva Shiksha Abhiyan. There will be special focus on children who have never enrolled or those who have dropped out without completing eight years of elementary schooling. Specific strategies would be devised for the difficult-to-reach groups in order to ascertain the reasons for their staying away from school system and to take steps to provide them quality elementary education.

Programmes for Achieving UEE

2.2.44 The following schemes would be the instruments by which these strategies would be translated into action during the Tenth Plan. Scheme-wise break-up of the Tenth Plan outlay is given in the Appendix.

2.2.45 **Sarva Shiksha Abhiyan :** Out of the approximately 207.76 million children in the 6-14 age group in 2000, the number of children not attending the schools is 40 million. Those outside the school system are mostly girls, SCs/STs children, working children, urban deprived children, disabled children and children in difficult circumstances. Providing access and motivation to these

difficult to reach groups, without compromising on the quality of education, would be the challenge that the Sarva Shiksha Abhiyan would tackle in the Tenth Plan.

2.2.46 The Sarva Shiksha Abhiyan will totally subsume all existing programmes, barring the Mid-day Meals scheme, and the scheme of Restructuring and Reorganisation of Teachers' Education. All legal agreements regarding externally-aided projects such as Mahila Samakhya, DPEP, Lok Jumbish, Shiksha Karmi, etc, will continue to apply unless specific modifications have been made in consultation with the funding agencies. In order to achieve a holistic and convergent approach, efforts would be made to dovetail programme implementation at the district level with all other programmes. This would include programmes for children in the 0-6 age group under the Department of Women and Child Development, sports-related interventions of the Department of Sports and Youth Affairs, establishment of public libraries under the Department of Culture, nutrition and school health programmes of the Ministry of Health and the employment generation / poverty alleviation programmes of Ministry of Rural Development. This dovetailing exercise would be undertaken while formulating the DEEPs.

2.2.47 **Gender-Specific Programmes :** The Tenth Plan would also rely on some women-centric programmes such as the existing Mahila Samakhya, and two new schemes, the Kasturba Gandhi Swatantra Vidyalaya (KGSV) and the National Programme for the Education of Girls at the Elementary Level (NPEGEL). Mahila Samakhya will be expanded both in terms of geographical reach and activities like the Mahila Shikshan Kendras. However, it will retain its objectives, identity and non-negotiable principles.

2.2.48 The KGSV and the NPEGEL are proposed to be taken up during the Tenth Plan, with the following features:

- Focus on educationally backward areas in girls' education;
- focus on girls from the disadvantaged sections like those belonging to SC/ST, minorities, etc;

- tackling gender-specific issues that prevent girls and women from having access to education;
- providing women and adolescent girls with the necessary support structure, and an informal learning environment to create opportunities for education;
- creating circumstances for larger participation of women and girls in formal and non-formal education programmes; and
- helping girls to overcome socio-cultural and economic factors inhibiting their access to elementary education.

2.2.49 Mid-day Meal Scheme : A Supreme Court order in 2001 makes it obligatory for states to provide cooked meals instead of dry rations within the stipulated time-frame, under the Mid-day Meals scheme. Further, in order to achieve the goals set in the Sarva Shiksha Abhiyan programme, modifications would be made in the scheme in the light of feedback received from evaluation studies, the experience gained from the working of the scheme, and the opinions of experts. The modifications would include the following :

- Expanding the programme to cover the children of the EGS & AIE scheme.
- Ending the present practice of distributing food grains and providing hot cooked meals or ready-to-eat food based on sound nutritional principles.
- Allowing adequate flexibility in the management of the programme by the local bodies/community through VECs, School Management Committees (SMCs), PTAs etc. Also, fostering stronger community participation in the implementation of the programme and encouraging the participation of credible NGOs, wherever possible.
- Decentralising the management of the programme to enable reduction in leakages and mismanagement etc.

- Providing funds in advance to the implementing agencies through their state nodal officer for the transportation of food grains.
- Limiting teachers' involvement in the programme to supervision activities.
- Extensive use of the computerised MIS (CMIS) net for monitoring purposes. External agencies are to be involved in monitoring and supervision to ensure greater accountability. Elected representatives will also be involved in supervision.
- Linkage with poverty alleviation programmes in rural and urban areas, adequate support of the Union Ministry of Health and the state Health Departments for a school health programme and support from the Department of Women and Child Development for nutrition education.
- A memorandum of understanding be entered into with the key stakeholders (state governments, local bodies, etc.) on the key parameters of the programme.

Strategies for Quality Improvement

2.2.50 While the goals of universal literacy and enrolment are laudable in themselves, the achievements in these areas would remain hollow without ensuring quality education. A qualitative improvement in the content and processes of basic education, in order to make them more responsive to the learning needs of individuals and the development needs of different socio-economic sectors, continues to be a major challenge. The challenge for providing quality education at the elementary level involves improvements in the preparation, motivation and deployment of teachers, the quality of textbooks and of infrastructural facilities. It also involves making education relevant to society's needs and strengthening the management and institutional capacity of educational institutions especially at the state, district and local levels.

2.2.51 Improving the quality of textbooks is crucial as they are the main instructional aids in elementary schools, and are the only reading material for most students.

2.2.52 The quality of infrastructural facilities (particularly toilets for girls), equipment and support services, also has a significant impact on enrolment and retention. In this context, the main challenge is to provide a classroom for every teacher in the primary and upper primary schools and a separate room for the headmaster in upper primary schools along with playground facilities and clean toilets. Although one-third of the expenditure approved under DEEP is earmarked for the construction of buildings etc., there are still a substantial number of primary schools without these facilities. The main thrust in the Tenth Plan should be to ascertain that all the primary schools have *pucca* buildings with all supporting infrastructural facilities.

Teachers Education

2.2.53 Improving the performance of teachers is the most important challenge in elementary education as they are the principal instruments of education. Besides, teachers' salary claims the major share of the state education budget. Although a lot has already been done to improve the quality of teachers, historical deficiencies in teachers' education and training has resulted in many of them having little understanding of the material they teach, poor teaching skills and poor motivation levels.

2.2.54 Besides addressing the issue of quality, the Tenth Plan would also place an exclusive emphasis on teacher education. Some of the broad strategies, which would be followed, are:

Development and strengthening of teacher education institutes

2.2.55 The focus of teacher education would be on the development of the following institutions :

- **District Institute of Education and Training (DIETs) :** Each state would be encouraged to rethink the structure of its

DIETs as per needs of the district and effectiveness of the institution. Each DIET would be encouraged to draw up a development plan for itself, defining its role and setting goals for itself. Special attention will be paid to the development of libraries in DIETs, as well as providing computer facilities (including computer literacy training), exposure visits, networking and sharing among DIETs and other academic institutions on professional issues and the establishment of district resource groups. Further, new DIETs would be set up only in those states where the existing ones are functional and steps are taken to improve sub-standard DIETs.

- **College of Teacher Education (CTEs) and Institutes of Advanced Studies in Education (IASEs) :** The need for CTEs and IASEs in each state would be ascertained in terms of the needs for secondary teacher education and identified institutions would be strengthened. The identified CTEs/ IASEs would need to prepare their individual plan of development, mentioning the areas in which they need to be strengthened and make a need assessment survey in the areas of their jurisdiction. They must also develop schedules and materials of in-service teacher training to cover secondary teachers and implement the National Council of Teacher Education (NCTE) project on imparting information technology (IT) literacy to the teachers. IASEs would be encouraged to play a greater role in elementary education and education of teacher educators.

- **Strengthening of State Councils for Educational Research and Training (SCERTs) :** The SCERT is identified as a key area for teacher education in the Tenth Plan. The state governments need to fulfill some essential conditions for being eligible for funds for strengthening of SCERTs, such as recruitment of appropriate faculty, linkage to DIETs, resource centres and schools, autonomy of SCERTs and proper

maintenance of buildings etc. Only then would the central government fund capacity building and training of SCERT faculty, development of infrastructure, computers and IT literacy programmes and hostels for residential training programmes, etc. SCERTs should be equipped to plan for computer education curricula, teacher training etc. at the school level, strengthening of cells for teaching of English language at the elementary level, strengthening of pre-service education etc, pre-service as well as In-service Training of Teachers, including Para-Teachers.

Professional Development of Teachers

2.2.56 The focus in the Tenth Plan would be on:

- Ensuring pre-service training to all elementary school teachers so that all untrained teachers can be trained within a period of three years, including through the distance learning mode.
- Enhancing pre-service training facilities in selected districts where the present capacity is not adequate.
- Improving the quality of elementary teacher pre-service education.
- Extending the provision of pre-primary teacher training by strengthening existing institutions that provide, or are willing to provide, pre-service education for the pre-primary stage.
- Developing specialised correspondence courses, of two months to one year's duration, for elementary teachers in collaboration with open universities, higher education institutions, good IASEs, NGOs with experience in quality education, and other professional organisations.
- Development of courses for in-service education of teachers that will carry credits and linking these to promotions and benefits.

Strengthening of Block Resource Centres (BRCs) and Cluster Resource Centres (CRCs)

2.2.57 With an emphasis on providing academic support to the teachers locally, depending on context-specific needs, DIETs would have close linkage with BRCs and CRCs whose personnel get academic support from them.

Professional development of practitioners, i.e. teacher educators, managers and others

2.2.58 New courses for teacher educators and curriculum developers would be developed and tried out on a pilot basis. Innovations and pilot projects in pre-service and in-service teacher education will be supported. Another major focus area would be networking of teacher education institutions and strengthening of teacher education by expanding access to digital resources. The networked institutions would then be able to use the Information and Communication Technologies (ICT) for online sharing of resources and for breaking the isolation of institutions.

Systematic learner evaluation

2.2.59 A mechanism for regular learner assessment will be designed and put in place to evaluate the impact and efficacy of measures taken for improvement in school quality.

Strategy for Drop-outs

2.2.60 A large number of children drop out of school because of reasons relating to the school environment. These include attitude of teachers, irrelevant curriculum, sub-standard and uninteresting teaching, teacher absenteeism, corporal punishment, poor school infrastructure, inability to cope with the pace of learning, lack of parental support in the case of first generation learners, maladjustment, etc. Girls form the majority of the dropouts in all categories. The National Family Health Survey-II (NFHS-II), conducted in 1998-99, also observed that the main reasons for students dropping out include their not being interested in studies, the high private cost of education and the need for them to work, whether in their own farms,

business/households or outside. These reasons held true for 75 per cent of dropouts.

2.2.61 The main challenge for education authorities at the central, state and district levels is to (a) improve the supply, quality and retention power of education, particularly in rural primary schools and in the unreached segments; and (b) introduce innovative methods of providing education to identified disadvantaged and difficult groups to suit their timing and interests. The focus in the Tenth Plan would, therefore, be on pedagogic improvement and adoption of child-centered methods, which have been developed in programmes like DPEP; and building a positive environment that would include more attractive classroom designs, local contextual curriculum and more friendly evaluation techniques. Apart from a number of steps undertaken under the Sarva Shiksha Abhiyan to reduce the private cost of education, an incentive scheme linked to attendance has been suggested for girls, SCs/STs and poor children.

2.2.62 Where the children are dropping out because of the need to work, the emphasis would be on involving the community in motivating the parents to bring their children back to school so that they are in a position to complete eight years of elementary education. For those children who have already dropped out, suitable alternative education systems such as bridge courses, remedial teaching, back to school camps, etc., would be provided so that they can be mainstreamed into the formal system.

Strategy for Early Childhood Care and Education (ECCE)

2.2.63 Early childhood development is globally acknowledged as a significant input for lifelong development and successful completion of primary education. The Tenth Plan acknowledges ECCE as the first step in the education ladder. The major provider of ECCE is the Integrated Child Development Services (ICDS) scheme which covers 15.8 million children (17.8 per cent of the child population of 3-6 years) through about 5,20,000 anganwadis in 35 states and Union Territories. Early Childhood Education or Pre-School Education is among the six components of the ICDS scheme and is one of

its weakest. The Sarva Shiksha Abhiyan aims to support (i) strengthening the pre-school component in ICDS by need-based training of anganwadi sevikas, provision of learning materials, etc.; (ii) setting up balwadis as pre-school centres in uncovered areas; (iii) building advocacy on the importance of early child development; (iv) organising training programmes for community leaders; (v) providing for intensive planning for ECCE; (vi) development of materials; and (vii) promoting convergence between the school system and the ECCE.

Community Participation In Elementary Education

2.2.64 Decentralisation provides a clear correlation between the needs of people and the steps taken by the Government to meet these demands. Planning from below and contextualised resource allocation for basic services would not only be more cost effective and produce better results but will also ensure that the quality of the services is directly proportional to the degree of community control and supervision. People's participation in the provision of basic services can, as mentioned in the Mid-Term Appraisal of the Ninth Five-Year Plan, contribute to the achievement of four main objectives, i.e., effectiveness, efficiency, empowerment and equity.

2.2.65 The thrust on decentralised planning and management came as early as in 1986, in the National Policy of Education, which had proposed decentralisation as a fundamental requirement for improving the efficiency and effectiveness of educational planning and management and for evolving a meaningful framework for accountability. The Approach Paper to the Tenth Five-Year Plan has also reiterated that the mere establishment of schools and hiring of teachers will not lead to an improvement in education if teachers remain absent, as is common, especially in the rural areas. It is, therefore, essential that control over schools and teachers should be transferred to local bodies, which have a direct interest in teacher performance. Planning, supervision and management of education would have to be through local bodies at the district, block and village levels. Efforts should also be made for the social mobilisation of local communities for adult literacy campaigns and for the promotion of primary education.

2.2.66 While the decentralisation of governance, through the 73rd and 74th Constitutional amendments, has facilitated the transfer of the management of schools to panchayats/local bodies, the real challenge now is to create an enabling environment for the qualitative participation of all groups. The qualitative participation should mean that the community is able to have a voice and exercise its choice. It also involves the development of human, organisational and management capacity to solve problems and sustain the improvements.

2.2.67 Recognising the fact that community participation is the surest way to ensure UEE and improve the quality of education, several state governments have already initiated the process of decentralising the management of elementary education by involving the community. Other states would also be encouraged to transfer the management of primary schools to panchayat/local bodies with special emphasis on :

- Encouraging community participation in promoting enrolment, retention and other aspects of education. PRIs and grassroot level organisations like VECs, PTAs, MTAs etc. should become the vehicles of community mobilisation;
- Evolving a community-based monitoring system evolved with full transparency;
- Making community mobilisation through intensive micro-planning and school mapping mandatory; and
- Participatory implementation of goals and strategies.

2.2.68 This shift in planning and management strategy will also require a massive effort to train and continually support educational bodies set up under the PRIs/urban local bodies. There is an urgent need to reorient the outlook of government functionaries and their perception of their roles. Efforts will be made to reorient the programmes of various resource institutions at the national and state levels to meet these requirements. Towards this end, the local level institutions in education and allied sectors will be strengthened adequately. Besides, it is envisaged that distance education mechanisms will be suitably strengthened and

reoriented to play a significant role in the task of building capacities among local-level functionaries.

2.2.69 Pursuing the goal of decentralisation, along with partnership between the Centre and the states, demands careful orchestration of policies and programmes, particularly in the area of elementary education. As envisaged in the National Policy on Education, and subsequently reiterated by several bodies, the central government and its institutions will continue to play a major role both for coordination and capacity building. It will continue to monitor the progress of attaining national goals in the field of elementary education.

Synergetic Partnership with the Private Sector

2.2.70 The task of providing basic education in a country with diverse conditions is so stupendous that it is difficult to expect the government sector alone to do this effectively. Even though private initiatives have always been a part of the school education endeavour, it has neither been large nor of a sizeable magnitude in the efforts to universalise elementary education. The private sector can contribute not only in monetary and material terms, but also in the form of expertise for improving quality through effective management of the system and the development of locally relevant teaching-learning materials. Some efforts in this direction have already been made by many states including Karnataka, which has a school adoption scheme. More collaborative efforts at the institutional level as well as in programme implementation will be designed to expand the role of private initiatives in elementary education. A synergetic public-private partnership would be built up during the Tenth Plan to achieve the objective of UEE. Specifically, the following measures would be encouraged:

- More collaborative efforts with the private sector and expansion of the role of private initiatives.
- Improve the functioning of government schools in partnership with the private sector, within the broad parameters of state policy.
- Provide support to initiatives introduced by private schools for deprived children.

- Encourage the opening of private schools, without compromising on quality.
- Provide computer education to children, utilising the expertise and resources of the private sector.

Convergence as a Strategy for Optimum Utilisation of Resources

2.2.71 Cost effectiveness and efficiency in the delivery of services under various educational programmes, which are mostly affected by the socio-economic and political conditions, can have a far-reaching impact on the most important determinant of development, i.e., human capital formation. Effectiveness of the delivery of services in the social sector also needs a high degree of integration and convergence in the planning and implementation of programmes of related social sectors. Services like literacy, elementary education, primary health care, nutrition, mother and child care, family welfare and rural development have strong linkages and can only be strengthened through an appropriate integrated approach which will optimise public expenditure and reinforce the effective delivery system. All efforts would be made in the Tenth Plan to achieve convergence both in the formulation of schemes/programmes as well as in their implementation through effective coordination at the national/state level and lower levels of administration.

THE PATH AHEAD

2.2.72 Education has an intrinsic value for the development of the society and helps in the achievement of a better social order. Greater literacy and basic education help individuals to make better use of available economic opportunities. The Government has decided to make free and compulsory elementary education a fundamental right.

2.2.73 The Government has taken a major initiative by launching the Sarva Shiksha Abhiyan, which aims at universalisation of elementary education within a given time frame, in partnership with states. However, it will have to be ensured that there is no compromise on quality. In fact, the lessons learnt

from all the successful programmes on literacy should be made an integral part of the Sarva Shiksha Abhiyan on a continuous basis.

2.2.74 The implementation of the Sarva Shiksha Abhiyan will result in a significant increase in the number of children completing elementary education. This will simultaneously increase the demand for secondary education. This aspect has to be dovetailed in the planning for education and steps have to be taken to gradually strengthen the secondary schools along with other facilities to keep pace with the increased demand.

2.2.75 It is important that the Centre make adequate provision of funds for the fulfillment of the objectives of the Sarva Shiksha Abhiyan and this has to be backed by a complementary on the part of the states. Needless to say, the programme cannot succeed without proper utilisation of the available funds. Effective methods have to be evolved to transfer responsibility for funds and personnel to PRIs so as to assign greater role to them as envisaged in the Constitution.

2.2.76 Systematic mobilisation of the community and creation of an effective system of decentralised decision-making are essential pre-requisites for the achievement of the objectives of the Sarva Shiksha Abhiyan. This involves the cooperation of all stakeholders — the central government, the states, local government bodies, teachers, parents, NGOs, academic institutions and the children themselves. There is also a need for capacity building at all levels to make the programme self-sustainable. The implementation of the Sarva Shiksha Abhiyan with the involvement of all the stakeholders must ultimately result in a transparent and broad-based system of education.

2.2.77 Finally, the need to impart value-based education to the children at the early stages of schooling can hardly be overemphasised. The essential elements of such education should be based on the development of concern towards the needs of society and the nation among the children. In this contemporary world, the value should also be based on the functional utility of education and should highlight the dignity of labour. The idea of creation of wealth should be incorporated into the education system.

CHAPTER 2.3

SECONDARY EDUCATION

2.3.1 Secondary education serves as a bridge between elementary and higher education and prepares young persons between the age group of 14-18 for entry into higher education.

2.3.2 The population of children in the 14-18 age group (the age for secondary and senior secondary level education) has been estimated at 96.6 million, as projected by the National Sample Survey Organisation in 1996-97. However, enrolment figures show that only 27 million children were attending secondary schools, which means that two-thirds of the eligible population remains out of the secondary school system.

2.3.3 The number of secondary schools in India increased from 7,416 in 1950-51 to 1,16,820 in 1999-2000. However, this number is not adequate to accommodate the out-of-school children and the growing number of upper primary school pass-outs. The impact of recent initiatives undertaken for the Universalisation of Elementary Education is resulting in an increased demand for the expansion of secondary education. (Table 2.3.1)

2.3.4 There has been no fundamental change in the structure and organisation of the secondary and higher secondary education system during the Ninth Plan period since the initiation of the National Policy on Education (NPE), 1986. In the wake of the Policy, several centrally-sponsored schemes were launched and national level institutions for school education were established/strengthened. Ten centrally-sponsored schemes are in operation in the secondary education sector. The experience of the implementation of the programmes as well as various reviews and evaluation studies have highlighted the need to modify and strengthen these schemes. Against a budgetary allocation of Rs. 2,603.49 crore for the sector in the Ninth Plan, the

expenditure incurred has been to the tune of Rs. 2,322.68 crore.

2.3.5 The focus in the Ninth Plan was on reducing disparities, renewal of curricula with emphasis on vocationalisation and employment-oriented courses, expansion and diversification of the open learning system, reorganisation of teacher training and the greater use of information and communication technology. Hostel facilities for girls, integrated education for the disabled, free education for girls etc. have also received attention. During this period the various Central institutes/organisations like National Council of Educational Research & Training (NCERT), National Open School (NOS), Kendriya Vidyalayas and Navodaya Vidyalayas were further strengthened.

2.3.6 The Table 2.3.1 below gives details of the growth of the Secondary Education Sector over the Plan periods.

Table 2.3.1

Number of High/Higher Secondary institutions, Students and Teachers (1950-2000)

Year	High/Higher Secondary Schools/Inter/Pre-degree/Junior Colleges	Students (in lakh)	Teachers (in lakh)
1950-51	7416	15.0	1.27
1990-91	79796	191.0	13.34
1995-96	90134	249.0	14.93
1998-99	112438	277.6	17.47
1999-2000	116820	282.1	17.20

Source: Selected Educational Statistics, MHRD, 1999-2000

2.3.7 While, in terms of absolute numbers, state financing of secondary education continued to grow

Table 2.3.2
Expenditure on Education in the Five Year Plans

(Rs. lakh)

Five Year Plans	Elementary (%)	Secondary (%)	Higher (%)	Total Expenditure
I	85(56)	20(13)	14(9)	15,300
II	95(35)	51(19)	48(18)	27,300
III	201(34)	103(18)	87(15)	58,900
IV	239(30)	140(18)	195(25)	78,600
V	317(35)	156(17)	205(22)	91,200
VI	803(30)	736(25)	530(18)	2,04,300
VII	2,849(34)	1,829(22)	1,201(14)	8,50,000
VIII	4,006.6(47)	1,538(18)	1,055.8(12.4)	8,52,190
IX	16,364.88(65.7)	2,603.5(10.5)	2500.0(10.0)	24,90,850

Note: The figures in parenthesis indicate % to total allocation.

Source: Five-Year Plans, Annual Plans and MHRD Reports.

(though it is still inadequate), financing of secondary and higher education has shown a declining trend in terms of percentage spending on education from the Sixth Plan onwards (Table 2.3.2). The share of elementary education in total spending has been increasing, reflecting the priority to implement free and compulsory elementary education.

2.3.8 Participation of the private sector (including non-governmental organisations or NGOs) in the management of secondary schools with official recognition and, in many cases, with financial assistance, has also increased. Private organisations currently manage around 51 per cent of secondary schools and 58 per cent of higher secondary schools. In order to meet the educational needs of those who have not been able to enroll themselves in the formal system, opportunities have been provided through the National and State Open Schools, utilising contact centres and multi-media packages. Distance education in the school sector also got a fillip with the National Open School was started in 1989, identifying new vocational areas and providing on-demand examination. Improvements in the content, process and quality of education, particularly environment education, science, mathematics and computer literacy have been emphasised with

central financial support available for schemes related to this. New initiatives taken after the National Policy on Education was revised in 1992 include the revision of the curriculum, setting up of resource centres for value education and a National Centre for Computer-aided Education etc. Several measures taken to enrich the school curriculum are being continued with added thrust. However, the scheme of vocationalisation of education has not appealed to the stakeholders because lack of industry-institute linkages, manpower demand surveys and various academic constraints. At present, only 10 per cent of the students are opting for the vocational stream, against a target of 25 per cent by 2000.

2.3.9 Educational development of children with special needs received an impetus with the enactment of the Persons with Disabilities (Equal Opportunities, Protection of Rights and Full Participation) Act, 1995. The Act entrusts the appropriate governments and the local authorities to provide children with disabilities access to education, employment, preferential allotment of land for certain purposes, non-discrimination in transport, financial incentives to Universities to enable them to undertake research etc. Programmes for

attitudinal changes, capacity building among teachers and training institutions to educate children with special needs have been taken up.

2.3.10 Along with providing opportunities for equal access and ensuring a minimum level of learning achievement for all, it is equally important to nurture talented children especially those from the rural areas and those belonging to lower income group. There are several programmes for the development of talent. Residential Jawahar Navodaya Vidyalayas from Class VI to XII are established in the Seventh Plan as model schools and to provide quality education to talented children from rural areas selected on the basis of a common admission test. Each district is supposed to have one such school. Currently, there are 462 Jawahar Navodaya Vidyalayas with about 1,25,000 students on their rolls.

2.3.11 The National Council of Educational Research & Training (NCERT), New Delhi, conducts a National Talent Search Examination to identify talent. International Chemistry, Mathematics and Physics Olympiads are held every year to identify talent in these subjects. India has been participating regularly in these Olympiads.

2.3.12 Talented students from rural areas are provided scholarships at the secondary stage in order to develop their potential by providing them access to good schools. A total of 38,000 scholarships have been awarded to students.

2.3.13 Internal compulsions and international commitments are forcing the secondary education system to gear up to meet the ever-increasing

demand for education. Initiatives such as the externally-aided District Primary Education Programme (DPEP), the Sarva Shiksha Abhiyan, increasing number of schools in the private sector and the drive for elimination of the gender gap in line with the Dakar Declaration on Education for All in 2000. Concerted efforts, backed by national consensus, are called for to meet these daunting challenges.

2.3.14 The major thrust in the Tenth Plan, thus, is to meet the increased demand for secondary education. The Government has to play a greater role to the encourage opening of new secondary schools, expansion of capacity of the existing schools including double shifts, upgrading of upper primary schools in backward, unserved and under-served areas, as also expansion and diversification of open schooling and distance education system. One of the many options being considered during the Tenth Plan is for the Kendriya Vidyalaya Sangathan to establish schools in partnership with voluntary agencies. It is proposed to set up 150 Kendriya Vidyalayas (fully funded by the Government) in addition to the present network of 854 schools. Another option is to provide a one-time grant/ seed money to societies, trusts and not-for-profit organisations like the R.K. Mission, the Jesuits, the DAV Trust, which already run reputed schools to encourage them to set up more schools.

2.3.15 It is proposed to establish more Navodaya Vidyalayas to cover the districts which do not have one right now and also to strengthen these existing schools by providing them facilities for cultural activities, computers and sports facilities. It is also proposed to help the Central Tibetan School

Box 2.3.1

Tenth Plan – Objectives, Key Issues and Focus

The key issues during the Tenth Plan would be a greater focus on improving access and reducing disparities by emphasising the Common School System in which it is mandatory for schools in a particular area to take students from low-income families in the neighbourhood. The Plan will also focus on revision of curricula with emphasis on vocationalisation and employment-oriented courses, expansion and diversification of the open learning system, reorganisation of teacher training and greater use of new information and communication technologies, particularly computers.

Administration (CTSA), which runs about 70 schools for children of Tibetan refugees, to set up more schools.

2.3.16 During the Tenth Plan, the National Open School (NOS) would intensify efforts to ensure that the open school system is to the under-privileged groups. A scheme to reimburse to the NOS the fees incurred on scheduled castes/scheduled tribe (SC/ST) students, girls and physically challenged students is also on the anvil. The NOS will also be restructured to affiliate regular schools/centres, which offer NOS curriculum as an alternative to the curricula of other school Boards. The nearly 1,200 study centres are proposed to be increased by around 15 per cent per year. New admissions, which are around 200,000 students a year, is likely to increase at 20 per cent per year. The NOS proposes to implement the schemes of 'On-Demand Admissions' and 'On-Demand Examinations', which give flexibility to the students to take admissions and examinations during mid-session.

2.3.17 The scheme of providing boarding and hostel facilities for girls, initiated in 1993, has already been revised in order to increase the enrolment of girls at the secondary level. The scheme provides for financial assistance to eligible voluntary organisations to improve the enrolment of adolescent girls belonging to the rural areas and weaker sections.

2.3.18 In order to make secondary education more relevant in the current context, the NCERT will continue to emphasise modernisation and revision of curriculum, updating of courses and vocationalisation of education. The Council would operationalise the fifth Regional Institute of Education for the North-Eastern Region at Shillong. The NCERT is starting the nation-wide Seventh All India Educational Survey in order to strengthen the database during the Plan period.

2.3.19 The Central Board of Secondary Education (CBSE) and the Council for the Indian School Certificate Examination (CISCE) conduct public examinations at the end of Classes X and XII. Both are self-financing bodies, which do not receive any

assistance from the government. A total of 5,850 schools are affiliated to the CBSE as on 15 April 2001 and 1,119 schools to the CISCE as on 31 August 2001. The NOS is the third national-level body conducting equivalent examination at the secondary and senior secondary level.

2.3.20 As part of the zero-based budgeting exercise and in order to bring in greater effectiveness in the implementation of the central sector and the centrally sponsored schemes, the schemes of secondary sector have been grouped under following four broad heads :

2.3.21 **Quality Improvement in Schools:** This comprises the centrally sponsored schemes of Promotion of Sciences Laboratories, Environmental Orientation to School Education, Promotion of Yoga, as well as the central sector schemes of Population Education Project, International Mathematics/ Science Olympiad. The state governments would develop training modules for in-service training of teachers and provide infrastructure and research inputs for quality improvement in schools.

2.3.22 **Information and Communication Technologies (ICT):** This will include the reworked centrally sponsored schemes — Computer Education and Literacy in Schools (CLASS) and Educational Technology (ET) — which seek to familiarise students with IT. Keeping in view the current demand for IT, a major thrust is to be given to this scheme. State governments would prepare Computer Education Plans (CEP) for computer literacy and education. The components of the merged scheme ICT in Schools would include (a) funding support for CEPs; (b) strengthening and reorientation of the staff of the State Institutes of Education and Training (SIETs); (c) Digitalisation of SIETs' video and audio cassettes in partnership with NGOs; (d) web/internet-based education to be managed by the SIETs.

2.3.23 **Access and Equity:** This scheme will comprise, among other components yet to be designed, the ongoing scheme of Strengthening of Hostel/Boarding Facilities for Girl students.

2.3.24 Integrated Education for Disabled Children (IEDC): In the Tenth Plan, greater efforts will be made to expand inclusive education to cater to the needs of mentally and physically challenged students. The scheme will continue as a separate centrally sponsored scheme and will be redesigned. It will now focus on the following elements: convergence with the Integrated Child Development Services (ICDS) scheme for early interventions; with the DPEP and Sarva Shiksha Abhiyan for education of the mentally and physically challenged up to the elementary level; with the special schools under the Ministry of Social Justice and Empowerment. Other components of the scheme will be inclusive pedagogy and curriculum, training of teachers and preparation of teaching learning material; research and development (R&D), advocacy and evaluation; and funding through the PTAs/VECs/ management committees of the schools.

THE PATH AHEAD

2.3.25 The impact of recent initiatives undertaken for the universalisation of elementary education is resulting in increased demand for expansion of secondary education. Unless steps are taken to

expand the secondary education system, it would be difficult to accommodate the increasing number of upper primary pass-outs. While there has been an increase in the number of secondary schools, the spread has been uneven; there are regional disparities and variations in the socio-economic status of various states and Union Territories. The significant gender gap also has to be narrowed down.

2.3.26 The key theme in the Tenth Plan is imparting quality education at all stages of education and the pursuit of excellence. The on-going efforts in revision of curricula at the secondary education level, so as to make it more relevant, would continue in the Tenth Plan. The convergence of centrally-sponsored schemes will help in imparting science, mathematics and, computer education as well as environmental and value education in a more focused manner. There is a line of thinking which believes that subsidising students through a 'voucher system', as is the practice in some of the Latin American countries, is more effective than 'subsidising' institutions. The students will enroll themselves in reputed schools, letting the market forces weed out the inefficient and poor quality institutions.

CHAPTER 2.4

VOCATIONAL EDUCATION

2.4.1 Secondary and higher secondary education are important terminal stages in the system of general education because it is at these points that the youth decide on whether to pursue higher education, opt for technical training or join the workforce. Educationists and experts have consistently recommended that education at these stages should be given a vocational bias to link it with the world of employment. The D.C. Kothari Commission, the recommendations of which form the basis of the 1968 National Policy on Education, felt that it should be possible to divert at least 50 per cent of the students completing Class X to the vocational stream, reducing the pressure on the universities and also preparing students for gainful employment. The vocational education scheme at the 10 + 2 stage came into existence in the late 1970s. However, only a handful of states and Union Territories took the lead in imparting vocational education.

2.4.2 The National Working Group on Vocationalisation Education (also known as the V.C. Kulandaiswamy Committee, 1985) reviewed the Vocational Education Programme (VEP) extensively and developed guidelines for the expansion of the programme. Its recommendations led to the initiation of the centrally sponsored scheme on Vocationalisation of Secondary Education in February 1988.

2.4.3 The scheme is being implemented through the state governments/ Union Territory Administrations in the formal sector and non-government organisations (NGOs) in the non-formal sector. The main objectives of the scheme are to enhance individual employability, reduce the mismatch between demand and supply of skilled manpower and provide an alternative for those pursuing higher education without particular interest

or purpose. During Ninth Plan, a Plan outlay of Rs. 100 crore was provided under the scheme.

2.4.4 In the formal sector, the state governments implement the scheme at the +2 stage through approximately 6,700 schools. More than 150 courses are offered in six major disciplines: agriculture, business and commerce, engineering and technology, health and para medical services, home sciences and humanities. The ministry of human resource development (HRD) has taken up with the Department of Economic Affairs, in the Ministry of Finance the issue of nationalised banks and finance companies providing soft loans to help those who have completed vocational education to set up their own enterprises.

2.4.5 In the non-formal sector, the scheme provides assistance to NGOs for taking up innovative programmes for promotion of vocationalisation of education on a project basis. A total of 168 NGOs have been financially assisted since the initiation of the scheme for taking up these projects which help rural unemployed youth and school drop outs.

2.4.6 Funding of the various programmes in the scheme is shared by the Centre and the states. The central government gives 100 per cent assistance for 11 components. These include apprenticeship training, district vocational surveys, textbook development workshops, instructional material subsidy, resource persons training, workshop/ laboratory building, equipment to schools, teacher training courses, curriculum development workshop, etc. Fifty per cent assistance is given to the states for five components. These are vocational wings at state Directorates of Education, SCERT vocational wings, district vocational wings, provision of raw material/contingency funds and field visits by

students. The Centre provides 75 per cent of the expenditure on vocational school staff while the state governments fund the remaining 25 per cent. The states have to completely finance the expenditure on conducting examinations and providing vocational guidance.

2.4.7 The Pandit Sundarlal Sharma Central Institute of Vocational Education (PSSCIVE), Bhopal, under the NCERT, provides research and development support and training to key stakeholders from states/Union Territories. The Institute draws up the curriculum in the major areas of agriculture, business and commerce, engineering and technology, health and para-medical services, home science etc for courses of one to two years' duration for adoption by the SCERTs.

Issues of concern in vocational education

2.4.8 The vocationalisation of education at the secondary stage of schooling has achieved only partial success. The students prefer general courses – like science, arts or commerce at the +2 level and later in tertiary sector of education. They constitute the bulk of the 60 million educated unemployed youth in the country. On the other hand, the country requires technical and skilled manpower particularly in view of the liberalisation of the economy in recent years. There are immense opportunities for trained manpower in a developing economy like India's, especially in the agriculture, manufacturing and social services sector. A properly planned and effectively implemented vocational education system will enable the unemployed youth to take up some useful employment.

2.4.9 The scheme was evaluated by Operation Research Group (ORG) in 1996 and also by the NCERT in 1998. Some of the important findings of the ORG evaluation are: -

- (a) States are according low priority to vocational education;
- (b) The Directorate of School Education, by and large, are found to be working in isolation with little interaction with other relevant departments;

- (c) State governments are reluctant to appoint full-time teachers because they are worried about taking on a long-term committed liability, in case the scheme is discontinued.

2.4.10 Some of the important recommendations of the NCERT Evaluation of 1998 are: -

- (a) The vocational courses should be provided in general schools in active partnership with industry and in close collaboration with the block level vocational institutions (BLVI) that may be established in rural areas.
- (b) The vocational stream should be treated like the arts, science and commerce streams and students passing out from this stream at the +2 stage should have direct access to the tertiary stage in a related discipline.
- (c) The National Curriculum Framework of the NCERT should be restructured to give due emphasis to work experience, pre-vocational and generic vocational competencies at various levels of school education.
- (d) Full time teachers must be appointed on a regular and permanent basis as in the case of the academic stream.
- (e) All vocational courses at the +2 level must be covered under the Apprenticeship Act, 1961.
- (f) The large infrastructure in polytechnics and the +2 vocational wings in the higher secondary schools, besides those of various departments and NGOs should be reviewed for optimal utilisation of facilities in the existing vocational education programme.

2.4.11 Keeping in view the growing problem of unemployment, the Planning Commission constituted a separate Working Group on Vocational Education for the Tenth Plan in 2000. In line with the recommendations of the working group, the

centrally sponsored scheme is proposed to be recast in the Tenth Plan with the following features.

- The vocational courses in schools should be competency-based and in modular form with a credit transfer system and provisions for multi-point entry/exit.
- There is a need to establish linkage between vocational courses at the +2 level and courses at the university level. The present admission criteria for entry into vocational courses at the graduation level also needs to be changed.
- The existing scheme should be strengthened by involving industries through memorandums of understanding, in designing of the course, development of the curriculum, training of faculty/students and certification of the courses.
- In order to sustain the scheme, schools may consider charging fees and the courses may be designed on a self-financing basis.
- The apprenticeship training facility needs to be utilised fully and made compulsory. To achieve this, the placement of those who have completed vocational studies for apprenticeship and training should be decided by the Board of Apprenticeship Training immediately after the results of the +2 examinations are declared.
- Before vocational courses are started in schools, local business and industry should be closely involved in studying the need and for conducting district vocational surveys.
- Facilities for running vocational courses should become mandatory for the Kendriya Vidyalaya and Navodaya Vidyalaya school systems.
- Persons with disabilities should be given special treatment while designing vocational courses and their needs and integration into courses should receive appropriate attention.
- Financial assistance may be provided under the scheme for creating testing and certification systems in states in co-operation with user bodies and professional associations.
- The All India Council for Technical Education's (AICTE) vocational education board needs to be reactivated for providing technical support to the school system and for establishing linkages with other technical institutions.

2.4.12 The Steering Committee on Secondary, Higher and Technical Education set up for the Tenth Five-Year Plan recommended that the vocational education at the secondary school level, polytechnic education and Industrial Training Institutes (ITIs) should come under one department of the state government for better networking, linkages, focused targeting and optimal utilisation of resources.

2.4.13 An outlay of Rs. 350 crore has been allocated for the Centrally-sponsored scheme of Vocationalisation of Secondary Education in the Tenth Plan.

INDUSTRIAL TRAINING INSTITUTES

2.4.14 At the national level, the Directorate General of Employment & Training (DGE&T) in the Ministry of Labour is the nodal department for formulating policies, laying down standards, conducting trade testing and certification, etc. in the field of vocational training. Vocational training being a concurrent subject, the responsibility is shared by the central and state governments. At the state level, the concerned State Government departments are responsible for vocational training programmes.

2.4.15 Starting from 54 ITIs in 1953, the number of functioning ITIs institutes has gone up to 4,274 (1,654 in the government sector and the remaining 2,620 in the private sector). The seating capacity has progressively risen from 10,000 to 6,28,000 at present. The Apprentice Act, 1961, was amended from time to time to regulate the programme of training of apprentices. The Central Apprenticeship

Council advises the Government on policies, norms and standards in respect of the apprenticeship-training scheme.

2.4.16 The Apprentices Act serves a dual purpose – firstly, to regulate the programme of training apprentices in industry to ensure that it conforms to the syllabi, period of training etc. prescribed by the Central Apprenticeship Council; and secondly, to utilise fully the facilities available in industry for workers. As on 31 March 2001, over 17,800 public/private sector establishments were covered under the Apprenticeship Act and the number of seats allocated were 2.20 lakh, out of which about 1.58 lakh seats were utilised.

2.4.17 The Craftsmen Training programme relates to theoretical training on any area of craftsmanship with little exposure to practical training. This training is being imparted in 43 engineering and 24 non-engineering trades in order to reduce unemployment among the educated youth by equipping them with suitable skills for industrial employment.

2.4.18 Skill development and employment services, as in the past, continue to be provided to vulnerable sections with special needs like women, SCs/STs, and persons with disabilities, including disabled ex-servicemen. To provide training facilities to women so as to enhance their participation in industry as skilled workers and/or to help them in acquiring skills for taking up self-employment, income-generating activities, training programmes, exclusively for women, are being provided through the National Vocational Training Institute (NVTI) and 10 Regional Vocational Training Institutes for Women (RVTI). The present training capacity of these Institutes is 2,068 seats. In the state sector, there is a network of 231 ITIs. exclusively for women, besides 534 Special Wings for Women in general ITIs with 46,750 seats, offering craftsmen training in various engineering and non-engineering trades.

2.4.19 In spite of the available infrastructure and facilities, skill development and training in the country is highly inadequate. Every year 5.5 million

students pass out of Class X, of which 3.3 million go to Class XI, leaving 2.2 million out of the education stream. There are, besides, those who drop out after Class VIII, who number 19 million. These are the people who look for vocational training and self-employment avenues. Therefore, attention has to be paid to this 21 million-target group. As against this, available formal training capacity of the country is only 2.3 million students, which leaves a gap of 18.7 million. The ITI system needs to be revamped to fill up this gap. Further, there is an urgent need to look into training of trainers as only 40 per cent of the 55,000 instructors have undergone a full instructor-training course.

2.4.20 Besides these initiatives of the Ministries of Labour and Human Resource Development, there are several other programmes and activities under the purview of different Departments/Ministries. These include Ministry of Rural Development, Department of Women and Child Development, Ministry of Industries, Khadi & Village Industry Commission, etc. All these programmes largely cater to the needs of the informal sector in a limited manner and need to be expanded to meet the emerging needs.

THE PATH AHEAD

2.4.21 The growing problem of unemployment among the youth requires a recasting of the entire vocational education scheme. Future policies on vocational courses must revolve around the following issues:

- There is a need to sensitise state governments and Union Territory Administrations on the importance of skill training/vocational education in the context of the problem of unemployment.
- There is an urgent need to cater to the Class VIII pass-outs whose numbers will swell with success of the Universalisation of Elementary Education and the Sarva Shiksha Abhiyan initiatives.
- There is need for careful assessment of the stage at which the trades of Fitter,

Turner, Blacksmithy, as also courses like Accountancy, Typing, Book-keeping and Secretarial practices are to be introduced.

- The duration of various vocational courses also needs to be carefully assessed.
- There is also a need for vertical mobility in the vocational stream. Students who complete +2 in a particular stream should be able to specialise and obtain diplomas and degree certificates so as to get value-added jobs and better employment opportunities.
- The vocational courses should be demand and need-based, keeping in mind the constantly changing requirements of technologies/industries. Vocational courses must have an in-built flexibility to allow students to switch courses with changes in demand patterns.
- The existing scheme should be strengthened by involving industries through MoUs in the designing and certification of courses and training of students and faculty.
- At present, most of the vocational courses are in the manufacturing sector. Given the slow growth in this sector and the exploding opportunities in the services sector, vocational courses should concentrate more on the latter.
- There should be focus on convergence of schemes like the Sarva Shiksha Abhiyan, Adult Education, and Vocational Education Programme at schools, ITIs, polytechnics, community colleges etc.
- There is a need to have a re-look at the vocational education scheme given the

fact that a number of districts in Uttar Pradesh, Bihar, Haryana, Rajasthan and Madhya Pradesh have a poor industrial base.

- The syllabi of vocational subjects should be updated on a regular basis to keep pace with changes in technology. This is specially relevant in trades like food processing, dairy technology, leather and tanning technology, etc.
- Vocational institutes should also be networked with professional institutes like the Central Food and Technology Research Institute (CFTRI), Mysore, Central Leather Research Institute (CLRI), Chennai etc. to keep abreast with technological developments.
- The vocational education scheme should focus on the capacity of the local industry to absorb students of a particular trade. Excess supply of students of a particular trade needs to be avoided. In this context, there is need for diversification even within a trade.
- Urgent attention needs to be given to training vocational education teachers.
- There should be regular exchange of ideas/skills among vocational education teachers, master craftsmen and trainees.
- The apex industry associations like the Federation of Indian Chambers of Commerce and Industry (FICCI), Associated Chambers of Commerce and Industry (ASSOCHAM) and Confederation of Indian Industry (CII) need to be involved to a greater extent in the implementation of vocational education programmes and imparting of skills.

CHAPTER 2.5

HIGHER AND TECHNICAL EDUCATION

HIGHER EDUCATION

2.5.1 The importance of education, especially higher education, has been constantly growing and knowledge-based industries are now occupying the centre stage in development. Though the modern higher education system in India is almost 135 years old, its growth has been much faster after India became independent.

2.5.2 Over the past 50 years, there has been a significant growth in the number of new universities and institutions of higher learning in specialised areas. There are now 273 universities/deemed to be universities (including 18 medical universities and 40 agricultural universities) and 12,300 colleges (of which 4,683 are in the rural areas) (Table 2.5.1).

2.5.3 The Ninth Plan reiterates the objectives/policy directions of the National Policy for Education, 1986, and its Programme of Action, 1992. Broadly, the Ninth Plan emphasises on the following strategies to improve the higher education system:

- a) Consolidation and expansion of institutions.

- b) Development of autonomous colleges and departments.
- c) Redesigning of courses.
- d) Training of teachers.
- e) Strengthening of research.
- f) Improvements in efficiency.
- g) Review and monitoring etc.

2.5.4 During the Ninth Plan, an outlay of Rs. 2,520.06 crore was allocated for the university and higher education sub-sector against which an expenditure of Rs. 2,270.92 crore was incurred. (Annexure 2.5.1).

2.5.5 The Ninth Plan period saw the emergence of separate universities for science and technology and health sciences, autonomous colleges with the freedom to design curricula, evolve new methods of teaching and research, frame admission rules and conduct examinations as well as Centres of Excellence and the National Assessment & Accreditation Council (NAAC). There are also institutions of higher learning recognised as deemed to be universities with their own sources of funding in addition to Government grants. The major

TABLE 2.5.1
Number of Institutions of Higher Education, Enrolment and Faculty

Year	Number of colleges	Number of universities*	Students (In 000)	Teachers (In 000)
1950-51	750	30	2,63,000	24,000
1990-91	7,346	177	49,25,000	2,72,000
1996-97	9,703	214	67,55,000	3,21,000
1998-99	11,089	238	74,17,000	3,42,000

Note : * includes institutions that are deemed to be Universities, but excludes other institutions.

Source : UGC Annual Report 1996-97 & 1998-99 and Selected Educational Statistics, Ministry of HRD

emphasis in strategies relating to higher education during this period has been on an integrated approach, with an emphasis on excellence and equity, relevance, promotion of value education, and strengthening the management systems. Autonomous centres have been set up within the university system to provide common facilities, services and programmes to universities and for the promotion of quality.

2.5.6 It is increasingly recognised that in the context of major economic and technological changes, the system of higher education should equip students with adequate skills to enable their full participation in the emerging social, economic and cultural environment. Universities are thus witnessing a sea change in their outlook and perspective. Also, information and communication technologies are leading to fundamental changes in the structure, management and mode of delivery of the entire educational system.

2.5.7 Many universities have already recognised the strategic significance of open and distance learning and offer correspondence courses. At the beginning of the decade, there were 64 universities offering courses through correspondence. The developments in the field of information communication technology and expansion of infrastructure for communication all over the country have created an unprecedented opportunity to serve the needs of continuing education and also to meet the demands for equal opportunity for higher education.

2.5.8 The Indira Gandhi National Open University (IGNOU) established in 1985, has 1.2 million students on its rolls and offers 72 programmes. The University has created a countrywide network of student support structures, with 46 regional centres and 765 study centres. It has also created a media network and teleconferencing system to electronically link all distance-teaching institutions in the country. Many departments of correspondence courses in various universities were converted into independent open universities during the Ninth Plan period. There are, at present, nine open universities in the country, all started by different states during the nineties.

Box 2.5.1

Tenth Plan – Objectives, Key Issues and Focus

The main objective in the Tenth Plan is to raise the enrolment in higher education of the 18-23 year age group from the present 6 per cent to 10 per cent by the end of the Plan period. The strategies would focus on increasing access, quality, adoption of state-specific strategies and the liberalisation of the higher education system. Emphasis would also be laid on the relevance of the curriculum, vocationalisation, and networking on the use of information technology. The Plan would focus on distance education, convergence of formal, non-formal, distance and IT education institutions, increased private participation in the management of colleges and deemed to be universities; research in frontier areas of knowledge and meeting challenges in the area of Internationalisation of Indian education.

2.5.9 The issues of access and equity are central to the university/higher education system. Only about six per cent of the estimated population in the 18-23 age group is currently in the university system. Measures to increase enrolment, including that of the disadvantaged sections, will thus be given attention during the Plan.

Quality Improvement/Academic Re-forms/ Relevance of Curriculum

2.5.10 The basic issue of quality improvement would be addressed through the modernisation of syllabi, increased research, networking of universities and departments and increased allocation of funds. Networking through local area network (LAN), wide area network (WAN), Information and Library Network (INFLIBNET) would also lead to increased academic activities and research. The university system would be expected to utilise the autonomy it enjoys for innovations in teaching and for pursuing high quality research. The emphasis would be on conferring autonomous status on more colleges, provision of the means to interact across geographical boundaries of institutions, improving the infrastructure, more rationalised funding of research, integration

of teaching, research and evaluation, and mutual collaboration and cooperation among universities for optimum utilisation of available resources. There is a pressing need to improve the management and governance of universities to better enforce financial and administrative discipline. Decentralisation of the university system, greater powers to faculty/ departments and nomination of students to university bodies on the basis of merit/excellence are, therefore, issues which would receive attention. The accreditation process should be made more transparent, time-bound and be progressively freed of Government regulations and control leading to a situation when the whole procedure would be based on a system of public appraisal/acceptance.

2.5.11 Financing of higher education is another critical issue. The fee structure in the universities is abysmally low and has remained static for more than three decades. The universities should, therefore, make efforts to rationalise the fees and attempt greater generation of internal resources. The extent to which universities can hike fees needs to be studied, including avenues for receipt of contributions, donations, gifts, and sponsorships from the alumni, trusts, private sector and industries. However, utmost care needs to be taken to ensure that the social obligation – ensuring that the poorer students are given adequate opportunity to pursue higher education — is not lost sight of.

University Grants Commission (UGC)

2.5.12 The UGC, the apex body responsible for the development of higher education in the country, has been providing financial assistance to all eligible central, state and deemed universities, both under Plan and non-Plan heads, for improving infrastructure and basic facilities. The grants-in-aid would be used for setting up central universities especially in states that do not have one, more autonomous colleges and providing support to private colleges. Attempt would be made to ensure that the socially, economically and geographically disadvantaged sections are able to access higher education. To encourage more women to pursue higher studies, the number of counselling/study centres, day care centres for children and hostels

will be increased during the Tenth Plan. Similar steps will be taken for scheduled caste/scheduled tribes (SCs/STs) students and minorities. Besides, the activities of distance/open universities will be supported to increase access for the northeastern and backward areas.

2.5.13 The UGC proposes to promote quality and relevance in higher education in the Tenth Plan by initiating complementary skill-oriented courses. The career development of students will be promoted through courses with a professional focus. A major programme of vocationalisation of education has already been initiated in 35 subjects at the undergraduate level. In the Tenth Plan, new courses, including vocational courses, relating emerging areas such as information technology, biotechnology, biomedicine, genetic engineering, applied psychology, tourism and travel, physical education and sports would be introduced in more and more universities. The UGC has been continuously updating curriculum and the process has been completed in 30 subjects in different disciplines. The Administrative Staff Colleges (ASCs) have proved to be good instruments for teacher training and orientation. Efforts will be made to widen and enhance the range and scope of ASCs and set up more ASCs to achieve a uniform regional spread. Steps have been taken from time to time for making accreditation of institutions mandatory. State Governments would be required to play a pro-active role in the accreditation process and help NAAC in its efforts to sensitise the stakeholders.

2.5.14 The UGC conducts a National Level Test (NET) to ensure minimum standards for those joining the teaching profession and taking up research in humanities including languages, social sciences, computer applications and electronic sciences. The Government and the UGC will continue to support NET and increase the number of research fellowships. Universities and colleges are to be provided with Intranet and Internet connectivity to develop an IT orientation in higher education and will also be encouraged to set up LAN and WAN so as to enable connectivity within the campus and among colleges/universities.

2.5.15 Under the ongoing scheme of strengthening scientific research, the UGC would continue to assist university departments, which have achieved excellence in research in different disciplines of science, especially in the emerging areas of biotechnology, biomedicine, genetic engineering, nuclear medicine, social science, humanities etc.

2.5.16 In view of the resource crunch faced by the UGC and the higher education system, it is proposed to give incentives to universities/colleges, which make efforts to increase/raise internal resources.

Distance Education and IGNOU

2.5.17 The non-formal system (distance and open learning) accounts for only a 13 per cent of the total enrolment in higher education. Out of 7.7 million students enrolled in university and colleges, the distance education/correspondence courses covered only one million students. The distance and open learning system provides flexibility in terms of combination of courses, age of entry, pace of learning and methods of evaluation. The coverage of open universities would, therefore, need to be extended to the backward regions, remote inaccessible tribal areas of the northeast and some of the eastern states. At present, there are nine state open universities and 64 Institutes of Correspondence Courses and Directorates of Distance Education in conventional universities. The enrolment of distance learners in open and distance education System is expected to rise significantly in the Tenth Plan period. IGNOU has expanded its regional centres and network of study centres in the Ninth Plan period. It now has 46 regional centres and 691 study centres. It has been vested with the twin responsibilities of acting as an Open University and offering need-based education, training and extension programmes, with special focus on the disadvantaged sections of the society and acting as the national nodal agency to determine and maintain standards in distance education.

2.5.18 IGNOU has established the Distance Education Council (DEC) to act as the nodal agency for distance education system at the tertiary level. The university has adopted an integrated multimedia instructions strategy consisting of print material and audio-video programmes, supported by counselling sessions at study centres. It manages a dedicated 24-hour satellite TV channel, Gyan Darshan, which beams educational programmes from school to tertiary level 24 hours a day. Preparations are on to launch 40 FM educational radio channels (known as Gyan Vani) under a Memorandum of Understanding with Prasar Bharati. During the Tenth Plan, IGNOU would set up open universities in states where none exist at present expand the activities of Gyan Darshan and Gyan Vani. The target is to extend the coverage of the open learning system to the backward regions, remote inaccessible areas of the northeast and low female literacy blocks in some of the eastern states.

2.5.19 The Government, in April 2002, constituted the Committee on Promotion of Indian Education Abroad (COPIEA) under the chairmanship of Secretary, Department of Secondary & Higher Education. With the globalisation of the Indian economy, student mobility across national boundaries has increased phenomenally in the higher, technical and management sectors. A large number of foreign educational institutes have also started establishing their presence in India and there is immense potential for Indian educational institutions to set up campuses abroad. The COPIEA will monitor all activities aimed at promoting Indian education abroad and will regulate the operation of foreign educational institutions to safeguard the interests of the students and the larger national interest as well. To this end, a system of registration will be introduced under which institutions will have to furnish information on operations and adhere to certain guidelines relating to publicity, maintenance of standards, charging of fees, granting of degrees etc. The COPIEA would, over a period of time, develop a sectoral policy on foreign direct investment in the education sector.

Social Science Research Outside the University System

2.5.20 The higher education system includes research institutions that are outside the university system. These are the Indian Council of Social Science Research (ICSSR), Indian Council of Philosophical Research (ICPR), Indian Council of Historical Research (ICHR), and Indian Institute for Advanced Studies (IIAS) and the National Council of Rural Institutes (NCRI). As these institutes have been doing valuable research on current political, social and economic issues, which are of great relevance, the Tenth Plan would be increase funding for them. They would also be subjected to external evaluations, including peer review, to increase their effectiveness.

TECHNICAL AND MANAGEMENT EDUCATION

2.5.21 The technical and management education sector has made immense contribution to the country's economic and industrial development. It has produced high quality skilled, technical and managerial manpower. Technical / management education is provided through the Indian Institutes of Technology (IITs), Indian Institutes of Management (IIMs) and 17 Regional Engineering Colleges (RECs). Other institutions in the central sector are: Indian Institute of Science (IISc), Bangalore, Indian Institute of Information Technology and Management (IITM), Gwalior, Indian Institute of Information Technology (IIIT), Allahabad, Indian School of Mines (ISM), Dhanbad, School of Planning and Architecture (SPA), New Delhi, National Institute of Foundry and Forge Technology (NIFFT), Ranchi, National Institute of Training and Industrial Engineering (NITIE), Mumbai, Technical Teachers' Training Institutes (TTTIs), North Eastern Regional Institute of Science and Technology (NERIST) and Sant Longowal Institute of Engineering and Technology (SLIET). In addition, there are various polytechnics and engineering colleges in the states and in the private sector.

2.5.22 The number of institutes has grown phenomenally. In 1947, there were only 46 engineering colleges and 53 polytechnics with an annual

intake of 6,240 students. Due to initiatives taken during successive Plan periods, and particularly because of large-scale private sector participation, the number of All India Council of Technical Education (AICTE)- approved technical and management institutions has risen to 4,791 in 2001-02 with an annual intake of 6.7 million students.

2.5.23 The Ninth Plan period saw a phenomenal increase in the number of institutions in the technical and management education sector in the country with the AICTE granting approval for the setting up of 1,715 institutions across the country mainly through private initiatives. These cover courses/ programmes in engineering, technology, management, architecture, town planning, pharmacy, applied arts and crafts etc. There has also been a corresponding increase in the enrolment of students to meet the growing demand for quality technical/ managerial manpower, especially in the field of information technology (IT) and IT related fields. Networking facilities have also been upgraded.

2.5.24 There is greater use of technology in the teaching-learning process in the IITs in transforming pedagogy etc. The community polytechnics scheme started in 1978-79 made substantial contributions towards transfer of advanced technologies at low cost to the rural population and cost-effective strategies to upgrade skills.

2.5.25 A large number of central, state and accredited technical institutions in the private sector have benefited under the schemes of Modernisation and Removal of Obsolescence, Research and Development, initiated in the Seventh Plan and Thrust Areas in Technical Education started in the Ninth Plan. Infrastructure facilities for research and development (R&D) have been upgraded under these schemes. Special emphasis has been given to strengthening the infrastructure facilities in the premier institutes viz., IITs, IIMs, IISc, RECs, etc. Besides, the IITs and IISc have implemented Technology Development Missions in the areas of food processing engineering, material technology, genetic engineering, bio-technology etc. The Technology Development Missions, started in the Eighth Plan, succeeded in establishing strong

industry-institute linkages. Technologies developed in projects carried out under different programmes have been successfully transferred to industry.

2.5.26 Technician Education has been strengthened and the quality of students passing out of Polytechnics has improved through the World Bank-assisted state sector project which covered 279 polytechnics in nine states in the first phase and 249 polytechnics in ten states in the second phase. The Technical Education Project III effectively began from January 2001 and is aimed at assisting polytechnics in the backward areas of the northeast, Jammu and Kashmir and the Andaman and Nicobar Islands.

2.5.27 A National Programme of Human Resource Development (HRD) in IT targeting mainly

IT education at the degree level and beyond, was launched in January 2000 in pursuance of the recommendations made by the Task Force on HRD in IT. The components of this programme, include upgrading of computing facilities and connectivity; promotion of technology-enhanced IT education; faculty development initiatives; curriculum and course initiatives; and promotion of interface with industry. Further, a Task Force constituted by the Planning Commission to suggest strategies for India's transformation into a knowledge superpower, has highlighted how advances in IT, biotechnology and other emerging areas could be harnessed for India's economic and social development.

2.5.28 Although there is enormous growth in capacity expansion and the turnout of world-class technical manpower, the technical education sector is still beset with some problems. These include lack of adequate training programmes and highly qualified faculty for the knowledge industries; shortage of funds/resources for technical institutions; inadequate linkages between the IITs, RECs and other engineering institutions; etc.

Box 2.5.2

Recommendations of the Task Force on HRD in IT (2001)

- Creating information on IT manpower.
- Promoting initiatives in HRD in IT with focus on bridging the digital divide, innovation in pedagogy etc.
- Monitoring the intake and out-turn of IT professionals by institutes with the objective to double intake by 2001-02 and triple it by 2003.
- Setting up of exclusive IT institutes, improving their quality, infrastructure and promoting networking.
- Launching an IT faculty development initiative.
- Evolving curriculum and courseware of IT institutes.
- Promoting technology-mediated IT education using a web-based and multimedia approach.
- Improving connectivity.
- Promoting postgraduate education and research.
- Facilitating interface with the IT industry.
- Sharing investments between the central/state governments and industry.

Box 2.5.3

Tenth Plan – Objectives, Key Issues and Focus

The key issues in technical and management education during the Tenth Plan would be a continuing focus on increasing intake; quality of education, including research in technology. Other issues include: faculty development; optimal utilisation of resources through networking; development of information technology education; modernisation of the curriculum; international benchmarking; developing capacity in new and emerging technology areas; strategic planning and management of the technical education system and developing the informal sector.

2.5.29 The thrust on knowledge-based industries calls for strengthening the existing infrastructure, modernisation of laboratories, workshops, libraries, computer facilities and research and development.

2.5.30 Industry-oriented and practical programmes will be offered in selected polytechnics, developed into centres of excellence i.e., Indian Polytechnic Institutes (IPIs) to meet the specialised demand for middle level supervisory technical personnel of manufacturing industries. In addition to giving an opportunity for diploma holders to obtain higher qualifications, this programme will also provide the much-needed multi-skilled manpower to industry. Such polytechnics, besides playing a leading role in strengthening the diploma-level education, would, also, act as model institutions.

2.5.31 In line with the report of the R.A. Mashelkar Committee the RECs, which have great potential, will be expanded/modernised/upgraded into National Institutes of Technology and be conferred the status of deemed to be universities with greater academic and administrative autonomy.

2.5.32 Appropriate schemes will be formulated and implemented in the Tenth Plan to enhance the productivity of the informal sector, improve the skills of workers and facilitate the adaptation of better technologies. The Community Polytechnic scheme will be restructured/expanded by including all the AICTE-approved institutions under its ambit by the end of the Tenth Plan. Emphasis will be given to components relating to transfer of technology, manpower development and technical and support services when implementing the scheme.

2.5.33 Pharmaceutical institutions, institutions offering courses in architecture and planning and hotel management and catering will be supported for starting advance level courses, R&D and continuing education programmes.

2.5.34 The IITs and the IISc will continue their work in implementing the Technology Development Missions in various areas and providing strong support to industry-institute-linkages.

2.5.35 The recommendation of the Rama Rao Committee on enhancing the quality of post graduate education and research capability through doctoral and fellowship programmes will be

implemented in the Tenth Plan. The Committee recommended the enhancement of the scholarship/fellowship rates to encourage postgraduate education, and better networking among institutions.

2.5.36 The Tenth Plan will take up several initiatives for strategic planning and management of technical education. These include an electronic management information system (EMIS) scheme to be supported by the AICTE at the national level to plan the coordinated development of the technical education system and to be implemented in selected lead institutions. The information collected through the EMIS will be available on-line and provide an effective real time decision support system to central and state governments for effective planning, development and monitoring. It would also support other stakeholders in taking informed decisions and choices.

2.5.37 The National Technical Manpower Information System (NTMIS), which gives a complete technical manpower profile, will be strengthened and expanded to other areas of technical education, namely, management, pharmacy, hotel management and catering, and applied arts. This would assist central and state governments and the AICTE to monitor the mismatch between supply and demand of technical manpower and facilitate planning and development of technical education in the country.

2.5.38 Two schemes will be launched to optimise resources and to make the system cost effective. One will involve networking of similar institutions in the areas of faculty and student exchange, joint academic and research programmes, faculty mentors, joint consultancy, continuing education and distance learning programmes, designing and updating curricula, preparation of instructional material, staff development and data and information sharing etc. The second will attempt to avoid duplication of efforts and wastage of scarce resources, establish common laboratory facilities in specialised areas which will also be shared by other institutions and used by industry on cost-sharing basis.

New Schemes for the Tenth Plan

2.5.39 Several new schemes are proposed in the Tenth Plan to upgrade the quality of technical education. With a view to making the education system flexible and enabling students to learn at their own time and pace, distance and web-based learning is planned in the various engineering and management institutions. Educational Technology Centres will be established/strengthened at IITs, RECs, selected engineering colleges, management institutions and TTTIs. These centres will take up preparation of course material and use multi-media software to put them online.

2.5.40 Full fledged departments of bio-technology will be established at IITs, RECs, IISc, Bangalore with undergraduate, postgraduate and doctoral programmes and for the development of new and emerging technology areas like advanced new material technology, bio-technology, nano-technology, bio-informatics, robotics etc. This will provide a competitive edge to the country in the long-term development of biotechnology potential.

LANGUAGES, BOOK PROMOTION, COPYRIGHT ACTIVITIES AND SCHOLARSHIPS

Languages

2.5.41 India has a rich heritage of languages. The strategies for their development find an important place both in the National Policy on Education, and the Programme of Action. Efforts to promote and develop all the 18 languages listed in the Eighth Schedule of the Constitution continued through various ongoing central initiatives during the Ninth Plan. The programmes include: the appointment of teachers in Hindi, modern Indian languages and Urdu; preparation of bilingual, trilingual and multilingual dictionaries, teaching of Hindi by the Central Hindi Directorate, Delhi, through correspondence courses; development of Hindi teaching methodologies and training of Hindi teachers from non-Hindi speaking areas, comparative linguistic studies etc., by the Kendriya Hindi

Shikshan Mandal. Besides, there are schemes for training of teachers in the modern Indian languages, research in language analysis, pedagogy and technology by the Central Institute of Indian Languages, Mysore. Emphasis is also given to minority languages with schemes for the development, promotion and propagation of Sindhi and Urdu languages by the National Councils for promotion of the two languages. Development of Sanskrit through a number of interventions and programmes of the Rashtriya Sanskrit Sansthan, Delhi, and Maharshi Sandipani Rashtriya Veda Vidya Prathisthan, Ujjain. Significant progress has been made in the development of languages during the Plan period.

Box 2.5.4

Tenth Plan – Objectives, Key Issues and focus

The key issues during the Tenth Plan would be using technology for the development of Indian languages like the digitalisation of manuscripts; upgrading pedagogical skills; preservation of manuscripts and contemporary writing; promoting educational development/mainstreaming of minorities; education in human values.

2.5.42 The Tenth Plan will emphasise the following in its approach to language development:

Development of Modern Indian languages

2.5.43 Taking into account the rich cultural diversity of India, the development of Indian literature will get prime attention in the Tenth Plan. Five major projects, which lay stress on digitalisation of manuscripts and documents, research analysis, translation, the preservation of manuscripts and accessibility to information, will be taken up. The Central institute of Indian Languages and the National Book Trust, Delhi, will play lead roles in undertaking translation of literature into all languages and making them available to the people at affordable prices. The National Council for Indian Languages will provide the necessary impetus and

guidance for the development of Indian languages in the Plan period. Further, special efforts will be made to document the endangered languages.

Hindi Language and Modern Technology

2.5.44 Hindi is proposed to be developed both as the national language (Rajyabhasha) as well as the link language in the country. New centres of the Kendriya Hindi Sansthan are proposed to be opened to train Hindi teachers, and new schemes formulated to promote the language within India and abroad, using modern technology and through short-term Hindi learning courses.

Promotion and Development of Sanskrit

2.5.45 Sanskrit has a pre-eminent position among all languages as its knowledge helps access the vast treasures of wisdom contained in our ancient scriptures. The Government is committed to the development of Sanskrit, which will be done with the help of modern technology. It is proposed to digitalise Sanskrit classics and books in the Tenth Plan and teach Sanskrit through self-teaching CDs and through Internet.

2.5.46 Further, programmes will also concentrate on the identification, collation and preservation of ancient manuscripts. Particular attention will be paid on promoting links between Sanskrit and science. There is a vast treasure house of scientific knowledge in the ancient texts that needs to be made available to and popularised by promoting partnership between Sanskrit scholars and the scientific community. Efforts will also be made during the Plan to expedite the Sanskrit Encyclopedic dictionary project.

Area Intensive and Madarasa Modernisation Programme (AIMMP)

2.5.47 The National Policy on Education accords priority to mainstreaming of the educationally backward and disadvantaged sections of the society. Two centrally sponsored schemes, the Area Intensive Programme for Educationally Backward

Minorities (AIPEBM), and the Modernisation of Madarasa Education (MME) have been under way since 1993 and are meant to foster the educational development of minorities. Since they were initiated, 1,423 schools/hostels for girls/class rooms and other facilities have been established for the educationally backward minorities. Modern subjects – English, mathematics, Science and Social studies – have been introduced in the madarasas under the modernisation scheme. Grants are also provided to establish and upgrade the library facilities. Besides, the National Council for Promotion of Urdu language has established 110 Urdu desktop publishing (DTP) centres to cater to the minorities. In the Tenth Plan, the AIPEBM and MME will be merged to form one umbrella scheme, the Area Intensive and Madarasa Modernisation Programme (AIMMP) to give more focused attention to the educational development of the minorities.

Education in Human Values (EHV)

2.5.48 The Strengthening of Culture and Values in Education scheme, initiated in 1987, is being implemented in line with the policy of making education a forceful tool for inculcation of social and moral values. It was renamed as Education in Human Values in 1992. The scheme will sensitise students, parents, teachers and the community and inculcate universal and eternal values oriented towards the unity and integrity of the country. It envisages the elimination of obscurantism, religious fanaticism violence, superstition and fatalism. Value Education Centres have been set up in NCERT, National Institute of Educational Planning and Administration (NIEPA), the National Open School (NOS), ICPR, IGNOU, IIT Delhi, IIM Lucknow and UGC. Special arrangements have been made for training of teachers in value education. It is proposed to make the scheme more broad-based and increase its scope by involving educational institutions and teacher training institutes in the states and Union Territories to seek their active participation in the programme.

Scholarships

2.5.49 The various scholarship schemes are proposed to be modified keeping in view the

problems faced in their implementation during the Ninth Plan, the changing educational scenario and the need to improve the quality of education. The schemes are to be reviewed and revised to make them uniform and will be fully financed by the central government.

Book Promotion

2.5.50 Book promotion activities are carried out mostly through the National Book Trust. During the Ninth Plan, the Trust organised three World Book Fairs, six National and 25 Regional Book Fairs to inculcate reading habit among the people. With more children going to school and increased adult literacy, there is a need to promote the availability of books in the country.

Box 2.5.5

Tenth Plan – Objectives, Key Issues and focus

The vision of 'Books for All' coincides with the vision of 'Education for All'. This calls for the promotion of the reading habit amongst the people and making books available at affordable prices. Production of quality books for children, including textbooks and workbooks, will be a priority.

2.5.51 'Books for All' is the proclaimed goal for the Tenth Plan, in line with the vision of 'Education for All'. This calls for making books available at affordable prices. Efforts will be made to secure easy accessibility to books for all segments of the population. Steps will also be taken to improve the quality of books, encourage creative writing and protect the copyright of authors and preserve the age-old wisdom.

2.5.52 During the Tenth Plan, the National Book Trust will continue its efforts to increase the production of quality books and expand the distribution system.

Copyright

2.5.53 India is a major producer and exporter of copyright material, namely, books, computer

software, films and music. The major copyright industries have registered significant growth over the last few years. The exports of books and other printed material has grown from Rs. 26 crore in 1986-87 to Rs. 215 crore (estimated) in 1998-99.

Box 2.5.6

Tenth Plan – Objectives, Key Issues and focus

The phenomenal growth in the exports of copyright material, viz. books, computer software, films and music, requires measures for the enforcement of copyright. The focus during the Tenth Plan will be on creating greater awareness of copyright laws among the enforcement personnel and general public, setting up separate cells in state police headquarters, and encouraging research in the higher education system.

2.5.54 Several measures have been taken to strengthen the enforcement of copyright. These include amendment of the Copyright Rules in 1995; the Copyright Act in 1999, and promulgation of the International Copyright Order in 1999. Other measures included the setting up of the Copyright Enforcement Advisory Council, seminars/workshops to create greater awareness about copyright laws among the enforcement personnel and general public and creation of separate cells in state police headquarters, etc. The thrust areas in copyright and related rights in the Tenth Plan are strengthening of the enforcement machinery.

General Agreement on Trade in Services (GATS)

2.5.55 The GATS covers the education sector and is listed for negotiations in the World Trade Organisation. The process of consultation amongst various agencies to firm up the country's position in this regard has been intensified and will be fully addressed during the Tenth Plan.

PLANNING, MONITORING AND STATISTICS

2.5.56 The Ninth Plan gave priority to the review of the implementation of the National Policy on

Education and its Programme of Action and consultations with the state governments/Union Territories. Lack of timely and reliable data, which is so vital to educational planning, has been an area of concern.

Box 2.5.7

Tenth Plan – Objectives, Key Issues and focus

The key issues during the Tenth Plan would be review of the implementation of the National Policy on Education and undertaking research in education planning and administration. The Plan would also focus on providing training and consultancy services; strengthening the statistical machinery at the Centre, states and Union Territories; equalisation of educational opportunities for the disadvantaged; and educational development of the northeastern region.

2.5.57 During the Tenth Plan, efforts would be made for continuous and effective review of the implementation of the National Policy on Education and the institutional mechanisms for implementing it would be revived. NIEPA would assume a proactive role in policy research to bring structural changes in educational administration and in imparting training to the administrators. The institute would undertake and coordinate research in education planning and administration; and provide training and consultancy services. The statistical machinery both at the Centre and in the states/Union Territories is poised for a major overhaul so that reliable and validated data is made available to planners and administrators. Removal of disparities and equalisation of educational opportunities to the disadvantaged and neglected regions would also continue to receive priority attention.

Indian National Commission for Cooperation with UNESCO

2.5.58 India has been playing an active role in promoting UNESCO's ideals and objectives, and fulfilling bilateral/multilateral obligations and international cooperation in the field of education.

During the latter half of the Ninth Plan, increased attention has been given to encouraging Indian education abroad and measures for implementing Educational Exchange Programmes.

Box 2.5.8

Tenth Plan – Objectives, Key Issues and focus

India's interface with UNESCO, international cooperation in the field of education, operationalisation of Educational Exchange Programmes, encouraging Indian education abroad, and development of the Auroville Foundation would get increased attention during the Tenth Plan.

2.5.59 The Indian National Commission for Cooperation with UNESCO (INCCU) has been handling UNESCO work, particularly in the formulation and implementation of its programmes including the participation programme and review of Education for All initiatives at the international level. All the ongoing activities of the Commission are proposed to be continued during the Tenth Plan.

2.5.60 A proposal to enter into separate bilateral agreements with foreign countries independent of the cultural exchange programmes, to strengthen international cooperation in the field of education will be actively pursued. The proposed exchange programmes will include programmes for exchange of academics, educationists, scientists, scholars and technologists. It is also proposed to continue the on-going schemes for strengthening of external academic relations with enhanced provisions for outgoing delegations.

2.5.61 The Government would continue funding the Auroville Foundation for its maintenance and developmental activities. The Sri Aurobindo International Institute of Educational Research (SAIIR) is also proposed to be funded for undertaking research activities.

Recommendations of Expenditure Reforms Commission:

2.5.62 The Expenditure Reforms Commission's recommendations relating to the downsizing of the Ministry of Human Resource Development and its autonomous bodies, merger of activities etc., are receiving attention and follow up action will be undertaken during the Tenth Plan.

THE PATH AHEAD

2.5.63 Higher education, whether in the general or the technical stream, must have links with all national goals and endeavours. To this end, a large number of centres for excellence to turn out quality manpower in areas relevant to industry and society need to be established with the triangular partnership of academia, industry and government. These institutes of excellence are essential to make

India a knowledge superpower and would help in retaining our competitive edge in the global economy.

2.5.64 To ensure the quality of education, it is necessary to make our accreditation process more transparent, time-bound and free from the regime of controls. Institutions like the NAAC and AICTE should make public the benchmarks as well as other normative standards, which are absolute minimum requirements for starting colleges and institutes of technical education. There is a need to enforce these minimum standards without any dilution or compromise. Modernisation of syllabi, examination reforms and greater attention to issues of governance of universities and colleges, all require urgent attention.

2.5.65 Schemewise break-up of the Tenth Plan outlay of Department of Secondary and Higher Education is given in the Appendix.

Annexure - 2.5.1

Department of Secondary and Higher Education
Ninth Plan outlay/expenditure and Tenth Plan (2002-07) approved outlay

(Rs. crore)

Sl. No.	Name of the Scheme	Ninth Plan Allocation	Ninth Plan Anticipated Expenditure	Tenth Plan approved Outlay
1.	Secondary Education	2,603.49	2,322.68	4,325.00
2.	University and Higher Education	2,520.06	2,270.92	4,176.50
3.	Technical Education	2,373.51	2,109.54	4,700.00
4.	Language Development	324.45	298.40	434.00
5.	Scholarships	25.32	3.23	52.00
6.	Book Promotion	16.25	26.06	67.00
7.	Planning and Administration.	65.38	21.46	70.50
	Total	7,908.40	7,052.29	13,825.00

CHAPTER 2.6

ADULT LITERACY & CONTINUING EDUCATION

2.6.1 There was a considerable degree of awareness of the importance of adult education in the pre-independence period though efforts at adult education during this period were modest. This led to the gradual emergence of the view at the policy level that the State must shoulder the primary responsibility in this regard. The strategy followed immediately after Independence and in successive Five-Year Plans to provide education to the masses made a distinction between Universalisation of Elementary Education (UEE) and Adult Education. Overriding priority was given to primary education on the assumption that the expansion of primary education would automatically take care of problems of illiteracy. It was only in 1977-78 that the government decided to accord due weightage to adult education along with the programme of UEE, and the National Adult Education Programme (NAEP) launched on 2 October 1978. For the first time, Adult Education was put on the educational agenda of the nation and thereby made central to the development approach that was pursued. However, the NAEP was not very successful because it was traditional, honorarium-based, hierarchical and government-funded and controlled.

REVIEW OF NINTH PLAN

2.6.2 The emphasis during the Ninth Plan was on restoring the lost momentum of the adult education programme and making it more effective by clarifying the administrative and financing roles of the Centre, the states, Zilla Saksharata Samities (ZSS), Panchayati Raj Institutions (PRIs), other local bodies and non-government organisations (NGOs). Therefore, the focus was on decentralised and disaggregated planning and implementation of literacy, post-literacy and continuing education programmes. The proposed measures to do this were devolution of power from the National Literacy

Mission Authority (NLMA) to the State Literacy Mission Authority (SLMA) for financial sanction to projects under the Total Literacy Campaign (TLC) and Post Literacy Campaign (PLC) and empowerment of PRIs and urban local bodies to achieve universal literacy. Other steps included increasing the range and depth of NGOs involvement in literacy campaigns; meeting the special needs of Scheduled Castes/Scheduled Tribes (SCs/STs) and reducing rural-urban and male-female disparities in literacy through the campaign mode.

2.6.3 The element of local initiative was clearly visible in the zilla saksharta samiti, in which the local administration, voluntary agencies, opinion leaders, professionals from the region as well as members of the community were involved in the process of imparting functional literacy. After activities relating to building an environment for education (in which the community is informed, sensitised, motivated and mobilised through *kala jathas*, rallies, wall writings, posters, *melas* and the use of locally relevant traditional folk forms), the identification of learners and volunteers is undertaken.

2.6.4 The NLM programme was revamped in 1999 to remove some lacunae. While increasing the scope of the programme, the parameters and norms of financial assistance of schemes under NLM were substantially enhanced. The main features of the revised scheme were.

- An integrated Literacy Campaign amalgamating all the features of earlier TLC/PLC phases.
- Full freedom to zilla saksharta samitis to attempt synergies with those of local youth clubs, mahila mandals, voluntary agencies, PRIs, small-scale industries, cooperative societies, etc.

- The Continuing Education scheme encompassing removal of residual illiteracy, programmes catering to individual interest and aptitude, skill development, rural libraries, etc., would allow for opening of Continuing Education Centres (CECs) in every major village.
- Major role for NGOs.
- Strengthening of State Resource Centres (SRCs).
- Enlarging the activities of the Jan Shikshan Sansthan to enable them to function as the repositories of vocational/technical skills both in urban and rural areas.

2.6.5 The NLM has covered 96.64 million persons under various adult literacy schemes up to December 2001. At present, out of 593 districts in the country, 160 districts are covered under TLC, 264 under PLC (including 30 under the Rural Functional Literacy Programme) and 152 under the Continuing Education Programme. NLM is now engaged in the task of imparting functional literacy to persons in the 15-35 age group and has set the following medium-term goal for itself (Box 2.6.1).

Box 2.6.1

Goals for Literacy

- To achieve a sustainable threshold literacy level of 75 per cent by 2005.

Programmes/Schemes in Adult Education

Literacy Campaigns and Operation Restoration

2.6.6 Under the revised NLM scheme, an integrated approach to literacy is being followed since April 2000. The new approach envisages the integration of the activities of basic teaching-learning with post-literacy activities to ensure a smooth transition from TLC to Post-Literacy Programmes (PLP). Now, it is possible to take up TLC and PLP activities concurrently as the two operational stages of the learning continuum draw their financial sustenance from a single budgetary provision. In cases where TLC has stagnated, for reasons

beyond the control of the local zilla saksharta samiti like natural calamities, absence of political will, transfer of the collector, lack of grassroots mobilisation etc., it is possible, under the revised scheme, to formulate strategies for restoration of these campaigns.

2.6.7 The funding pattern of literacy campaigns is 2:1 shared between the Centre and the state government for normal districts. In the case of districts under the Tribal Sub-Plan (TSP) the ratio is 4:1. The per learner cost for one year for a TLC and PLP has been revised upward to Rs. 90-180 for the TLC, and Rs. 90-130 for the PLP with effect from 1 April 2000. The normal time span of a TLC is set at 18 months and that for PLP 12 months. The districts would thus complete the basic literacy and post-literacy activities within a period of 30 months and establish the necessary infrastructure. The Rural Functional Literacy Projects scheme is absorbed into the scheme of Literacy Campaigns and Operation Restoration, which caters to people who have relapsed to illiteracy.

Scheme of Continuing Education

2.6.8 The Continuing Education scheme provides a learning continuum to the efforts of TLCs and PLPs and has been sanctioned for 152 districts till 31 March 2002. Under the scheme, the main thrust is given to setting up CECs and Nodal Continuing Education Centres (NCECs) which function as focal points for providing learning opportunities and facilities such as library, reading room, learning centres, sports centres, cultural centres and other programmes catering to individual aptitude. In line with the existing guidelines, each CEC serves a population of 2,000-2,500 with the norm being relaxed in sparsely-populated areas. One NCEC is set up for a cluster of eight to ten CECs to oversee and monitor their activities.

2.6.9 The norms of financial assistance under this scheme have been revised upwards from 1 April 2000. Accordingly, the NCEC and the CEC are provided non-recurring one-time assistance of Rs.

45,000 and Rs 25,000 respectively once in five years. In addition they get a recurring grant of the same amount each year, 10 per cent of which is provided as administrative cost for each centre.

Support to Non-Governmental Organisations

2.6.10 Under the scheme, initiated in 1988, funds are released by the Centre to the SRCs, which are managed by NGOs or universities. The SRCs are expected to provide academic and technical resource support to the programmes of adult education. The scheme was revised for the Ninth Plan and the following major changes were incorporated:

- (i) Financial support to SRCs has been enhanced from Rs. 30 lakh to Rs. 60 lakh in case of category A SRCs and from Rs. 25 lakh to Rs. 40 lakh in case of category B SRCs. Category C was abolished.
- (ii) Provision has been made for a one-time grant to the SRCs for infrastructural facilities
- (iii) Provision has been made for NGOs to undertake area-specific continuing education projects as well.

2.6.11 Under the scheme of support to NGOs, voluntary agencies are encouraged and financial assistance is provided for various activities such as:

- Running post-literacy and continuing education programmes with the objective of total eradication of illiteracy in well-defined areas;
- undertaking resource development activities through the establishment of SRCs;
- organising vocational and technical education programmes for neo-literates;
- promoting innovation, experimentation and action research;
- conducting evaluation and impact studies; and

- organising symposia and conferences, publication of relevant books and periodicals and production of mass media support aids.

Jan Shikshan Sansthan

2.6.12 The Jan Shikshan Sansthan scheme, which started in 1988, is meant to promote educational, vocational and occupational development of literates, neo-literates, semi-literates and un-lettered persons. These act as Resource Support Agencies especially in regard to organising vocational training and skill development programmes. During the Ninth Plan, the scheme has been strengthened with enhanced funding and a wider scope and area of operation. The focus of the scheme is now shifting from industrial workers in urban areas to the socio-economically backward and educationally disadvantaged groups in urban and rural areas, such as neo-literates, semi-literates, SCs/STs, women and girls, slum dwellers, migrant workers etc. A total of 108 Jan Shikshan Sansthans have been set up in the country, of which 50 were set up in the Ninth Plan period.

2.6.13 The financial performance of the adult education sector during Ninth Plan is given in Table 2.2.2 of Chapter 2.2. Scheme-wise break-up of the Tenth Plan outlay is given in the Appendix.

Box 2.6.2

PADNA BADNA ANDOLAN

A programme for adult literacy in Madhya Pradesh

To achieve the aim of total literacy, the Madhya Pradesh government launched a new programme called Padna Badna Andolan in 1998. Under the scheme, illiterate adults who are interested becoming literate form a group in a village and propose the name of a person who could teach them and make them literate as per National Literacy Mission's norms. The teacher, called Guruji, is entitled to get Rs. 100 per person as *guru dakshana*, the cost of which is borne by the state government. The other learning costs are met under TLC/PLC programme.

GOALS, TARGETS AND STRATEGIES FOR THE TENTH PLAN

2.6.14 In the field of adult education, the National Literacy Mission is in place with clear focus and medium-term goals. The Tenth Plan targets for adult education are:

- To achieve full literacy, i.e., a sustainable threshold level of 75 per cent by 2005.
- To cover all left-over districts by 2003-2004.
- To remove residual illiteracy in the existing districts by 2004-05.
- To complete Post Literacy Campaign in all districts.
- To launch Continuing Education Programmes in 100 districts by the end of the Plan period.

2.6.15 Illiteracy is largely a problem of social groups among whom literacy rates are low and who also suffer from other handicaps which make it difficult for them to participate in the adult education programme. It is, therefore, most important to ensure greater participation of these groups in future adult education programmes. This requires a focused attention to their needs and problems and to the adoption of specific measures to suit their requirements. The focus in the Tenth Plan would shift to residual illiteracy and catering to difficult segments of the population. This means that all the left-over districts and the left-over harder-to-reach groups would need to be targeted specifically. The schemewise break-up of Tenth Plan outlay for Adult Literacy is in Annexure.

Initiatives Proposed for Tenth Plan

2.6.16 Some of the specific initiatives proposed for the Tenth Plan include:

- To tackle residual illiteracy in districts which have entered the post-literacy and continuing education phase, basic literacy programmes would be taken up along with Continuing Education.

- Flexibility would be built into the operation of the scheme and innovative programmes designed to meet specific requirements of tribal pockets, areas with low literacy, including pockets with low female literacy.
- Exchange visits between different districts for sharing of experiences and educating voluntary instructors of new districts would be encouraged.
- Cooperation would be sought from all sections like educational, social, cultural, religious and other institutions to make the adult education programme self-reliant in terms of finance, implementation and monitoring.
- Institutional linkages with other departments like those of Youth Affairs and Sports, Rural Development, Health and Family Welfare would be developed so that infrastructural and manpower requirements are complemented.
- NLM would integrate literacy with vocational and technical skills and with income generation activities and programmes to improve the quality of life, all of which have a significant impact on generating demand for literacy. To achieve this, strategic plans would be drawn up in a time-bound manner so that the requirements and sensitivities of the target group are taken into account. For the development of innovative programmes, the assistance of NGOs, SRCs, Jan Shikshan Sansthan, PRIs and other local bodies would be taken.
- There would be greater decentralisation of administrative and managerial activities of NLM to SLMAs. The latter would be required to frame policy guidelines based on district-specific requirements. The decentralisation would be carried further to the panchayat level and action plans would be prepared based on the demand coming from the people themselves.
- The Adult Education programme and the Sarva Shiksha Abhiyan would go hand in

hand to facilitate a wider process of community development and empowerment.

Programmes/Schemes in Adult Education

Literacy Campaigns and Operation Restoration

2.6.17 The focus in the Tenth Plan would be to consolidate the already-sanctioned TLC projects in order to ensure their successful completion. Under the revised scheme, it is envisaged that basic teaching learning activities would be integrated with the post-literacy activities to ensure a smooth transition from TLC to PLP. Special focus has to be given to problems of disadvantaged groups like SCs/STs and women. Regional disparities and special problems of low literacy states like Uttar Pradesh, Bihar, Rajasthan, Madhya Pradesh, Andhra Pradesh, Jammu and Kashmir, Jharkhand and Chattisgarh have to be given greater attention. Priority must be given to the states where the literacy rate is below the national average and low female literacy districts.

Continuing Education Programme

2.6.18 Under this programme, priority would continue to be given to the identification and setting up of CECs and NCECs, identification and training of reading rooms and libraries and the acquisition of audio-visual material and other infrastructural facilities. The NCECs/CECs would be developed at various levels. These would act as (a) centres of convergence of all development programmes in the village/community; (b) centres of learner's participation, providing relevant teaching-learning material, and of regular monitoring of programmes; (c) data banks containing an inventory of traditional and contemporary art and crafts, existing resource/raw material and infrastructural facilities; and (d) centres for designing and implementing the various target-specific programmes which require identification of areas which would require collaboration with other agencies.

Jan Shikshan Sansthan

2.6.19 With the rapid expansion of TLCs and PLPs, the demand for skill development has increased. Therefore, the Jan Shikshan Sansthan scheme would aim at improving the effective skills and the quality of life of its beneficiaries. During the Tenth Plan, this will be done by the following measures:

- The scheme will concentrate on rural areas primarily targeting neo-literates, semi-literates, women and the SCs/ STs;
- at least 30 per cent of the beneficiaries of the scheme must be neo-literates;
- the literacy contents in Jan Shikshan Sansthan courses will be increased. A non-literate or neo-literate joining a vocational training course should get an opportunity to strengthen his or her literacy skills through the Jan Shikshan Sansthan;
- the teaching-learning material for vocational training and skill development programmes will be planned in consultation with the SRCs and zilla saksharta samitis;
- the Jan Shikshan Sansthan would take up vocational programmes which have employment potential in consultation with the zilla saksharta samitis;
- it will provide academic support to the Zilla Saksharta Samitis in organising vocational programmes in the Continuing Education scheme
- the Jan Shikshan Sansthan will be encouraged to undertake innovative programmes; and
- the Jan Shikshan Sansthan will have to run 10 to 15 CECs and at least one NCEC directly under it in consultation with the Zilla Saksharta Samiti.

Support to NGOs

2.6.20 It is expected that the NGOs would take up more innovative projects, which would serve as examples for making policy changes by the NLM.

The SRCs will, over the time, have to develop more expertise in training and implementation of Continuing Education schemes, which would start in most districts by the end of the Tenth Plan. The functions of the SRCs in the Tenth Plan period are envisaged as:

- Development of literacy materials (primers for TLC/PLP), neo-literate material (books, booklets etc.) and other forms of literature;
- development of training manuals for different levels of functionaries;
- imparting training for key resource persons, *preraks*, voluntary instructors, master trainers and district coordinators;
- development of audio-visual aids for adult education programmes;
- coordination with the media (both electronic and print media);

- monitoring and evaluation of literacy programmes being implemented by Zilla Saksharta Samitis, NGOs etc.;
- conduct research studies for the improvement of strategies for adult education programmes; and
- innovations in the field of adult education.

THE PATH AHEAD

2.6.21 A firm view needs to be taken on the content and the reach of the Adult Literacy Programme. Through the schemes of continuing education and distance education it has to be ensured that all the neo-literates do not lapse into illiteracy. Equally important will be the need to enhance the opportunities for their vocational training to enable them to earn a living after they have achieved literacy.

CHAPTER 2.7

YOUTH AND SPORTS

YOUTH AFFAIRS

2.7.1 While the role and contribution of youth is of vital importance in all countries, it is particularly significant in a country like India where the proportion of the youth in the country's overall social and demographic profile is continuously increasing. According to the 2001 Census, there were approximately 355 million people in the 15 to 35 age group, 74 per cent of whom lived in rural areas. The number is expected to rise to approximately 510 million by 2016. Both central and state governments need to harness the energies of this large group, providing them with adequate infrastructure of world standards for excellence in sports at national and international levels.

Achievements since Independence

2.7.2 The importance of youth in national development has been a recurring theme in all Five-Year Plans. The National Discipline Scheme was introduced in the Second Plan and continued in the Third Plan. The Fourth Plan gave special emphasis to the needs of the youth and to leadership training. Support was provided to voluntary organisations to participate in youth development programmes. Community service was developed as an integral part of the educational curriculum. The Fifth Plan laid emphasis on the expansion and strengthening of the National Service Scheme (NSS) and the Nehru Yuva Kendras (NYK). The National Service Volunteer Scheme (NSVS) was launched during this Plan period. In the Sixth Plan, an effort was made to have effective coordination of different programmes.

2.7.3 The sector received a major boost in the Seventh Plan, when a National Youth Policy was framed and a Plan of Action formulated in 1992.

Plan allocations saw an eight-fold increase, from Rs. 26.54 crore in Sixth Plan to Rs. 306.35 crore. The Ministry of Youth Affairs and Sports made major strides during the Eighth Plan period. The number of NYKs went up from 398 to 500, the number of youth clubs affiliated to the Nehru Yuva Kendra Sangathan (NYKS) touched 1.79 lakh and 1.3 million volunteers were enrolled under the NSS by the end of the Plan period. The Eighth Plan and the National Youth Policy laid stress on organising the youth for promoting national and cultural integration by fostering interaction between young people from different parts of the country, especially those from the isolated border and tribal areas. It also emphasised awareness building and involvement of the youth in social programmes relating to literacy, environment, health and family welfare and community development. The allocation for youth and sports programmes was increased to Rs. 349 crore and then to Rs. 826.09 crore in the Ninth Plan.

Thrust in Ninth Plan

2.7.4 The thrust in the Ninth Plan was on harnessing yuva shakti (youth power). The National Youth Policy emphasises:

1. Involving young persons in various community-based nation building activities and a new scheme called National Reconstruction Corps (NRC) to involve youth volunteers in such activities.
2. Youth empowerment and gender justice through an inter-sectoral approach.
3. Providing special attention to education, training and employment, health, environment, sports, recreation and leisure, art and culture, science and technology, etc.

4. Developing the interest of youth in development-oriented programmes.

Review of Performance in Ninth Plan

2.7.5 During the Ninth Plan, the NYKS was able to extend its activities to a larger number of villages and it now has offices in almost 500 districts. The NYKS took up several new initiatives to involve the rural youth - by motivating them to organise themselves into youth clubs and self-help groups. Schemes like the NSVS, Financial Assistance to Youth Clubs, Award to Outstanding Youth Clubs and Youth Development Centre have been successful in encouraging young people to take up development-oriented programmes. The NYKS also took up major programmes under the Swarnajayanti Gram Swarozgar Yojana (SGSY), being implemented in collaboration with Ministry of Rural Development. The objective of the programme is to bring selected below poverty line (BPL) youth above the poverty line in three years. Watershed management programmes are also being implemented by the NYKS. In addition, the NYKS have also undertaken assistance to disabled persons for providing aids and appliances, running of 100 old age day care centres, 30 Gandhi Millennium Youth Peace Centres, wildlife watch centres, National Youth Cooperatives, and United Nations Development Programme (UNDP)-NYKS Youth Volunteers Against Poverty Awards Programmes. The coverage under NSS increased to more than 1.7 million students.

Approach for the Tenth Plan

2.7.6 Adolescent youth in the 10-19 years age group numbered 230 million, accounting for 22.8 per cent of the population. It is proposed to target this segment of the youth population through specific intervention strategies that will focus on youth and power, gender justice, youth health and responsible living.

2.7.7 The major thrust will be on involving the youth in the process of national planning and development and making them the focal point of development strategy by providing proper

educational and training opportunities, access to information on employment opportunities including entrepreneurial guidance and financial credit, proper platforms for developing qualities of leadership, tolerance and open mindedness, patriotism, etc.

2.7.8 The Ministry of Youth Affairs and Sports will play a pro-active and catalytic role in exploring and identifying employment opportunities for the youth in coordination with other ministries and departments so as to optimally utilise the investments in various youth-related schemes. The Ministry will also play an active advocacy role in promoting gender justice by sensitising the youth towards gender issues.

2.7.9 Youth activities will focus on providing quality health services and will ensure that the youth have access to information relating to reproduction, health issues, managing alcoholism, drug addiction, etc. It is necessary to address the problem of youth with special needs.

2.7.10 Value-based education will be imparted which will focus on respect for elders, tolerance for others' beliefs and religions, compassion towards the poor and needy. The youth will be involved in the protection and preservation of nature. Steps will be taken to increase their awareness of India's cultural heritage and history.

2.7.11 Adolescents need particular attention and concentrated efforts are required to build a relatively stable place in society for them and help them overcome the barriers to healthy development.

2.7.12 Efforts will be made for networking between government and non-government organisations (NGOs) in youth development.

Action Plan for the Tenth Plan

2.7.13 Major expansion of the NYK and NSS with emphasis on vocational training and employment promotion will be the lynchpin of youth programmes in the Tenth Plan. The Ministry of Youth Affairs and Sports will establish effective linkages with all departments and agencies involved in youth

development work at the Centre and in the states. Expansion of NYKS to cover all the districts and mobilising and empowering the youth by strengthening the youth club movement to cover at least 50 per cent of the six lakh villages will also be undertaken. However, a thorough evaluation of the activities of NYKS would be necessary before doing this. Such evaluation can substantially improve the efficiency of the organisation and utility of the scheme which it operates.

2.7.14 The Youth Development Centres (YDCs) will be expanded to achieve the ultimate objective of one youth development centre in each of the country's 5,000 blocks. The YDCs are to be made centres of information for youth and eventually information technology (IT) centres. The value of such centres will be enhanced by associating and collaborating with the Department of Information Technology.

2.7.15 More youth clubs, which have been the focal point of youth activities, will be established so as to provide a platform for young people to raise issues concerning them.

2.7.16 All categories of youths, including rural youth, should get an opportunity to participate in various schemes like the National Cadet Corps (NCC), NSS, Scouts and Guides and NRC. The activities of the NSS network will be expanded to cover all degree colleges and +2 schools while the NRC will extend its reach to 500 districts by the end of the Tenth Plan period.

2.7.17 With a view to making the Rajiv Gandhi National Institute for Youth Development (RGNIYD) a truly national centre for information, documentation, research and training concerning youth matters, the Institute will be provided additional resources in terms of both manpower and equipment.

Programmes for Adolescents

2.7.18 Adolescents have very special and distinct needs. It is essential to invest in them, as they are

the future of the country. The most important issues regarding the adolescents are: health, nutrition, education, both formal and non formal, vocation, recreation and sports, child labour, children in difficult situations, alcohol and drug abuse.

2.7.19 All adolescents must be made aware of issues like safe motherhood, reproductive health rights, sexuality and sexual responsibility, age of marriage, and first pregnancy, family size, health care, hygiene, immunisation, HIV/AIDS prevention, the importance of education, particularly of girls, drug and alcohol abuse. They should also have some legal literacy and be made aware of vocational opportunities and career planning.

2.7.20 A scheme for adolescents is proposed to be launched in the Tenth Plan. The establishment of a National Youth Centre and State Youth Centres with outright capital grants by the Centre has also been proposed. These centres will provide a forum for the youth to debate issues concerning them and the nation at large, give expression to their abundant creative energies and exhibit their talents.

2.7.21 There are certain sections of youth who suffer from physical and mental disabilities. The Department of Youth Affairs should become the nodal agency for coordinating and monitoring the various facilities and services meant for them.

2.7.22 While designing the content of programmes for adolescents it would be highly beneficial to obtain the views and suggestions of the Ministry of Social Justice and Empowerment, Department of Women and Child Development as well as those of the Ministry of Rural Development.

SPORTS

Achievement Since Independence

2.7.23 The importance of physical education, games, sports and yoga for health and physical fitness with a view to increasing individual productivity cannot be ignored. The value of sports as a means of promoting social harmony and discipline is well recognised the world over.

2.7.24 Successive Plans have laid emphasis on sports and physical education and the sector got additional importance in 1984 when a separate department for sports was created, which was later made a separate ministry in 1999. The National College of Physical Education and National Institute of Sports were established during the Second Plan and sports facilities like stadia, swimming pools and open-air theatres were constructed. The National Coaching Scheme was launched during the Third Plan, while allocations for physical education, games and sports were increased during the Fourth Plan. Coaching facilities were expanded in the Fifth Plan period. The Sixth Plan laid emphasis on spotting and nurturing young talent in different sports and set up facilities in different institutions for promising sports persons. Adventure sports were promoted during the Seventh Plan along with emphasis on the development of sports infrastructure at the grassroot level and laying of synthetic tracks. A National Sports Policy was formulated on the basis of which a Plan of Action was formulated in 1992. Many rural schools were assisted in developing playgrounds and buying sports equipment. Talented school children in the 9-12 age group were identified and special training was imparted to sportspersons under the Special Area Games (SAG) and Sports Project Development Area Centres (SPDA) schemes.

Ninth Plan Review and Achievements

2.7.25 Then Ninth Plan also attempted to develop excellence in sports, provide more scientific facilities, foster the establishment of sound principles of sports physiology and medicine with the requisite quality of manpower relevant to the training needs of sportspersons. In addition, it addressed the following issues:

- enhancement of the competence and skills of coaches.
- promotion of sports and physical education among girls and people in the rural areas.
- participation of state governments in developing a comprehensive plan for the development of sports.
- creation of sports infrastructure, including synthetic playing surfaces, and making these available to the public.
- promotion of people's participation in various sports activities; and
- financial assistance, including scholarships, to national federations of different sports and promising sportspersons as well as for the promotion of rural sports. Ninth Plan targets, both physical and financial, have largely been met.

Approach for the Tenth Plan

2.7.26 There is an immediate need to create a network of basic sports infrastructure throughout the country and higher level of infrastructure at the district, state, and regional centres of the Sports Authority of India (SAI). It is even more important to provide access to these facilities. Modern equipment and training facilities at par with those available in developed countries would be provided to sportspersons to enable them to compete in international events. Efforts will be made to improve coaching skills and raise them to international standards and to the training and development of sports scientists, judges, referees and umpires. Emphasis will be laid on basic as well as applied research in sports-related fields. A drug-free environment will be created by designing effective checks to eliminate drug abuse. Except for a few popular sports, which attract private sponsorship, the majority of sports activities are devoid of any career opportunities for sportspersons. Hence, there is a need to have definite incentives for sportspersons in the form of job reservation and awards.

2.7.27 A multi-sectoral approach will be adopted for resource generation by tapping private and public sector resource to promote and develop sports activities. Corporate houses will be asked to adopt particular disciplines as well as sportspersons for long-term development. A National Sports Development Fund has been created with 100 per cent income tax exemption for donors.

2.7.28 While the central government would focus its attention on achieving excellence at the national and international level, state governments will focus on broad-basing of sports. High priority will be given to the promotion of sports in schools and rural areas, and panchayats and youth and sports clubs will be mobilised to promote sports. Sports disciplines will be prioritised on the basis of proven potential, popularity and performance and greater emphasis will be given to junior and sub-junior levels. The mass media will be mobilised for fostering a sports culture in the country.

2.7.29 An annual sports calendar of national championships at various levels will be prepared and participation in international events by various federations will be encouraged. The working of federations/associations has to be more transparent, democratic, professional and accountable. The central government will formulate a model organisational structure as well as a set of guidelines and, if necessary, enact a suitable legislation.

2.7.30 A decision has also been taken to bring all the sports-related schemes under the following six categories; (i) schemes relating to infrastructure; (ii) schemes relating to talent search and training; (iii) schemes relating to events including the holding of national/international sports events; (iv) schemes relating to awards; (v) schemes relating to institutions; and (vi) incentives for the promotion of sports activities. New programmes such as setting up sports state academies, recreational sports and adventure sports will be taken up. A drug free environment is to be created by way of designing effective checks to eliminate drug abuse in Sports.

Action Plan for the Tenth Plan

2.7.31 Adequate sports infrastructure will be created in schools and colleges. All urban bodies should earmark open spaces for playgrounds whenever new colonies are being developed. Conversion of playing fields into housing/commercial complexes must be prohibited. The establishment and development of sports infrastructure should be taken up as an activity under the NSS/NYK as well as through schemes of the Ministry of Rural

Development, with local bodies also being involved. State governments should be responsible for the creation of sports infrastructure at the district and tehsil levels, while regional centres of the SAI must take up development of higher level of sports infrastructure at the district and state headquarters. A tie-up with sports hostels and state-level training centres may be worked out to ensure better utilisation of these facilities.

2.7.32 State governments should provide funds for broad basing of sports with financial assistance from the central government.

2.7.33 Sports activities should be selected for promotion keeping in mind the facilities available, particularly in rural areas. As far as possible, disciplines which do not require much equipment such as kho-kho, kabaddi, volleyball, track events and long jump in athletics should be selected. The Ministry of Rural Development should play an active role in the promotion of sports in rural areas. The Ministry should extend assistance to the panchayats for the creation and maintenance of play fields and for providing sports equipment.

2.7.34 Routine sports programmes in village schools should be entrusted to the physical education teacher or any other classroom teacher. The physical and mental fitness of students will improve through participation in sports and this, in turn, will contribute to an improvement in their overall performance. This will also make the parents realise the importance of their children participating in sports.

2.7.35 Municipalities and municipal corporations should also contribute to the development of sports by ensuring the maintenance of playgrounds, stadia and swimming pools and by involving a larger number of youth in sports activities, besides supplying the required quality of sports equipment. They must also organise competitions for all the Asian Games disciplines, particularly those which are popular at the local and state level. Town Planning rules should not merely provide for play fields, sports fields, vayayamshalas / gyms etc in new areas at the planning stage but should actively

protect and maintain the existing sports infrastructure from encroachment.

2.7.36 The central and state governments should review the status of the physical education colleges and take appropriate measures to improve the curriculum, the quality of teaching staff and the infrastructure.

2.7.37 In each state, Kendriya Vidyalayas and Navodaya Vidyalayas identified as sports schools may be allotted two to three disciplines to avoid overlapping and to cover all the Asian Games disciplines. This competition will help us make a mark in the international sports arena. These pace setting schools should have the basic minimum sports infrastructure and facilities.

2.7.38 Though inter-university competitions in various disciplines are held each year, inter-college programmes need to be strengthened. It should be obligatory for all the colleges to organise inter college competitions and to participate in university-level competitions. The inter-university programme should be made more attractive in order to encourage students to participate in various competitions at the college and university levels. The strength-ening of the university sports programme would contribute to improving the performance of national teams.

2.7.39 In order to provide talented sportspersons with good quality equipment, the domestic sports industry should be given incentives for manufacturing equipment of international standards. Till that time, good quality equipment needs to be imported.

2.7.40 The procedures relating to identification of disciplines, selection and preparation of sports persons/teams, identification of national coaches, selection of sportspersons for coaching camps, selection of venues of camps, designing of physical fitness/medical/skill tests and the need for additional facilities for substantive coaching camps would all be taken into account when preparing a practicable Plan for building up the winning capabilities of sportspersons.

2.7.41 Sports federations, state governments as well as private and public sector organisations would

have to be fully involved in the formulation and implementation of the Plan. However, such a short-term Plan must have a long-term perspective of broad-basing the sports with a view to achieving physical fitness for all and promoting excellence through spotting and nurturing talent. The elements of this long-term Plan are:

- Creation of a sports climate in the country and generating a consciousness in every citizen of the need to be physically fit and to participate in games and sports. This requires setting up of infrastructure in a planned manner and more efficient use of available infrastructure and coaching facilities with promotional activities like 'Bhartiyam', a programme on national integration.
- Establishment of a pyramidal structure for sports promotion beginning with primary and secondary schools and going up to college level. In order to develop these resources centres, an adequate number of physical education teachers are required. Besides playgrounds in schools and creating the necessary 'encouraging' environment for students, there is need to provide adequate support to the SAG and National Sports Talent Contest (NSTC) schemes, which provide opportunities to potential sportspersons in tribal, remote and rural areas. There is also a need to have separate infrastructure for sports institutions.
- For excellence in sports, a backup of improved technology is necessary.
- Specific efforts should be made to tap indigenous potential for swimming in coastal areas, and archery in tribal areas.
- Sports schools should be set up in states in collaboration with the private sector by providing them attractive incentives.
- Sports and physical education should be integrated in the educational curriculum.
- A policy needs to be evolved for promoting the participation of NGOs and industrial houses in sports.

- The Ministry of Youth Affairs and Sports should formulate a special scheme for the promotion of sports and games for disabled persons.

set up a State Sports Academy in every state in partnership with the corporate sector.

THE PATH AHEAD

Programmes for Adolescents:

2.7.42 A new scheme for adolescents is proposed to be launched in the Tenth Plan. This is aimed at sensitising them on issues like safe motherhood, reproductive health rights, sexuality and sexual responsibility, age of marriage and first pregnancy, health care, hygiene, immunisation, HIV/AIDS prevention, the importance of education, particularly of girls, drug and alcohol abuse etc. It will also provide them legal literacy and make them aware of vocational opportunities and career planning.

Setting up of State Sports Academy

2.7.43 The objective of this new scheme is to select best talent in sports in the 10-13 age group and groom them to achieve excellence at the national and international level. It is proposed to

Scheme of Dope Test

2.7.44 The scheme aims at the prevention of drug abuse in sports by providing adequate facilities for dope tests, creating awareness of the issue amongst athletes, parents, coaches, doctors, scientists, and sports governing bodies. It will provide for educational programmes, establishment of accredited dope control laboratories and provisions for dealing with offenders.

2.7.45 While creation of adequate sports infrastructure in schools and colleges will continue to receive attention, the SAI will take up the development of higher level of sports infrastructure at the district and state headquarters.

2.7.46 Scheme-wise break-up of the Tenth Plan outlay of Ministry of Youth Affairs and sports is given in the Appendix.

CHAPTER 2.8

HEALTH

Introduction

2.8.1 Improvement in the health and nutritional status of the population has been one of the major thrust areas for the social development programmes of the country. This was to be achieved through improving the access to and utilization of Health, Family Welfare and Nutrition services with special focus on under served and under privileged segments of the population. Over the last five decades, India has built up a vast health infrastructure and manpower at primary, secondary and tertiary care in government, voluntary and private

sectors. These institutions are manned by professionals and paraprofessionals trained in the medical colleges in modern medicine and ISM&H and paraprofessional training institutions. The population has become aware of the benefits of health related technologies for prevention, early diagnosis and effective treatment for a wide variety of illnesses and accessed available services. Technological advances and improvement in access to health care technologies, which were relatively inexpensive and easy to implement, had resulted in substantial improvement in health indices of the population and a steep decline in mortality (Table 2.8.1).

Table 2.8.1: Time Trends (1951-2000) in Health Care

	1951	1981	2000
SC/PHC/CHC	725	57,363	1,63,181(99-RHS)
Dispensaries & Hospitals (all)	9209	23,555	43,322 (95-96-CBHI)
Beds (Pvt. & Public)	117,198	569,495	8,70,161 (95-96-CBHI)
Doctors (Modern System)	61,800	2,68,700	5,03,900 (98-99-MCI)
Nursing Personnel	18,054	1,43,887	7,37,000 (98-99-INC)
Malaria (cases in million)	75	2.7	2.2
Leprosy (cases/ 10,000 population)	38.1	57.3	3.74
Small Pox (no. of cases)	>44,887	Eradicated	
Guineaworm (no. of cases)		>39,792	Eradicated
Polio (no. of cases)		29709	265
Life Expectancy (Years)	36.7	54	64.6 (RGI)
Crude Birth Rate	40.8	33.9 (SRS)	26.1 (99 SRS)
Crude Death Rate	25	12.5 (SRS)	8.7 (99 SRS)
IMR	146	110	70 (99 SRS)

Source : National Health Policy - 2002

2.8.2 The extent of access to and utilization of health care varied substantially between states, districts and different segments of society; this to a large extent, is responsible for substantial differences between states in health indices of the population.

2.8.3 During the 1990s, the mortality rates reached a plateau and the country entered an era of dual disease burden. Communicable diseases have become more difficult to combat because of development of insecticide resistant strains of vectors, antibiotics resistant strains of bacteria and emergence of HIV infection for which there is no therapy. Longevity and changing life style have resulted in the increasing prevalence of non-communicable diseases. Under nutrition, micro nutrient deficiencies and associated health problems coexist with obesity and non-communicable diseases. The existing health system suffers from inequitable distribution of institutions and manpower. Even though the country produces every year over 17,000 doctors in modern system of medicine and similar number of ISM&H practitioners and paraprofessionals, there are huge gaps in critical manpower in institutions providing primary healthcare, especially in the remote rural and tribal areas where health care needs are the greatest. Some of the factors responsible for the poor functional status of the system are:

- ☒ mismatch between personnel and infrastructure;
- ☒ lack of Continuing Medical Education (CME) programmes for orientation and skill upgradation of the personnel;
- ☒ lack of appropriate functional referral system;
- ☒ absence of well established linkages between different components of the system.

2.8.4 In order to address these problems the centre and the states have embarked on structural and functional health sector reforms. However, the content and quality of reforms are sub-optimal and the pace of implementation is slow.

2.8.5 As the country undergoes demographic and epidemiological transition, it is likely that larger investments in health will be needed even to maintain the current health status because tackling resistant infections and non-communicable diseases will inevitably lead to escalating health care costs. Last two decades have witnessed explosive expansion in expensive health care related technologies, broadening diagnostic and therapeutic avenues. Increasing awareness and rising expectations to access these have widened the gap between what is possible and what is affordable for the individual or the country. Policy makers and programme managers realise that in order to address the increasingly complex situation regarding access to good quality care at affordable costs, it is essential to build up an integrated health system with appropriate screening, regulating access at different levels and efficient referral linkages. However, both health care providers and health care seekers still feel more comfortable with the one to one relationship with each other than with the health system approach.

2.8.6 Another problem is the popular perception that curative and preventive care compete for available resources, with the former getting preference in funding. Efforts to convince the public that preventive and curative care are both part of the entire spectrum of health care ranging from health promotion, specific protection, early diagnosis and prompt treatment, disability limitation and rehabilitation and that to improve the health status of the population both are equally essential have not been very successful. Traditionally health service (both government and private) was perceived as a social responsibility albeit a paid one. Growing commercialisation of health care and medical education over the last two decades has eroded this commitment, adversely affecting the quality of care, trust and the rapport between health care seekers and providers.

APPROACH DURING THE TENTH PLAN

2.8.7 In view of the importance of health as a critical input for human development there will be continued commitment to provide:

- ⊗ essential primary health care, emergency life saving services, services under the National Disease Control Programmes and the National Family Welfare Programme totally free of cost to all individuals and
- ⊗ essential health care service to people below poverty line based on their need and not on their ability to pay for the services.

2.8.8 Appropriate interventions to ease the existing funding constraints at all levels of health system and to promote the complete and timely utilization of allocated funds will be taken up. Different models of health care financing at the individual, family, institution and state level will be evolved, implemented and evaluated. Models found most suitable for providing essential health care to all will be replicated.

The focus during the Tenth Plan will be on

- ⊗ reorganisation and restructuring the existing government health care system including the ISM&H infrastructure at the primary, secondary and tertiary care levels with appropriate referral linkages. These institutions will have the responsibility of taking care of all the health problems (communicable, non-communicable diseases) and deliver reproductive and child health (RCH) services for people residing in a well-defined geographic urban and rural area;
- ⊗ development of appropriate two-way referral systems utilising information technology (IT) tools to improve communication, consultation and referral right from primary care to tertiary care level;
- ⊗ building up an efficient and effective logistics system for the supply of drugs, vaccines and consumables based on need and utilisation;
- ⊗ horizontal integration of all aspects of the current vertical programmes including supplies, monitoring, information education communication and motivation (IECM), training, administrative arrangements and implementation so that they are integral components of health care; there will be progressive convergence of funding, implementation and monitoring of all health and family welfare programmes under a single field of administration beginning at and below district level;
- ⊗ improvement in the quality of care at all levels and settings by evolving and implementing a whole range of comprehensive norms for service delivery, prescribing minimum requirements of qualified staff, conditions for carrying out specialised interventions and a set of established procedures for quality assurance;
- ⊗ evolving treatment protocols for the management of common illnesses and diseases; promotion of the rational use of diagnostics and drugs;
- ⊗ evolving, implementing and monitoring transparent norms for quality and cost of care in different health care settings;
- ⊗ exploring alternative systems of health care financing including health insurance so that essential, need based and affordable health care is available to all;
- ⊗ improving content and quality of education of health professionals and para professionals so that all health personnel have the necessary knowledge, attitude, skills, programme and people orientation to effectively take care of the health problems, and improve the health status of the people;
- ⊗ skill upgradation of all health care providers through CME and reorientation and if necessary redeployment of the existing health manpower, so that they can take care of the existing and emerging health problems at primary, secondary and tertiary care levels;
- ⊗ research and development to solve major health problems confronting the country

- including basic and clinical research on drugs needed for the management of emerging diseases and operational research to improve efficiency of service delivery;
- ☒ building up a fully functional, accurate Health Management Information System (HMIS) utilising currently available IT tools; this real time communication link will send data on births, deaths, diseases, request for drugs, diagnostics and equipment and status of ongoing programmes through service channels within existing infra-structure and manpower and funding; it will also facilitate decentralized district based planning, implementation and monitoring;
 - ☒ building up an effective system of disease surveillance and response at the district, state and national level as a part of existing health services;
 - ☒ strengthening and sustaining Civil Registration, Sample Registration System; improving medical certification of death so that information on specific causes of death throughout the country are available; use these data in district based planning and monitoring; when sustained over the next two decades, this system will provide valuable insights into inter-district, inter-state, regional variations and time trends so that district health system could be modified to cope with the changing disease burden;
 - ☒ improving the efficiency of the existing health care system in the government, private and voluntary sectors and building up appropriate linkages between them;
 - ☒ mainstreaming ISM&H practitioners, so that in addition to practising their system of care, they can help in improving the coverage of the National Disease Control Programmes and Family Welfare Programme;
 - ☒ increasing the involvement of voluntary and private organisations, self-help groups and social marketing organisation in improving access to health care;
 - ☒ improving inter sectoral coordination;
 - ☒ devolution of responsibilities and funds to panchayati raj institutions (PRIs); besides participating in area-specific planning and monitoring, PRIs can help in improving the accountability of the public health care providers, sort out problems such as absenteeism, improve inter-sectoral co-ordination and convergence of services;
 - ☒ strengthening programmes for the prevention, detection and management of health consequences of the continuing deterioration of the ecosystems; improving the linkage between data from ongoing environmental monitoring and that on health status of the people residing in the area; making health impact assessment a part of environmental impact assessment in developmental projects;
 - ☒ improving the safety of the work environment in organized and unorganised industrial and agricultural sectors especially among vulnerable groups of the population;
 - ☒ developing capabilities at all levels, for emergency and disaster prevention and management; evolving appropriate management systems for emergency, disaster, accident and trauma care at all levels of health care;
 - ☒ effective implementation of the provisions for food and drug safety; strengthening the food and drug administration both at the centre and in the states;
 - ☒ screening for common nutritional deficiencies especially in vulnerable groups and initiating appropriate remedial measures; evolving and effectively implementing programmes for improving nutritional status, including micronutrient nutritional status of the population.

HEALTH CARE SYSTEM

2.8.9 The Health care system consists of:

- ☒ primary, secondary and tertiary care institutions, manned by medical and paramedical personnel;
- ☒ medical colleges and paraprofessional training institutions to train the needed manpower and give the required academic input;
- ☒ programme managers managing ongoing programmes at central, state and district levels; and
- ☒ health management information system consisting of a two-way system of data collection, collation, analysis and response.

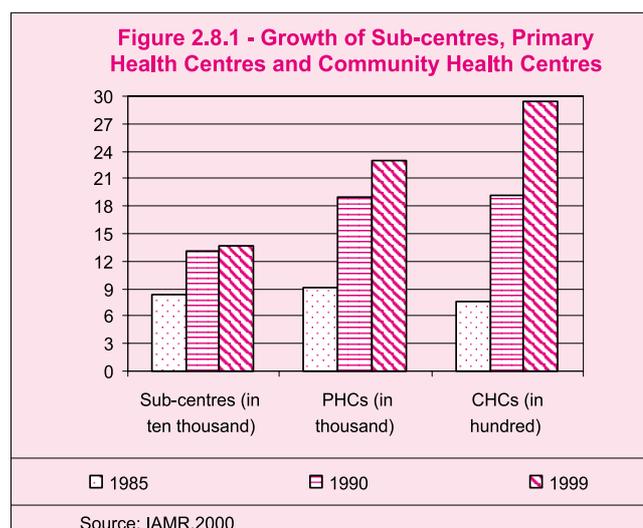
2.8.10 So far the interaction between these components of the system had been sub-optimal. In spite of the plethora of primary, secondary and tertiary care institutions and medical college hospitals there are no well organised referral linkages between the primary, secondary and tertiary care institutions in the same locality. The programme managers and teachers in medical colleges do not link with institutions in any of the three tiers; essential linkages between structure and function are not in place (Annexure - 2.8.1). Logistics of supply and HMIS are not operational in most states. During the Tenth Plan period, efforts will be made to reorganise health system, build up essential linkages between different components of the system so that there will be substantial improvement in functional status (Annexure - 2.8.2).

Primary Health Care Services

2.8.11 The primary health care infrastructure provides the first level of contact between the population and health care providers. Realising its importance in the delivery of health services, the centre, states and several government related agencies simultaneously started creating primary health care infrastructure and manpower. This has resulted in substantial amount of duplication of the infrastructure and manpower.

2.8.12 The government funded primary health care institutions include:

- ☒ the rural, modern medicine primary health care infrastructure created by the states (Figure 2.8.1) consisting of:
 - ↳ Subcentres 137271 (1/ 4579)
 - ↳ Primary Health centres 22975 (1/27364)
 - ↳ Community Health centers 2935 (1/214000)
- ☒ subdivisional/Taluk hospitals/speciality hospitals (estimated to be about 2000);
- ☒ 5435 rural family welfare centres, 871 urban health posts, 1083 urban family welfare centres, 550 district post partum centres and 1012 sub-district postpartum centres funded by the Department of Family Welfare;



- ☒ 23,028 dispensaries, 2,991 hospitals under the Dept of ISM&H;
- ☒ urban health services provided by municipalities;
- ☒ healths care for central government employees provided by Central Government Health Scheme (CGHS);
- ☒ hospitals and dispensaries of railways, defence and similar large departments providing the health care to their staff;
- ☒ medical infrastructure of PSUs and large industries;

- ☒ Employee's State Insurance Scheme (ESIS) hospitals and dispensaries providing health care to employees of industries;
- ☒ all hospitals - even those providing secondary or tertiary care also provide primary health care services to rural and urban population;
- ☒ Over three-fourths of the medical practitioners work in the private sector and majority of them cater to the primary health care needs of the population.

2.8.13 The state-wise information regarding institutions listed under hospitals and dispensaries in modern system of medicine and ISM&H, rural primary health care infrastructure as well as post-partum centres is given in Annexure-2.8.3. Health manpower in government primary health care institutions is given in Annexure-2.8.4. The vast infrastructure and manpower catering to the primary health care needs of the population is not evenly distributed. The segments of the population whose health care needs are greatest have very poor access to health care.

Sub-Centre

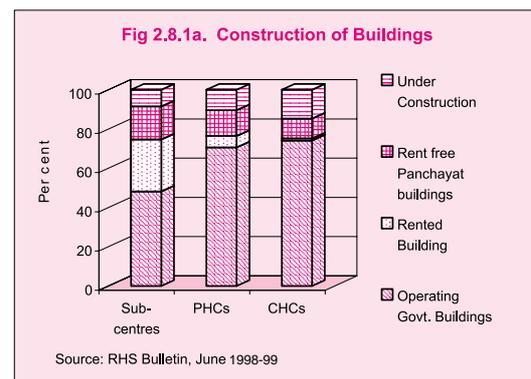
2.8.14 The Sub-centre(SC) is the most peripheral health institution available to the rural population. Even though the sub-centre/population norm at the national level has been met, there are wide inter-state variations. States with poor health indices do not have the required number of sub-centres especially in remote areas. In order to ensure that lack of funds does not hamper the filling up of vacancies in the posts of auxiliary nurse midwife (ANM), the Department of Family Welfare has taken up funding of sub-centre ANMs (1.37 lakh) from 1st April 2002. The States will, in return take over the funding of the staff of the rural family welfare and post partum centres, who have for the last two decades functioned as a part of the respective institutions in the state. There are a large number of vacancies in the posts of male multi-purpose workers (MMPW) whose salaries are borne by the state government (Annexure-2.8.4). Even where they are present, their contribution to the ongoing national disease control programmes, disease surveillance and water quality monitoring is negligible. There are a large number of male uni-purpose workers with insufficient workload in various

centrally sponsored disease control programmes. With appropriate skill up gradation these uni-purpose male workers and contractual staff will be able to perform the task of MMPW in improving the coverage and quality of all health programmes.

Primary Health Centres (PHCs)

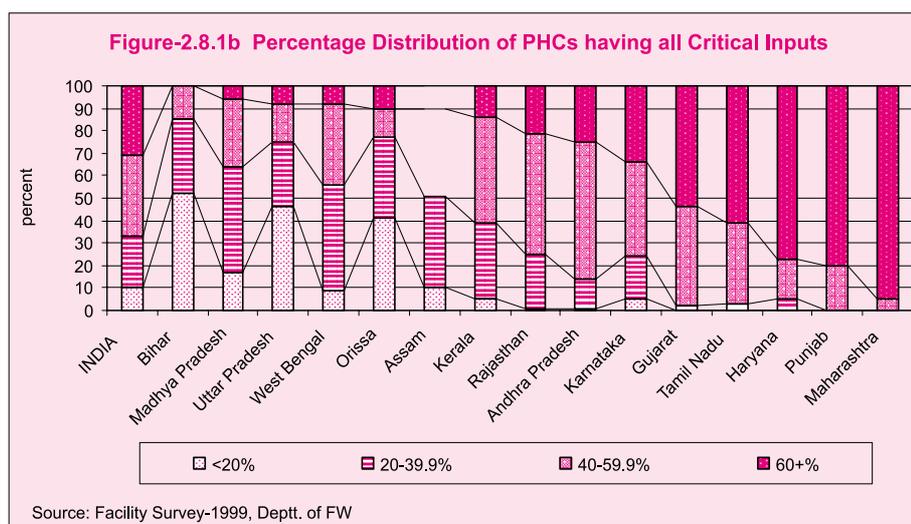
2.8.15 PHC is a referral unit for six sub-centres. All PHCs provide outpatient services; a majority have four to six in-patient beds. According to the norms they have one medical officer, 14 para-medical and other supporting staff. At the national level there are more than an adequate number of PHCs and doctors posted at PHCs but their distribution across states is uneven; there are no functional PHCs in many remote areas in dire need of health care.

2.8.16 The number of SCs, PHCs and CHCs in their own building is shown in Figure 2.8.1a.



2.8.17 Facility Survey undertaken by the Department of Family Welfare in 1999 showed that a majority of the PHCs lack essential infrastructure and inputs (Figure-2.8.1b). Only 77 per cent had an infant weighing machine, 65 per cent had a deep freezer, 16 per cent had a refrigerator, and 60 per cent had an autoclave and steam sterilizer drum. Less than 20 per cent had facility for medical termination of pregnancy (MTP).

2.8.18 Essential drugs for the treatment of common ailments were not available in a majority of the PHCs. Only around one-thirds of the PHCs had stock of iron and folic acid (IFA) tablets, 56 per cent had stocks of contraceptives and 61 per cent had vaccines. No more than a third of the PHCs provided delivery care; in them on an



average of 26 deliveries occurred in the last three months before the survey. It is obvious, therefore that PHCs are functioning sub-optimally and are not providing the expected health and family welfare services.

Community Health Centres/First Referral Units

2.8.19 Community Health Centre (CHC) is the first referral unit (FRU) for four PHCs offering specialist care. According to the norms each CHC should have at least 30 beds, one operation theatre, X-ray machine, labour room and laboratory facilities and should be staffed at least by four specialists i.e. a surgeon, a physician, a gynecologist and a pediatrician supported by 21 para-medical and other staff.

2.8.20 The reported gap in the number of CHCs (about 2000) is more apparent than real. Currently there are over 2000 functioning sub-divisional, taluka and other speciality hospitals below the district hospital. From the Seventh Plan onwards, it has been emphasized that these should be reorganised and brought into the mainstream, given the status of CHC and the responsibility of being the referral centre for well defined PHCs and SCs. Many CHCs/FRUs have sub-district post partum centers located within their premises or in the vicinity, but they are not functioning as a part of CHC.

2.8.21 The Facility Survey carried out by the Dept. of Family Welfare showed that though more

than 90 per cent of the CHCs have an out patient and in patient facilities and operation theatre, only about one-third had adequate equipments. A majority of the CHCs do not function as the FRUs because they either do not have any specialist or the posted specialists are not from the four specified specialties.

Tribal Health

2.8.22 In order to ensure adequate access to health care services for the tribal population, 20,769 SCs, 3286 PHCs, 541 CHCs, 142 hospitals, 78 mobile clinics and 2305 dispensaries have been established in tribal areas. In addition, 16845 SCs, 5987 PHCs, 373 CHCs and 2750 dispensaries are located in

Experiments for improving access to primary health care among tribals:

- Andhra Pradesh – Committed government functionaries are running health facilities in tribal areas
- Orissa – Additional central assistance is provided for mobile health units with a fixed tour schedule. However, this is expensive and difficult to replicate.
- Karnataka, Maharashtra – NGO have 'adopted' and are running PHCs in tribal areas

The success of all these experiments is mainly due to the commitment of individuals and credibility of NGOs, which is difficult to replicate.

villages with 20 per cent or more scheduled caste population. Most of the centrally sponsored disease control programmes have a focus on the tribal areas. Under the National Anti Malaria Programme (NAMP) 100 identified predominantly tribal districts in Andhra Pradesh, Bihar, Gujarat, Madhya Pradesh, Maharashtra, Orissa and Rajasthan are covered. In spite of all these, the access to and utilisation of health care remain suboptimal and health and nutrition indices in the tribal population continue to be poor (Table-2.8.2).

Table:2.8.2
Health indices of various social groups

	IMR	U5MR	%Under nutrition
SC	83.0	119.3	53.5
ST	84.2	126.6	55.9
Other disadv	76.0	103.1	47.3
Others	61.8	82.6	41.1
India	70	94.9	47

Source : NHP, 2002

Health System Reforms at Primary Health Care Level during Ninth Plan

2.8.23 Faced with the problems of sub-optimal functioning and difficulties in providing adequate investments for improving health care facilities in the public sector, almost all state governments have initiated health system reforms with public sector institutions playing lead role. The structural reforms relate to reorganisation and restructuring of all the elements of health care so that they function as integral components of the health system. The functional reforms are aimed at improving efficiency by creating a health system with well-defined hierarchy and functional referral linkages in which the health personnel would work as a multi-professional team and perform duties according to their position, skills and level of care. The community-based link worker who acts as a liaison between people and health care functionaries and ensures optimal utilization of available facilities will provide the last link. The PRIs will participate in planning programmes and assist in implementation

and monitoring. Almost all the states have attempted introduction of user charges for diagnostic and therapeutic procedures in government hospitals from people above the poverty line and use the funds so generated to improve the quality of care in the respective institutions.

2.8.24 Some of the ongoing health system reforms to improve health services include:

- ☒ strengthening and appropriately relocating sub-centres/PHCs e.g. Tamil Nadu, Gujarat;
- ☒ merger, restructuring, relocating of taluk, sub-divisional and rural hospitals, dispensaries and block level PHCs; integrating them with the existing infrastructure to fill the gap in CHCs e.g. Himachal Pradesh;
- ☒ utilizing funds from Basic Minimum Services (BMS), Additional Central Assistance (ACA), Pradhan Mantri Gramodaya Yojana (PMGY) and externally aided projects to fill critical gaps in manpower and facilities; this is being done in all states;
- ☒ district-level walk-in-interviews for the appointment of doctors in PHCs; this had limited success – e.g. Madhya Pradesh and Gujarat;
- ☒ use of mobile health clinics; this is very expensive and had limited success e.g. Orissa, Maharashtra (for Tribal areas), Delhi (for urban slums);
- ☒ handing over of PHCs to NGOs – Karnataka, Orissa; only Karnataka reported success;
- ☒ training MBBS doctors in certain specialties (obstetrics, anaesthesia, radiology) in a teaching institution for three to six months and posting them to fill the gap in specialists in FRUs e.g. Tamil Nadu and West Bengal; however, professional associations do not support this because quality of care may be suboptimal; and
- ☒ improving the logistics of supply of drugs and consumables – e.g. Tamil Nadu, Orissa.

2.8.25 Several states have obtained external assistance to augment their own resources so that the pace of reforms can be accelerated. Funds were provided under PMGY for improving functional

status of rural primary health care institutions. Fifty per cent of the outlay was to be used for procurement of drugs and essential consumables and repair of essential equipments. The other 50 per cent was to be used for repair and maintenance of infrastructure in sub-centres, PHCs and CHCs. Under the RCH Programme, funds are provided for minor repair and maintenance of buildings, especially for operation theatres and labour rooms and for improving water and electric supply. Review of the health sector reforms during the Ninth Plan period indicates that on the whole, the content and coverage are poor; pace of implementation is very slow and uneven across the states.

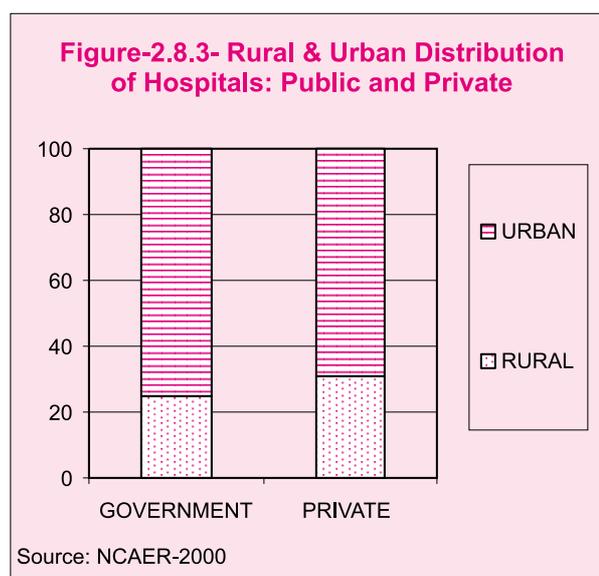
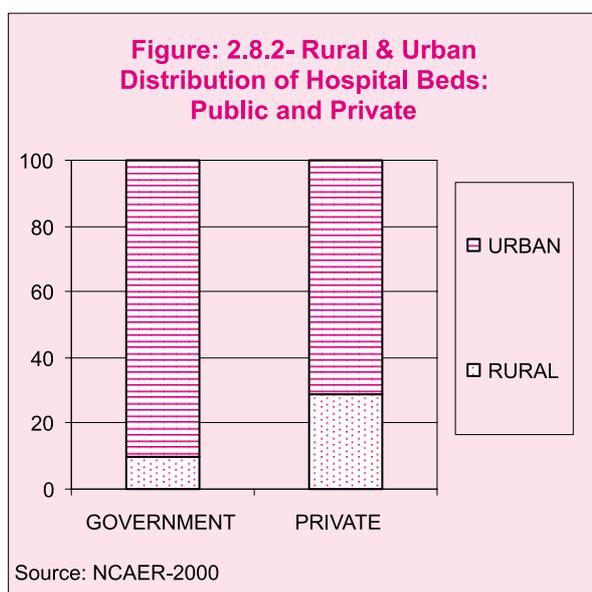
Urban Primary Health Care Services

2.8.26 Nearly 30 per cent of India's population lives in the urban areas. Majority of the hospitals (Figure-2.8.2 & 2.8.3), doctors and para-professionals are in urban areas. Urban population

Table-2.8.3
Urban/rural health indicators

	BPL(%)	IMR	U5MR	% Children Under-nourished
Urban	23.6	44	63.1	38.4
Rural	27.1	75	103.7	49.6
Total	26.1	70	94.9	47.0

Source : NFHS-2



is aware and has ready access to health care. Data from SRS, NFHS and other surveys indicate that health indices of the urban population are better than those of the rural population (Table-2.8.3). However, urban migration has resulted in rapid growth of urban slums; The slum population face greater health hazards due to over-crowding, poor sanitation, lack of access to safe drinking water and environmental pollution. Small scale research studies have shown that health indices of urban slum dwellers in some areas are worse than those of rural population.

2.8.27 Realising that the available infrastructure is insufficient to meet the health care needs of growing urban population, the municipalities, state governments and the central government have tried to build up urban health care facilities. These urban health facilities especially the tertiary care institutions cater to both the urban and rural population. Unlike the rural health services there have been no efforts to provide well-planned and organized primary, secondary and tertiary care services in geographically delineated urban areas. As a result, in many areas primary health care facilities are not available; some of the existing institutions are under utilised while there is over-crowding in most of the secondary and tertiary care centres. As there is no screening and referral system, the available equipment and expertise in secondary hospitals are under utilised; inappropriate use of available diagnostic and therapeutic facilities result in

escalating cost of health care without commensurate health benefits.

2.8.28 The Ninth Plan envisaged the development of a well structured net work of urban primary health care institutions providing health and family welfare services to the population within one to three km of their dwellings by re-organizing the existing institutions. In addition to funds provided by corporations/municipalities, state government and the central government, externally assisted projects were taken up to achieve the goal. The Planning Commission also provided additional central assistance to some states for undertaking such restructuring. Though there are several small success stories, hardly any progress has been achieved in the overall task of restructuring the urban primary health care, linked to secondary and tertiary care and appropriate retraining and redeployment of personnel. One of the major factors responsible for the tardy progress is the multiplicity of agencies funding these institutions.

Role of Panchayati Raj Institutions

2.8.29 According to Article 243 G of the 73rd Constitutional Amendment Act, states are required to devolve adequate powers and responsibility to the PRIs in order to make them effective institutions of local self government. Funds and personnel have to be made available to the PRIs for planning and implementation of schemes pertaining to various sectors. The PRIs can play a critical role in ensuring area specific microplanning, monitoring of the implementation of the national, state level and district specific programmes, ensuring accountability and improving inter-sectoral coordination. However, in many states, there have been no concrete steps to involve PRIs in the planning and implementation of state sector or centrally sponsored schemes.

Initiatives during the Tenth Plan

2.8.30 During the Tenth Plan every effort will be made to implement the recommendations of the Seventh, Eighth, and Ninth Plan that all hospitals and dispensaries below district level should be

mainstreamed, reorganised, restructured and integrated into the three tier rural primary health care system so that these institutions serve the population in a well defined area and have appropriate referral linkages with each other. The village under each sub-centre, sub-centres under each PHC, PHCs under each CHC/FRU will be defined using Geographical information System (GIS) mapping, taking into account distances, road linkages and other factors that will improve access. All sub-district institutions with specialists will be recategorised as CHC/FRU and all hospitals and dispensaries without specialists will be merged or recategorised as PHCs. By the end of Seventh Plan most of the states have completed setting up required number of Subcentres and PHCs required to meet the norms for 1991 population (Figure 2.8.1). As many of them are located in their own building and cannot be shifted out (Figure 2.8.1a). Population under each of these primary health care institutions has grown; but it will be difficult to locate new institutions to cater to the additional population in appropriate locations. Therefore the Tenth Plan goals for primary health care institutions for each state will be number of the primary health care institutions required to meet the health care needs of the 1991 population as per the norms (Annexure 2.8.3). Opening new centers and construction of new centres will be undertaken only under exceptional circumstances.

2.8.31 Ninth Plan recommendations regarding re-organisation of urban primary health care institutions making them responsible for the health care of a population living in a defined geographic area and linking them to existing secondary and tertiary care institutions will be fully implemented during the Tenth Plan.

2.8.32 In order to cope with the growing population/changing needs for health care, the staffing pattern of both urban and rural primary health care institutions may be suitably modified taking into account the population, their health care needs, the work load, difficulties in delivery of services and distances to be covered. Most of the gaps in critical manpower will be met by re-orientation, skill up gradation and redeployment of the existing manpower. For instance vacancies in

the posts of specialists in FRUs will be reduced by integrating the staff of the post partum centres with the FRU staff. As and when required part time or contractual staff including those provided under the national disease control programmes and family welfare programme could be utilised to fill the gaps in manpower. Release of grants under the centrally sponsored schemes will be conditional on filling the vacancies in staff who are critical for improving performance under the national programmes. Mismatch between the equipment and personnel will be corrected by shifting equipment to centres which have the personnel to operate it or vice versa

2.8.33 Available funds will be utilized to make all the existing institutions fully functional by providing needed equipment, consumables, diagnostics and drugs. In addition to funds from the centre, state, externally aided projects, locally generated funds from user charges and donations will be used for maintenance and repair to ensure optimal functional status and improve quality of services.

Secondary Health Care

2.8.34 The secondary health care infrastructure at the district hospitals and urban hospitals is currently also taking care of the primary health care needs of the population in the city/town in which they are located. This inevitably leads to overcrowding and under utilisation of the specialized services. Strengthening secondary health care services was an identified priority in the Ninth Plan. In addition to the funds they get from the state plan, seven states have taken World Bank loans to initiate projects to build up FRUs/district hospitals. The aim of these projects is to :

- ☒ strengthen FRUs to take care of referrals from PHCs/SCs;
- ☒ strengthen district hospitals so that they can effectively take care of referrals;
- ☒ strengthen the referral system and rationalize care at each level to:
 - ↳ enable patients to get care near their residence;
 - ↳ ensure optimal utilisation of facilities at PHCs/ CHCs; and

- ↳ reduce overcrowding at the district and tertiary care level.

2.8.35 The states have initiated construction works and procurement of equipments. They have reported increased availability of ambulances and drugs, improvement in quality of services following training to health care providers, reduction in vacancies and mismatches in health personnel/ infrastructure and improvement in hospital waste management, disease surveillance and response systems. All these states have attempted to levy user charges for diagnostic and therapeutic services from people above the poverty line. Some states have been unable to ensure that the collected charges are retained for use in the same institution and this problem need be speedily resolved.

2.8.36 During the Tenth Plan priority will be accorded to the evaluation of the ongoing World Bank funded secondary health care systems projects in these seven states regarding:

- ☒ progress in strengthening of physical infrastructure;
- ☒ functional improvement in terms of patient care, organization of referral linkages between CHCs, district hospitals and tertiary care institutions;
- ☒ improvement in different components of care - hospital waste management, disease surveillance and response, HMIS etc;
- ☒ operationalisation of cost recovery through user charges from people above poverty line while ensuring that people below the poverty line do have access to health services free of cost;
- ☒ efforts currently underway to make the programme sustainable so that it remains fully functional after project period.

2.8.37 During the Tenth Plan strengthening of the secondary health system and building up referral services will be taken up in other states using the lessons learnt from these seven states.

Tertiary Health Care

2.8.38 Over the last two decades a majority of the tertiary care institutions in the governmental

sector have been facing a resource crunch and have not been able to obtain funds for equipment maintenance, replacement of obsolete equipments, supply of consumables and upgrading the infrastructure to meet the rapidly growing demand for increasingly complex diagnostic and therapeutic modalities. There is a need to optimise facilities available in tertiary care institutions, enhance the quality of services and strengthen linkages with secondary care institutions. Overcrowding in tertiary care hospitals and underutilization of expert care due to the lack of a two way referral system with primary and secondary care levels requires correction. To meet some of the recurring costs and to improve the quality of services in tertiary health care institutions the Ninth Plan suggested levying user charges and establishing pay clinics/pay cabins.

2.8.39 Some states have provided land, water and electricity at a lower cost to private entrepreneurs setting up tertiary care/superspeciality institutions on the condition that they provide outpatient and inpatient care free of cost for people below the poverty line. In an effort to augment the availability of tertiary care, several states (e.g. Rajasthan and Himachal Pradesh) are trying out innovative schemes to give greater autonomy to government institutions, allowing them to generate resources and utilise them locally. Most states have not yet fully documented the extent and impact of their efforts in this direction. Available data suggest that Kerala, Punjab and Haryana have cost recovery ratios of around 10 per cent and more than 80 per cent of the fees for public facility care were paid by the richest 40 per cent of the population both in the urban and rural areas. This may be because this section uses the services more or the quality of care provided to those who pay may be better than to those who are exempt from paying. A review of the existing cost recovery system in states has shown that:

- ☒ an appropriate institutional framework for reviewing user charges has not yet been established;
- ☒ the level of cost recovery is minimal due to the low structure of fees and inadequate collection mechanisms;

- ☒ mechanisms for identifying and exempting the poor from user charges are ill defined; and
- ☒ funds collected are not retained at the point of collection in many states.

2.8.40 During the Tenth Plan, the ongoing efforts at cost recovery from people above the poverty line will be encouraged and evaluated; models which improve the access of all segments of the population to appropriate care at an affordable cost will be replicated. One of the major recommendations of the Ninth Plan was that a Technical Appraisal Committee should be constituted in all major government institutions to assess and prioritise the essential requirements for strengthening and up grading of facilities keeping in mind the funds available. Every effort will be made in the Tenth Plan to implement this recommendation, improve autonomy and encourage decentralised planning.

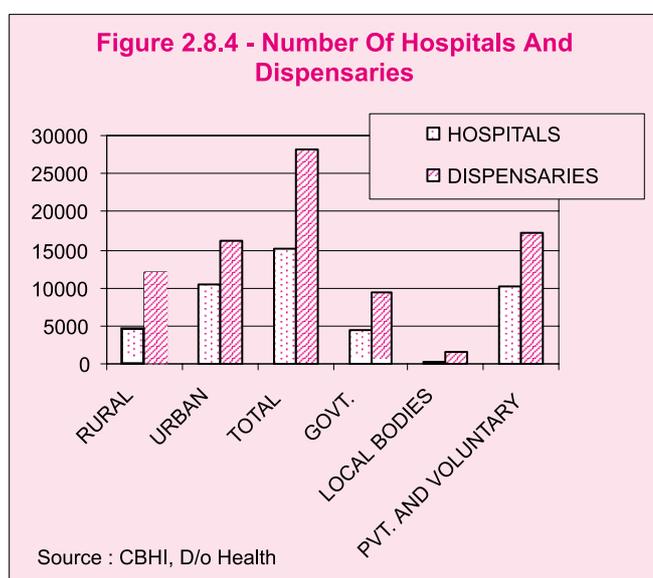
Development and Use of Appropriate Technologies

2.8.41 The development and utilisation of appropriate technologies for diagnosis and management of patients is an essential pre-requisite for an improvement in the quality of health services without unnecessary escalation in cost of health care. Realising the need for an in-depth review of the requirement for supportive and diagnostic services at primary, secondary and tertiary care a separate Working Group on this subject was constituted prior to the formulation of the Ninth Plan.

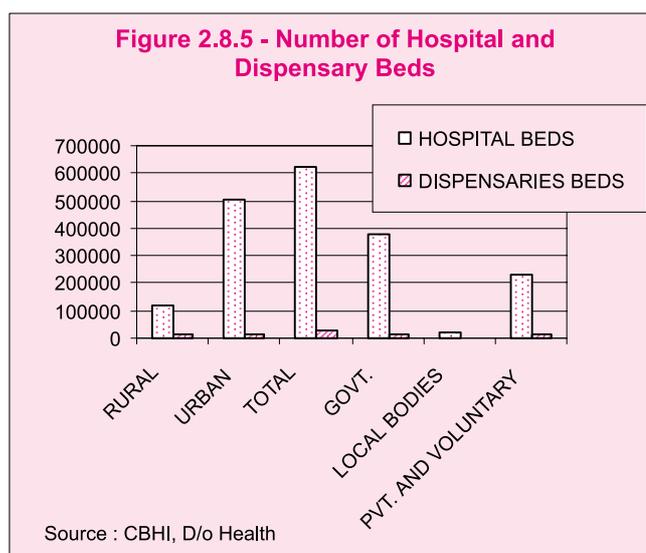
2.8.42 The Working Group's recommendations regarding diagnostic and supportive services appropriate for the primary and secondary levels and their maintenance were, to some extent implemented by some states. Efforts for the development and testing of inexpensive technologies for weighing, measurement of blood pressure, haemoglobin (Hb) estimation, hand held data entry machines to improve HMIS continue to receive support. Efforts to set up a national mechanism for the appraisal of the quality of new technologies will continue.

Public – Private Participation in Health Care

2.8.43 The private health sector has played a significant role in health service delivery right from the pre-independence days. At the time of independence public-private participation was in the form of government doctors being allowed private practice, an arrangement that continues even today in majority of states. To cope with the lack of medical teachers in the 1950s and 1960s many medical colleges appointed private practitioners as honorary teachers and honorary physician in teaching hospital but the number of such teachers declined with the increasing availability of full-time paid government teachers.

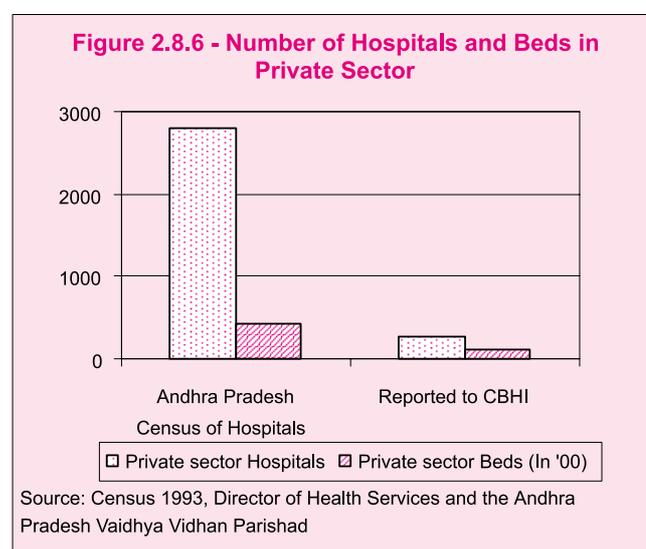


2.8.44 At present, there is no uniform nationwide system of registering either practitioners or institutions providing health care in the private/voluntary sectors nor is there a mechanism for obtaining and analyzing information on health care infrastructure and manpower in these sectors at the district level. During the Ninth Plan a Standing Technical Advisory Committee headed by the Director General of Health Services was set up and the Central Bureau of Health Intelligence (CBHI) was given the task of compiling data on health care infrastructure and manpower at all levels in the private, voluntary, industrial, governmental and other sectors. So far, very little progress has been reported in this direction. This task will

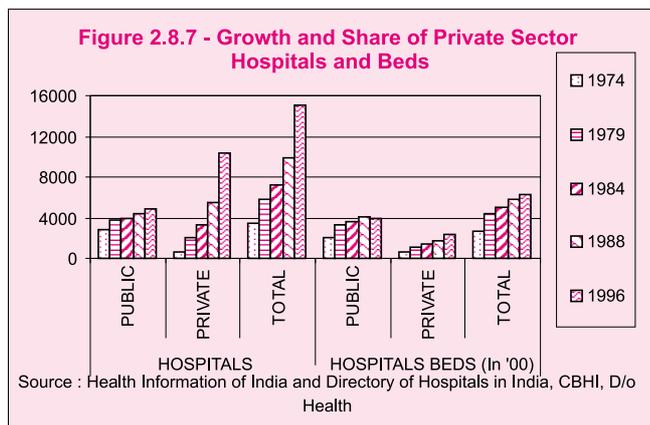


be taken up and completed on a priority basis during the Tenth Plan.

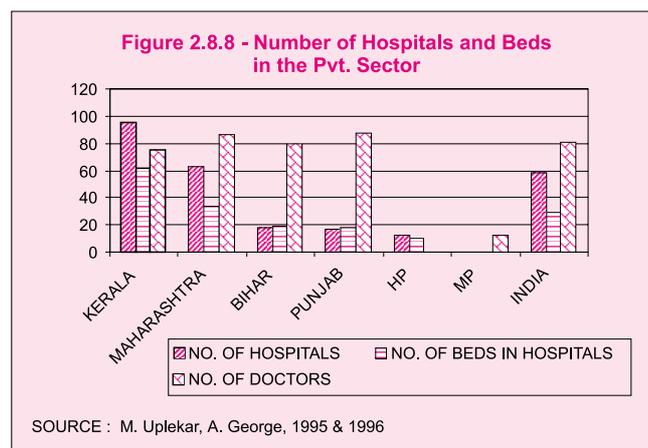
2.8.45 Available data on infrastructure and manpower in the hospitals and dispensaries (excluding PHCs and CHCs) in private and public sector from both rural and urban area computed from CBHI reports is shown in Figure 2.8.4 & 2.8.5. While information on the government sector institutions is reliable, data on the private sector is incomplete and is based on information provided by the state medical councils and state governments. Data from Andhra Pradesh indicate that there may be massive differences between the data reported by CBHI and the actual census conducted by the state government (Figure 2.8.6).



2.8.46 Available data from National Sample Survey Organisation (NSSO) carried out by independent investigators and studies funded by the Department of Health suggest that a majority of the physicians in both the modern system of medicine and ISM&H work in the private sector. The growth and share of private sector hospitals and beds over the years is shown in Figure 2.8.7. The growth and share of government sector hospitals and beds appear low because the CBHI does not include the PHCs (there are 22975 PHCs; majority have six beds) and CHCs (2985 each with atleast 30 beds) under hospitals and dispensaries. While there has been a substantial increase in the number of hospitals under the private sector during the 1990s, the rise in the number of beds has been modest. (Figure 2.8.7)

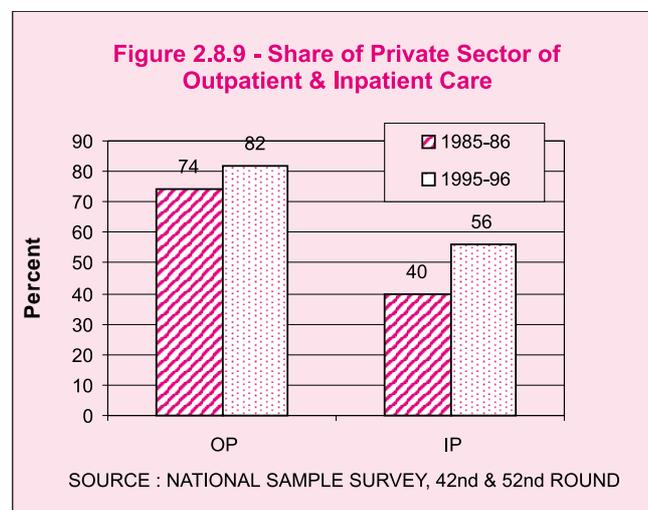


2.8.47 Currently private sector health services range from those provided by large corporate hospitals, smaller hospitals/nursing homes to clinics/ dispensaries run by qualified personnel and services provided by unqualified practitioners. A majority of the private sector hospitals are small establishments with 85 per cent of them having less than 25 beds with an average bed strength of 10 beds. Private tertiary care institutions providing specialty and super-specialty care account for only 1 to 2 per cent of the total number of institutions while corporate hospitals constitute less than 1 per cent. There are wide inter-state differences in the distribution of private sector hospitals and beds. The private sector prefers to set up facilities in the more prosperous districts/ states (Figure 2.8.8). The private sector accounts for 82 per cent of all



outpatient visits and 52 per cent of hospitalisation at the all-India level (Figure 2.8.9), with no significant variations across income group.

2.8.48 A majority of government and private sector hospitals and beds are located in urban areas. Qualified and registered private sector doctors or private sector institutions are not readily available in remote rural and tribal areas because people do not have ability to pay and there is a lack of social infrastructure. Thus, the population in these areas where health care needs are the greatest have very poor access to functioning government health services or private facilities. In spite of the abundant supply of registered physicians in modern system of medicine and ISM&H, unqualified persons still provide health care especially to the poorer segments of the population living in urban slums, remote rural and tribal areas.



2.8.49 Majority of private sector institutions are single doctor dispensaries with very little infrastructure or paramedical support. They provide symptomatic treatment for common ailments and because they are conveniently located and easily accessible, patients from even below the poverty line utilize them and pay for their services. These private practitioners do not have access to updated standard protocols for the management of common ailments; hence the quality of care they provide is often sub-optimal. Some private hospitals have also been found to be using inappropriate, unnecessary and expensive diagnostic tests and therapeutic procedures as well as inappropriate and unethical treatment practices. Other problems reported in private sector include use of unqualified service providers, overuse of diagnostic and therapeutic measures leading to exorbitant costs. There is no attempt to screen patients for complications and refer them to the appropriate level of care, rationalise drug use or contain the costs of treatment. These problems have to be addressed through appropriate interventions, including CME to update the knowledge and skills of practitioners, evolving and implementing standards for quality of care and operationalisation of an appropriate grievance redressal mechanism.

Figure 2.8.10 - Public and Private Sector Shares In Service Delivery For Those Above and Below Poverty Line. All India, 1995-96

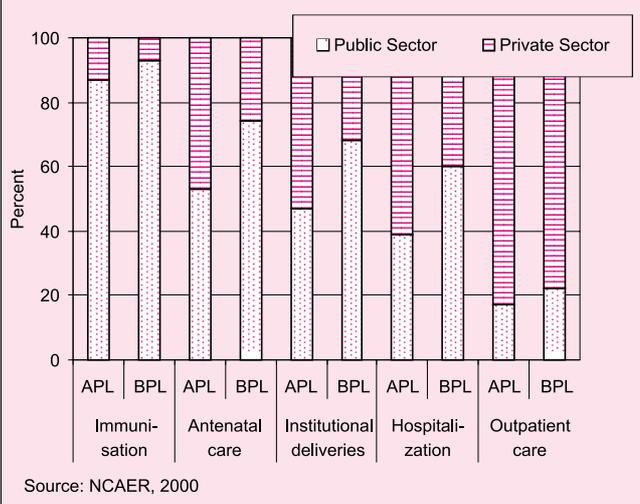
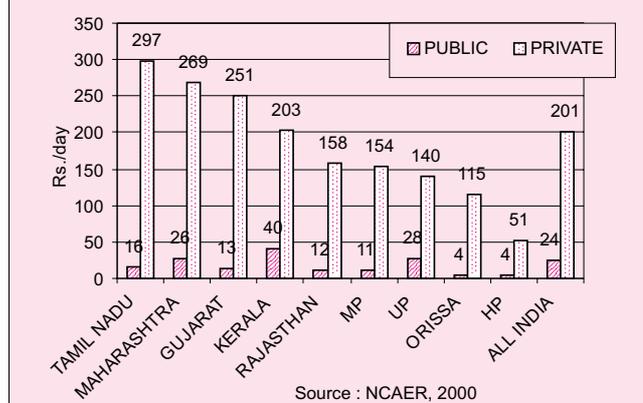
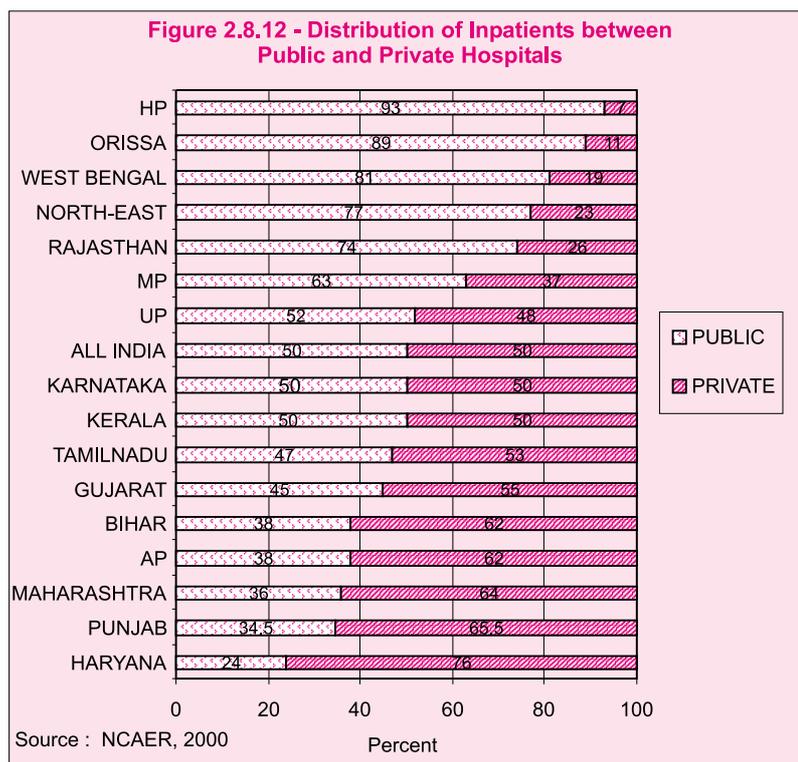


Figure 2.8.11 - Average Hospital Charge per Inpatient Day by Public and Private Hospitals



2.8.50 Data from 52nd round of NSSO 1995-96, National Family Health Survey (NFHS-2) and a National Council of Applied Economic Research (NCAER) study shows that there were distinct patterns for the utilisation of out patient and inpatient services. A majority of the population both from below and from above the poverty line, approached the private sector for outpatient curative care for minor ailments. However, when it came to obtaining immunization or antenatal care, most people, irrespective of their income status went to government institutions. For inpatient care for all ailments 60 per cent of the below poverty line (BPL) families tend to use government hospitals and while an equal proportion of above poverty line (APL) families prefer private hospitals (Figure 2.8.10).

2.8.51 The average cost of hospital stay per day in government hospitals is low and there are no significant inter-state variations in this respect. The cost of inpatient treatment in the private sector is much higher (Figure 2.8.11). This has been cited as the major reason for poorer sections seeking inpatient care in government institutions. There are wide inter-state variations in the cost of private sector inpatient care, ranging from Rs.51 per day in Himachal Pradesh to Rs. 297 in Tamil Nadu. Part of the difference might be due to differences in diagnostic and therapeutic services available in these hospitals.



2.8.52 The state-wise distribution of in-patients in public and private hospitals is given in Figure 2.8.12. In spite of good government sector infra-structure, a majority of patients in Punjab, Haryana, and Maharashtra went to private hospitals. In Himachal Pradesh, Rajasthan, West Bengal and the north eastern states a majority of the patients seek admission in government hospitals in spite of inadequacies in infra-structure. In Bihar, poor government infrastructure might be responsible for over 60 per cent of patients seeking admission in private hospitals. Obviously the choice between public and private sector facilities depends on several factors including the functional status of government infrastructure, the price differential between the public and private sector, the person's ability to pay and the preferences of the community.

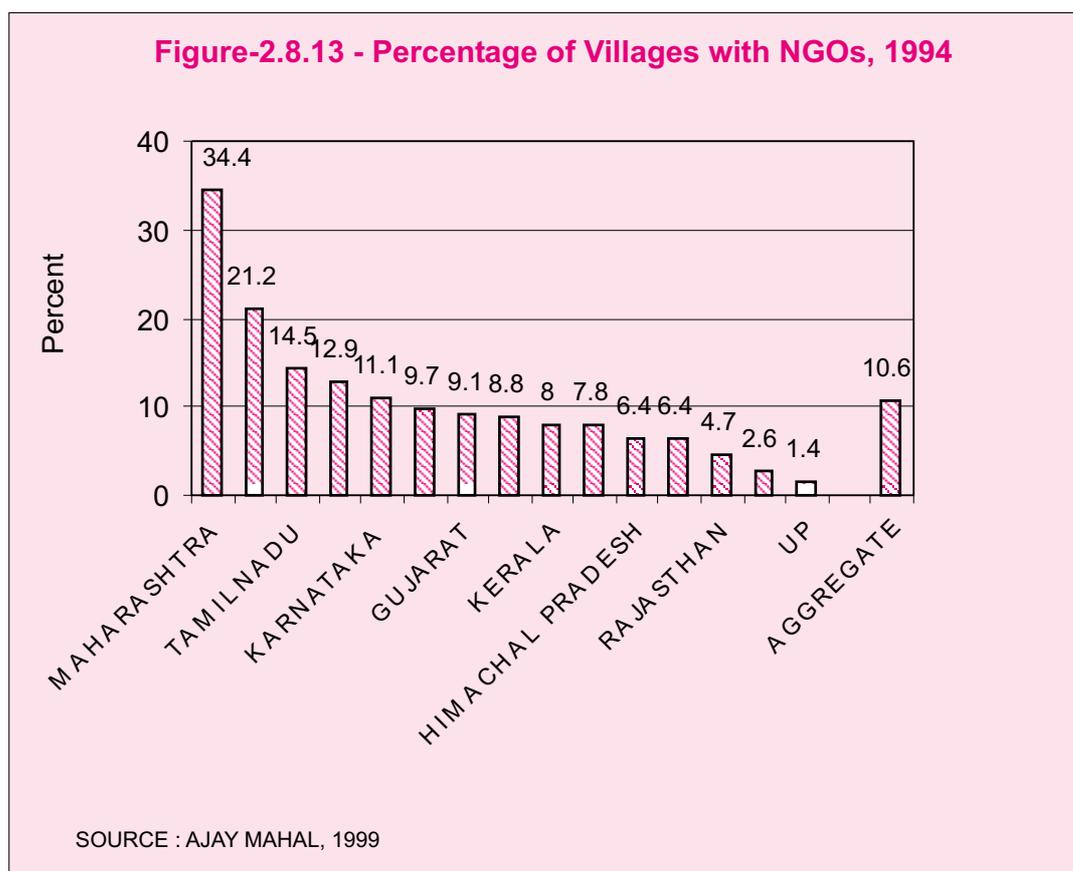
NGO and Voluntary Sector

2.8.53 Apart from purely private providers of health care, the NGOs and the voluntary sector have been providing health care services to the community. It is estimated that more than 7000 voluntary agencies are involved in health-related activities. Wide inter-state differentials exists in

the coverage of villages by NGOs (Figure-2.8.13). NGOs providing a variety of services are relatively few, unevenly distributed across and within states and have limited area of operation. Some implement government programmes of the departments of family welfare and health. Others run integrated or basic health services programme or provide special care/ rehabilitation to people suffering from some specific diseases e.g., leprosy patients. Health care activities are also carried out by agencies like the Red Cross, industrial establishments, Lion's Club, Helpage India etc.

2.8.54 Some of the problems faced by NGOs in delivery of health care include:

- ☒ limited interaction between the government and NGOs;
- ☒ limited financial management, technical and managerial capacity of the NGO;
- ☒ paucity of funds; and
- ☒ delays in transfer of funds from the government.

Figure-2.8.13 - Percentage of Villages with NGOs, 1994

Ongoing Efforts in Public - Private Collaboration in Health Care

2.8.55 There have been very few studies documenting the geographic distribution of outpatient/inpatient facilities, existing collaborations between private sector and public sector institutions and the role each of them play in outpatient/ inpatient health care in different districts/states. The Ninth Plan had recommended that these will be documented and the information utilised for decentralized district -based planning. This has not yet been done and may have to be taken up on a priority basis during the Tenth Plan. During the Ninth Plan period, the Centre as well as the states initiated a wide variety of public-private collaborations. Some of the ongoing collaborations include:

- ☒ in most of the states government doctors are allowed private practice. The doctor benefits monetarily; patients also gain because they are being treated by doctors who had updated their

knowledge and skills through in-service training;

- ☒ contractual appointment of the health care personnel and hiring of private practitioners for providing services in the PHCs have been attempted in order to fill the gaps. However, the response has been poor; these practitioners need orientation training to fulfill the role expected of PHC doctors;
- ☒ part time hiring of general practitioners and specialists to visit and provide health care in PHCs/CHCs in under-served areas. Limited success has been reported in this experiment;
- ☒ state and central governments, PSUs reimburse cost of medical care provided by recognized private health care providers/institutions;
- ☒ involving NGOs/private sector practitioners in the national programmes e.g. utilizing the services of NGOs, and not for profit institutions in the leprosy eradication programme,

involvement of private practitioners/institutions in the blindness control programme and the NGOs in HIV/AIDS control programme;

- ☒ private sector individuals/institutions/industry e.g. Tata Steel Company provide health care to the population living in a defined area;
- ☒ private super-specialty, tertiary/secondary care hospitals are given land, water and electricity etc. at a concessional rate and permission for duty-free import of equipment with the understanding that they will provide in-patient/out-patient services to poor patients free of charge. The experience in this has been varied; several problems being reported;
- ☒ private practitioners provide information for disease surveillance in some districts in Kerala.

2.8.56 The impact of all these on improving access to and affordability of health care and on the coverage under disease control programmes have not yet been evaluated. However, available information suggest that these schemes succeeded in places where there were well-defined committed groups and clear-cut memorandums of understanding (MOUs) and the MOUs were implemented properly. During the Tenth Plan attempts will be made to improve area-specific public-private collaborations, taking into account the health care needs of the population, the presence of each of these sectors, their strengths and weaknesses. Feasibility of GIS mapping to identify under-served areas and providing suitable incentives to encourage private sector to set up health facilities in such areas will be explored. Monitoring the implementation of these programmes along with the PRIs and local leaders will go a long way in ensuring accountability.

2.8.57 Since private practitioners provide most of the curative care in the country, it is important that they are given ready access to updated protocols for the management of common illnesses and current regimens used in the national disease control programmes and family welfare programme. They must be allowed to have easy access to drugs, devices, and vaccines provided through the national programmes. If this

is done, private practitioners can play an important role in increasing the coverage as well as containing the cost of care.

2.8.58 One essential pre-requisite for improving the quality of care will be the development of standard treatment protocols appropriate for each level of care. The medical colleges and research institutions should play a key role in preparing these documents quickly. The existing government institutions at each level will have to take up the responsibility of testing these management protocols and suggest necessary modifications. These protocols will be made available to all practitioners through CME programme for skill upgradation and training. Available IT tools have to be fully utilised by CME programmes to ensure easy access to the materials for updating skills and knowledge. Online consultation services between paraprofessionals and doctors and among doctors may improve the quality of services and reduce the problem of transporting patients to hospitals for diagnosis and advice regarding management. Government institutions in the states, which will be 'model institutions', will evolve appropriate norms for the cost of care at different levels of institutions and monitor both the cost and the quality of care in their own institutions. The district health officials will monitor the performance of both public and the private sector institutions in the district and assist them in improving the quality of care and containing cost of care.

2.8.59 During the Tenth Plan appropriate policy initiatives will be taken to define the role of government, private and voluntary sectors in meeting the growing health care needs of the population at an affordable cost. The public sector will develop institutional capability at the central, state and local levels to:

- ☒ evolve policies and strategies for providing healthcare and monitor their implementation;
- ☒ increase public-private-voluntary sector collaborations to meet the health care needs of the poor and vulnerable segments of population;

- ☒ draw up standards for appropriate quality and cost of care and establish accreditation systems for individuals/institutions;
- ☒ monitor and enforce regulations and contractual obligations;
- ☒ promote excellence and ethics among professionals, identify and punish professional misconduct;
- ☒ set up an appropriate and speedy grievance redressal mechanism.

Quality and Accountability in Health Care

2.8.60 Assessment of the quality of health care is often thought to be a value judgement but there are determinants and ingredients of quality, which can be measured. These include assessment of infrastructure and manpower, processes such as diagnosis and treatment or outcome such as case fatality, disability and patient satisfaction. Health care quality evaluation includes safety, effectiveness and timeliness of interventions. It must also include assessment of the performance of the system in terms of meeting the changing needs of the population to stay healthy and learn to live with illness and disability. In recent years, there has been increasing public concern over the quality of health care both because of increasing awareness of the population and the

Introduction of Quality Control System in India will:

- ☒ prevent overuse, under-use, abuse and misuse of facilities;
- ☒ improve effectiveness and efficiency;
- ☒ help to make positive outcomes more likely;
- ☒ help in effective and responsible use of resources;
- ☒ minimise barriers to appropriate care at different levels by matching the levels of care to the level of need;
- ☒ bring accountability into the health system; and
- ☒ ensure that optimum use is made of every rupee invested.

mushrooming of health care institutions particularly in the private sector.

2.8.61 During 1990s, some initiatives were taken to address issues relating to quality of care e.g. inclusion of health sector under the Consumer Protection Act. Some states have attempted to provide a legal framework for the functioning of private health care institutions on the lines of the Bombay Nursing Home Registration Act 1949. These legislative measures have so far not been effectively implemented partly because of the lack of objective criteria for defining 'quality of care' and the fear that enforcing such regulations may increase the cost of care.

2.8.62 During the Tenth Plan quality control concepts and tools will be introduced into every aspect of health care in order to ensure that:

- ☒ the population and the system benefit from defined and institutionalised norms, accountability and responsibility;
- ☒ the Tenth Plan goals are achieved and health indices of the population improve; and
- ☒ health care is made affordable for individuals and the country as a whole.

HUMAN RESOURCE DEVELOPMENT FOR HEALTH

2.8.63 The outcome and impact of any health programme depends on the competencies and skills of the personnel who implement it. At the time of Independence, the country had a population of 300 million. Famine, starvation and epidemics took a massive toll of human life; infant and maternal mortality rates were among the highest in the world and life expectancy was about 33 years. There were about 50,000 medical graduates and 25,000 nurses in the modern system of medicine to provide health care to the population.

2.8.64 The country then embarked on a massive expansion of medical and para-professional training so that the manpower needs for the proposed expansion of the health system are met . Five

Ninth Plan Priorities for Human Resources Development for Health

- ⊗ creation of a district data base on requirement, demand and availability for health manpower in the government, private and voluntary sectors;
- ⊗ periodic updating of information on :
 - ↳ requirement and availability and of different categories of health manpower;
 - ↳ health manpower production based on the needs;
- ⊗ improvement in quality of undergraduate/postgraduate education;
- ⊗ promotion of equitable and appropriate distribution of health manpower;
- ⊗ continuing medical education for knowledge and skill upgradation;
- ⊗ appropriate people and programme orientation; and
- ⊗ continuing multiprofessional education for promoting team work & intersectoral co-ordination.

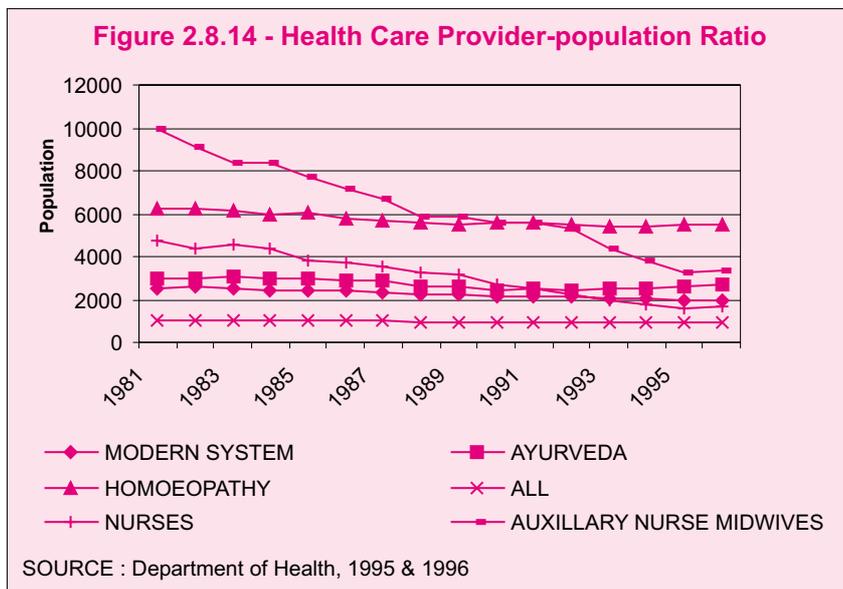
have made rural service compulsory for health professionals and preference is given for those opting for rural services in post-graduate courses. The sustainability and impact of these measures are yet to be evaluated.

2.8.65 During the Tenth Plan medical education will have newer opportunities and challenges. The country has to train adequate number of health professionals with appropriate knowledge, skill and attitude to meet the health care needs of the growing population and dual disease burden. In this era of globalization, India with its excellent teachers and abundant clinical material can become a key player in medical education. The health care institutions can transform India into a major medical tourism destination. Appropriate investment in research and development and quality control can result in a massive expansion of the pharmaceutical sector. The next two decades will show whether the country has successfully used these opportunities to train and provide gainful employment to the highly skilled medical manpower.

decades later there are 181 medical colleges in the modern system of medicine and over 400 ISM&H colleges. The country produces over 17,000 doctors in modern system of medicine annually and a similar number of ISM&H practitioners, nurses/ANMs as well as para professionals. A vast health care infrastructure in the government, voluntary and private sector has been created and is manned by people trained in the country. Personnel costs form a major portion of the investment in health service delivery. In spite of several constraints, Indian health professionals and paraprofessionals have migrated to other countries and have gained global recognition for their knowledge, skills and commitment. However, it is a matter of concern that there are huge gaps in critical health manpower in government institutions that provide health care to the poorer segments of population living in urban slums, remote rural and tribal areas. To address this problem, some states

Health Manpower Planning

2.8.66 Unlike health services planning, health manpower planning in India has not received adequate attention. Sir Joseph Bhore Committee, 1946 recommended a population-based norm for medical (one doctor/population of 1500) and nursing personnel (one nurse/ population of 500). This was



subsequently modified taking into account the changes over the last five decades. The Bajaj Committee suggested that assessment of health manpower requirement should be based on multiple parameters including functionary to population ratio, inter-professional ratio and manpower-mix. Health manpower requirements vary from region to region depending upon stage of epidemiological transition, the availability of institutions, income-elasticity and public and private expenditure on health. Available information on the health care provider-population ratio over the last two decades is given in Figure 2.8.14.

2.8.67 The Ninth Plan envisaged that health manpower planning will be based on the district-specific assessment of available manpower and facilities and the needs and demands of health services. Fine tuning will be done taking into account the manpower needed for implementing national programmes and the manpower requirements in the voluntary and private sector. In order to realistically assess the health manpower availability, the CBHI initiated efforts to obtain reliable and accurate district-wise data on the number of medical, dental, ISM&H professionals, nursing and para professionals and institutions (centre, state, defence services, railways, private sector or voluntary sector). There has been very little progress in this effort; attempts to match the supply of health manpower with the requirement have not even begun. During the Tenth Plan, this database will be created so that decentralised district-based health manpower planning to meet the needs would become possible.

Health Manpower Production

2.8.68 As on June 2001, there were 181 medical colleges out of which 155 (46 of them private) were recognised and 26 (19 of them private) were permitted under section 10A of the Indian Medical Council Act, 1956. A total of 5,39,00 MBBS doctors were registered with the Medical Council of India (MCI) till 2000. At the national level, the number of physicians and specialists available is more than the estimated requirements. The current doctor population ratio is 1:1800 if only the modern system

is considered and 1:800 if ISM&H doctors are also taken into account.

2.8.69 There are massive interstate differences in health indices, health care institutions and health manpower production. Just four states (Karnataka, Andhra Pradesh, Tamil Nadu and Maharashtra) have 81 out of 181 medical colleges. On the other hand populous states like Bihar and Uttar Pradesh with poor health indices and large gaps in health manpower have very few medical colleges. The medical education curricula have not kept pace with the changing requirements of the population or skills required for implementing health and family welfare programmes. The current system of medical education does not appear to enable the students to develop clinical and analytical skills required for functioning effectively in the primary health care settings. The number of family physicians with clinical skills, appropriate people orientation and commitment to improvement of the health status of the community appears to be dwindling. There has been a decline in candidates opting for public health and paraclinical subjects and increasing competition for potentially lucrative clinical and diagnostic specialties. These trends which may have an adverse impact on public health programmes have to be reversed.

2.8.70 During the Tenth Plan under graduate and post graduate training will have to be reoriented to enable students to become competent professionals who can effectively implement programmes aimed at improving the health status of the population. The curriculum may be periodically reviewed and revised in keeping with changing health care needs. Several states have established University of Health Sciences (UHS) to which all medical colleges, dental colleges, para professional and nursing colleges are affiliated. The University ensures uniformity in admission criteria, curriculum and evaluation system and co-ordinates activities aimed at improving the quality of education. During the Tenth Plan all states will be encouraged to establish a UHS.

2.8.71 Initially, most medical colleges were funded either by the central or state government. Over the last two decades, several private medical

colleges have been set up. There have been wide disparities among medical colleges regarding the adequacy of infrastructure, quality of teaching, criteria for admission and fee structure. Concerned about the mushrooming growth and poor quality of medical colleges, the Indian Medical Council Act was amended in 1993 making the permission of the central government mandatory for establishing a medical college, starting a new or higher course of study or training and increase in admission capacity. However, this did not stop the increase in the number of medical colleges. Judicial intervention has to some extent, moderated the differences in the criteria for admission and fee structure between private and government funded institutions.

2.8.72 Medical educationists feel that over years there has been a decline in quality of medical education. This might partly be due to the problems both teachers and students have in coping with the explosive expansion in medical knowledge and technology during the last two decades. The mushrooming of medical colleges and para-professional institutes with inadequate staff and infrastructural facilities has also undoubtedly contributed to the decline in the quality of teaching and training. Implementation of the of the Ninth Plan recommendation regarding setting up a commission on the pattern of University Grants Commission (UGC) to provide financial assistance to medical colleges to improve quality of education may help in arresting the deterioration in quality of medical education. Implementation of another Ninth Plan recommendation that inspections by MCI would be necessary not only for initial recognition but also for continued recognition as medical colleges and admission of students, may go a long way in improving the quality of medical education.

Dental Manpower

2.8.73 At present, there are 142 (113 private) recognised/approved dental colleges in the country with 8900 BDS admissions a year. There are 48 institutions with 869 seats providing postgraduate training. As in the case of medical colleges, there are regional imbalances in the distribution of dental

colleges. The needs of dental paraprofessionals has not been assessed and met. During the Tenth Plan efforts will be made to assess state-wise demand for dental professionals and district-wise need for dental paraprofessionals and take steps to meet the requirements.

Nursing Manpower

2.8.74 Around 7.37 lakh nurses have been registered in the various state nursing councils in the country; it is estimated that only about 40% are in active service. About 1.5 lakh nurses are employed in the government sector. Out of the 654 general nursing-midwives training schools in the country, 465 are run by private/voluntary organizations / missionary institutions. Around 20,000 trained nurses become available annually; the current production capacity is sufficient for filling up vacancies in the Government sector. There is a growing demand for nurses with specialized training, which has to be met. There are over 4 lakh ANMs of whom nearly 1.5 lakh work in the government sector. In some states where there is a shortfall in required number of ANMs, the ANM training schools are being reopened in the government sector.

Paramedical Staff

2.8.75 Adequate paraprofessional support is essential for an efficient and effective functioning health system. Lack of critical para-professional manpower, especially laboratory technicians and male multipurpose workers has been cited as a major factor responsible for poor performance of the tuberculosis and malaria control programmes. The need for different categories of para-medical persons vary between districts and over time. The current needs have to be assessed at district level, and critical gaps filled by skill upgradation and training of unipurpose workers and laboratory technicians working under the disease control programmes.

2.8.76 During the Tenth Plan the changing requirements for para-professionals will be assessed preferably at the district level and necessary steps

taken to meet the requirement through all available training channels. Preference should be given to the 10+2 vocational training courses because

- ☒ it would improve career prospects of the persons trained;
- ☒ the problem of trained para professionals not staying in the place of posting will be reduced if training is done in the districts after assessing the need.

2.8.77 The UHS will ensure that appropriate curricula are evolved and followed. The state governments will amend the recruitment rules for these posts so that those who qualify through vocational courses and open university system become eligible for the jobs in the government, voluntary and private sectors. Efforts to set up paraprofessional council and utilise the UHS to improve the standard of education and training of paraprofessionals will continue during the Tenth Plan period

Continuing Medical Education (CME)

2.8.78 Continuing education and skill upgradation are essential for all health professionals. Currently, in-service training courses are being carried out as a part of all national programmes. CME programmes are being carried out in various institutions, such as the National Academy of Medical Sciences, National Board of Examinations, and various professional bodies and associations. However their outreach, quality and content are sub-optimal. CME efforts will receive greater impetus if the proposal that all medical practitioners have to undergo knowledge and skill up gradation and re-certification every five years is implemented. Critical thrust areas such as the ongoing and new national programmes, rational use of drugs, protocol for management of common ailments, quality control in clinical practice, infection control and waste management in health care settings require focused attention. The National Academy of Medical Sciences has proposed that they will hold intramural CME in these topics where eminent professionals will participate and the proceedings will be put on the website and made accessible to all. These efforts will continue to

receive support during the Tenth Plan. Open Universities will be expected to play a major role in periodically updating the knowledge of various categories of health personnel in a cost effective and efficient manner.

Bio-informatics, Telematics and Distance Education

2.8.79 Information Technology is now one of the major components of the technological infrastructure for health management. All sub-sectors dealing with the generation, transmission and utilisation of demographic and epidemiological data such as bio-informatics, bio-statistics, HMIS and the decision support systems (DSS) are finding increasing use in health planning and management. The nationwide network of NICNET provides rapid reporting mechanism for health information, MEDLARS Biomedical Informatics Programmes provides ready access to medical databases to post graduates and research workers as well as practising physicians. Planning Commission has provided additional central assistance to the UHSs in Karnataka, Andhra Pradesh, Tamil Nadu, Punjab and Maharashtra for strengthening of libraries and networking them through IT. This effort has to be augmented and all medical colleges need to be brought into the network.

2.8.80 Telemedicine programmes bring experts together to assist local doctors in the management of complicated cases. A pilot project on telemedicine in primary health care is currently ongoing in Maharashtra. Some of the major hospitals have taken up online consultation service with other specialists within the country as well as abroad. Efforts are underway to link tertiary care institutions especially in the north-eastern states with major super-speciality institutions in other regions so that patients could benefit from tele-consultations.

PREVENTION AND MANAGEMENT OF COMMUNICABLE DISEASES

2.8.81 The control of communicable diseases has received priority attention right from independence. Effective antibiotic therapy for infections and

Ninth Plan strategies for improving communicable disease control programmes

- ☒ Rectification of identified defects in design and delivery of diseases control programme.
- ☒ Filling critical gaps in infrastructure and manpower.
- ☒ Making service delivery responsive to user's needs.
- ☒ Ensuring that health care providers have the necessary skills and support, including referral facilities and supplies.
- ☒ Improving community awareness, participation and effective utilisation of available services.
- ☒ Use of PRIs in improving community participation and monitoring implementation of programmes.

vaccines for the prevention of infections were the major factors responsible for the steep decline in crude death rate from 25.1 in 1951 to 8.7 in 1999. However, morbidity due to communicable diseases continues to be high. Deteriorating urban and rural sanitation, poor liquid and solid waste management and overcrowding have contributed to the increasing prevalence of communicable diseases. Treatment of infections has become more difficult and expensive because of the emergence of antibiotic resistance; increasing attention is urgently needed for prevention of hospital acquired infections through effective implementation of infection control measures. Even though health is a state subject, the central government has provided additional funds through centrally sponsored schemes for disease control and this has paid rich dividends. Smallpox and guinea worm infections have been eradicated. There has been a substantial reduction in leprosy and polio cases and elimination of these two disease is likely to be achieved in the next few years. However malaria, tuberculosis and HIV infection have not shown any reduction and require continued vigorous attempts at containment and control.

2.8.82 The strategies and programmes initiated in the Ninth Plan for control of communicable

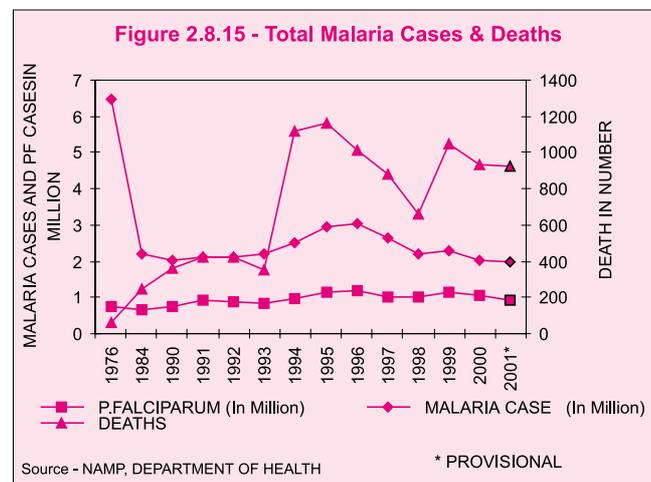
diseases, will continue in the Tenth Plan. Modalities to improve delivery of services pertaining to these programmes through the existing health services will be worked out. Efforts will be made to improve states ownership of the programmes, participation of the community, private sector and NGOs. Local accountability and intersectoral co-ordination will be improved through the involvement of PRIs. Evaluation and operational research to rectify problems in implementation and improving efficiency will receive attention.

National Vector Borne Disease Control Programme

2.8.83 The National Malaria Control Programme, the first centrally sponsored programme, was initiated in 1953. The National Anti Malaria Programme currently deals with malaria, filaria, kala-azar, japanese encephalitis and dengue. During the Tenth Plan the programme will be implemented as National Vector Borne Disease Control Programme.

Malaria

2.8.84 In the early 1950s, malaria was not only a major cause of morbidity and mortality but also one of the major constraints in the ongoing developmental efforts. The National Malaria Control Programme had spectacular success initially in bringing down incidence of malaria from 75 million cases with 0.8 million deaths to 0.1 million cases



with no death by 1965 even though there was no well-established health care infrastructure in the rural areas. However, there was a resurgence of malaria subsequently. In 1976, over 6.7 million cases were reported. From 1977, the National Malaria Eradication Programme started implementing a modified plan of operation for control of malaria. In spite of these efforts, the number of reported cases of malaria have remained around two million in the 1990s (Figure 2.8.15).

2.8.85 In view of the high incidence of malaria (particularly of falciparum malaria) and high mortality, 100 per cent central assistance under the

Ninth Plan strategy

- ☒ early diagnosis and prompt treatment
- ☒ selective vector control and personal protection
- ☒ prediction, early detection and effective response to outbreaks
- ☒ IEC

Target for 2002

- ☒ ABER of over 10 per cent
- ☒ API of less than 0.5 per cent
- ☒ 25 per cent reduction in morbidity and mortality due to malaria

NAMP is being provided to the north-eastern states since 1994. Financial assistance was also obtained from the World Bank for the Enhanced Malaria Control Programme (EMCP) to cover 100 predominantly *P. falciparum* malaria endemic and tribal-dominated districts in Andhra Pradesh, Bihar/Jharkhand, Gujarat, Madhya Pradesh/Chattisgarh, Maharashtra, Orissa and Rajasthan and 19 cities. The project also has the flexibility to divert resources to any area in case of malaria outbreak. In other areas, the NAMP continues to be implemented as a centrally sponsored scheme on a 50:50 cost-sharing basis between the Centre and states in urban and rural areas. The central government provides drugs, insecticides and larvicides and also technical assistance/guidance as and when the

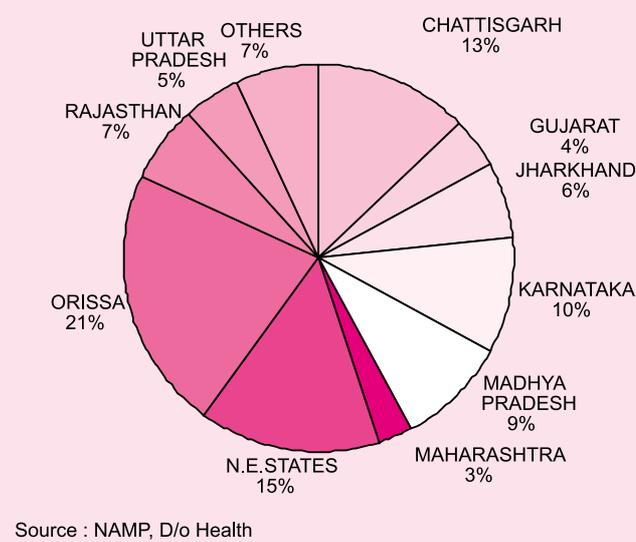
Strategies for vector control include:

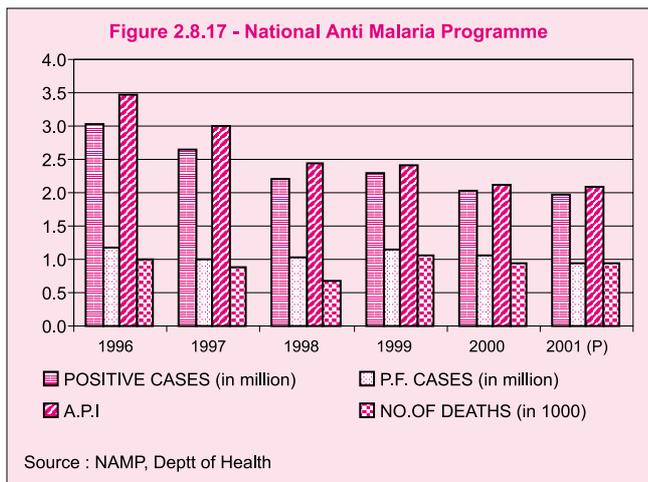
- ☛ Indoor spraying with appropriate insecticide in areas where API is over 2
- ☛ Anti-larval measures Strategies for vector control in urban areas include:
 - ☛ Introduction of medicated mosquito nets
 - ☛ Use of larvivorous fishes and biolarvicides

state governments require. The state governments meet the operational cost, including the salaries.

2.8.86 The percentage distribution of malaria cases in various states is given in Figure 2.8.16. The performance during the Ninth Plan period is shown in Figure 2.8.17. The decline in cases was not commensurate with the substantial increase in the funding for the activities. The rising proportion of *P. falciparum* malaria, increasing vector resistance to insecticides and the growing parasite resistance to chloroquin will render malaria containment and control more difficult in the Tenth Plan period. The Ninth Plan goal for reduction in API and morbidity has not been achieved (Figure 2.8.17). The programme review by the Government of India and the World Bank showed that progress

Figure 2.8.16 - Percentage Distribution of Malaria Cases - 2001





in capability building for malaria surveillance and response at the district level, early detection and treatment of cases, monitoring drug and insecticide resistance and insecticide spraying was slow. The utilisation of funds under the programme has been sub-optimal (Table 2.8. 4)

Table 2.8.4
NAMP-Outlays and Expenditure

Rs. Lakhs

YEAR	OUTLAY	EXPD./RE
9TH PLAN	103000.00	
1997-98	20000.00	14276.00
1998-99	29700.00	16371.00
1999-00	25000.00	17601.00
2000-01	25500.00	18832.00
2001-02	22500.00	23400.00*

Source : Department of Health

* Anticipated Expd.

Table 2.8.5
Cases and Deaths due to Kala-Azar

Year	Bihar		West Bengal		Country	
	Cases	Deaths	Cases	Deaths	Cases	Deaths
1996	25056	674	NA	NA	27049	687
1997	15948	251	1450	3	17429	255
1998	12229	211	1113	6	13577	226
1999	11627	277	1091	6	12869	297
2000 (P)	12039	124	950	8	14239	132

Source: Report of the Working Group on Communicable Diseases for the Tenth Plan. P-Provisional

Kala Azar

2.8.87 Kala azar is endemic in 33 districts of Bihar, 11 districts of West Bengal and three districts in Jharkand and sporadic cases have been reported in Uttar Pradesh. After a reported increase in the number of cases and deaths due to kala-azar between 1989-91 period, an intensive programme for containment of kala azar was launched in 1992.

2.8.88 The strategy for control of infection includes interruption of transmission through insecticidal spraying with DDT and early diagnosis and treatment of kala azar cases. The Central Government provides the insecticides and anti kala azar drugs while the state governments meet the expenses involved in the diagnosis and treatment of cases and insecticide spraying operations. The number of reported cases and deaths (Table 2.8.5) have not shown significant decline during the Ninth Plan period. This is due to inadequate insecticide spraying operations and poor outreach of diagnostic and curative services. Increase in drug resistance to sodium stibogluconate has been reported in the Muzffarpur and Darbhanga districts of Bihar. Though sand fly is usually sensitive to DDT, pockets of insecticide resistance have been reported from Bihar.

Dengue/Japanese Encephalitis (JE)

2.8.89 Periodic dengue outbreaks occur in many parts of India, in both rural and urban areas. Mortality is usually low but may be high in cases of dengue

shock syndrome and dengue haemorrhagic fever (DHF). Diagnostic tests for dengue are not readily available. Japanese encephalitis outbreaks have been reported mainly in Andhra Pradesh, Karnataka, Uttar Pradesh and West Bengal. Diagnostic tests and case management facilities for Japanese encephalitis are not readily available in many parts of the country. In endemic states, efforts are being made to improve early diagnosis, proper management and rehabilitation of those with residual disabilities. Innovative strategies for vector control are being investigated. The reported total cases and deaths due to dengue/Japanese encephalitis during the Ninth Plan are given in Table 2.8.6.

Table 2.8.6
Cases and Deaths due to Japanese Encephalitis and Dengue/DHF

Year	JE		DENGUE/DHF	
	Cases	Deaths	Cases	Deaths
1997	2516	632	1177	36
1998	2120	507	707	18
1999	3428	680	944	17
2000 (P)	2313	535	605	7

Source : Department of Health, 2001.

Filariasis

2.8.90 Filariasis is endemic in 19 states/union territories. Estimates based on surveys by Filariasis Survey Units suggested that:

- ☒ about 454 million people (120 million in urban areas) are living in known endemic areas.
- ☒ there are 29 million filariasis cases in the country and 22 million micro-filaria carriers.

2.8.91 Currently there are 206 filaria control units; 199 filaria clinics; and 27 filaria survey units. A total of 48 million people in urban areas are being protected through anti-larval measures. The Indian Council for Medical Research (ICMR) is conducting

a feasibility and efficacy study on a mass annual single dose administration of DEC and albendazole drugs for the control of filariasis. Kerala has initiated a pilot project for monitoring and management of mosquitoes, in three filariasis endemic districts (Kottayam, Alappuzha and Ernakulam) for the control of vector-borne diseases. The progress of such innovative initiatives will be evaluated and, if found feasible, they will be replicated. The Government of India is a signatory to the UN resolution to eliminate lymphatic filariasis by 2020. The National Health Policy (NHP), 2002 envisages the elimination of lymphatic filariasis by 2015.

Tenth Plan Initiatives

2.8.92 During the Tenth Plan, the National Vector-Borne Disease Control Programme will be implemented through the existing health care infrastructure. The programme will focus on:

- ☒ training of health personnel in the diagnosis of vector-borne diseases and appropriate treatment including referral;
- ☒ improving reporting, recording and monitoring of vector-borne diseases, including cases treated in the private sector, so that reliable estimates of the prevalence of vector borne disease is available;
- ☒ monitoring drug and insecticide resistance;
- ☒ using standardised protocol for the diagnosis and management of these diseases;
- ☒ involvement of PRIs to:
 - ☒ chalk out the malaria worker's schedule;
 - ☒ inform the community and the gram sabha of the spraying operations and seek their cooperation;
 - ☒ ensure that insecticide spraying is started well in advance;
 - ☒ identify villages, which are at the risk of epidemic outbreak;

- ↪ ensure the availability of staff as well as consumables for diagnosis and drugs for treatment;
- ↪ ensure that the malaria worker/male multi-purpose worker identify fever cases, take blood smears and ensure that the community follows treatment advice.
- ↪ ensure that smear positive cases are given radical treatment and monitor implementation of the programme;
- ☒ improvement in IEC at patient, family and community levels;
- ☒ involvement of NGOs and the private sector in diagnosis and treatment of malaria cases;
- ☒ encourage the pharmaceutical industry, manufacturers of insecticides and bednets to produce low cost products for local use; back up these efforts through IEC and social marketing.
- ☒ evaluate community acceptance of insecticide-treated bed nets/curtains for personal protection;
- ☒ research studies on
 - ↪ vector bionomics and behaviour
 - ↪ bio-environmental methods of vector control;
 - ↪ screening and development of new anti-malarial drugs especially herbal products;
 - ↪ evaluation of new drugs and insecticides;
- ☒ include malariagenic potential as a parameter for health impact assessment of developmental projects.
- ☒ exploring the cost effectiveness of the use of remote sensing for mapping the breeding habitats of mosquitoes and prediction of densities of vector species, especially in remote hilly and tribal areas.

Goals for Tenth Plan

Malaria:

- ↪ ABER over 10 per cent
- ↪ API 1.3 or less
- ↪ 25 per cent reduction in morbidity and mortality due to malaria by 2007 and 50 per cent by 2010 (NHP 2002)

Kala azar

- ↪ Prevention of deaths due to kala azar by 2004 with annual reduction of at least 25 per cent
- ↪ Zero level incidence by 2007 with annual reduction of at least 20 per cent using 2001 as the base year
- ↪ Elimination of kala azar by 2010 (NHP 2002)

Revised National Tuberculosis Control Programme (RNTCP)

2.8.93 Tuberculosis (TB) is a major public health problem in India, with an estimated 40 per cent of the population suffering from the infection. India accounts for nearly one-third of the global incidence of tuberculosis. The estimated prevalence of tuberculosis is 1.4 per cent, and sputum positive TB prevalence is estimated to be in the range of 4/1000 to 5/1000. A national sample survey to assess the current epidemiological situation of tuberculosis in different zones is currently under way. Some studies indicate that since 1980s there has been a progressive increase in primary and acquired multi-drug resistant cases of tuberculosis.

2.8.94 The aim of the fight against tuberculosis at the individual level is to cure the disease, to preserve and quickly restore the individual's work capacity, allow the person to be with the family and maintain their socio-economic status. At the community level, the aim is to reduce the risk of infection through effective case finding and appropriate management of sputum positive

case. The National Tuberculosis Control Programme was initiated in 1962 as a centrally sponsored scheme. The programme was aimed at early case detection in symptomatic patients seeking health care, through sputum microscopy and X-ray and effective domiciliary treatment with chemotherapy. BCG vaccination at birth for protection against tuberculosis infection was incorporated into the immunisation programme. Introduction of the short course chemotherapy, which shortened the duration of treatment to nine months, was begun in selected districts in 1983. In spite of the availability of effective chemotherapy, there has not been any decline in the morbidity or mortality due to TB because of low case detection, case holding and cure rates. The programme was reviewed in 1992 and a Revised National Tuberculosis Control Programme (RNTCP) was drawn up with emphasis on:

- ☒ diagnosis through sputum microscopy;
- ☒ uninterrupted supply of drugs for short course chemotherapy;
- ☒ direct observation of treatment with short course chemotherapy (DOTS) to improve compliance; and
- ☒ systematic monitoring, evaluation and supervision at all levels.

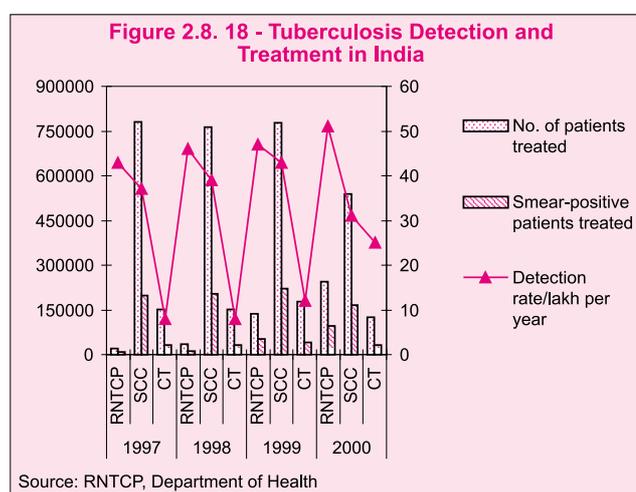
2.8.95 There were delays in the initiation of the RNTCP but a rapid scale-up of the programme began in late 1998. According to programme reports:

- ☒ state and district societies have been formed and provided with funds.
- ☒ more than 1,50,000 health workers and 1,400 supervisors have been trained.
- ☒ diagnostic facilities have been established in more than 3,000 laboratories.
- ☒ the coverage of population under the programme increased from 89 million in 1998-99 to around 365 million in 2000-01.

- ☒ in the DOTS districts, the proportion of TB sputum positive cases detected and treatment completion rates have improved.

an attempt to improve coverage, increased participation of NGOs and private practitioners is envisaged. The programme is being closely monitored.

2.8.96 The performance under RNTCP during the Ninth Plan is given in Figure 2.8.18. A joint programme review by the Government of India and the World Bank in February 2000 showed that there was improvement in diagnosis, drug supply and proportion of patients cured in DOTS districts. The major problems in RNTCP continued to be:



- ☒ poor coverage due to gaps in primary health care infrastructure and manpower;
- ☒ poor quality of sputum examination;
- ☒ diagnosis not based on evolved criteria;
- ☒ use of non standard treatment regimens, especially by private practitioners;
- ☒ poor record keeping, lack of follow up care;
- ☒ lack of involvement of health care providers;
- ☒ poor coordination; and
- ☒ patient's difficulties in compliance with DOTS regimen.

2.8.97 It is now recognized that there are inherent problems in ensuring compliance with long-term drug therapy for any chronic disease. It is essential that the utility, acceptability and sustainability of the DOTS strategy is evaluated and if necessary mid-course corrections carried out. Utilisation of funds has been sub-optimal in the first three years of the Ninth Plan (Table-2.8.7).

Table 2.8.7
RNTCP- Outlays/Expenditure

(Rs. in Lakhs)

YEAR	OUTLAY	Expd./RE
9TH PLAN	45000.00	
1997-98	9000.00	3131.00
1998-99	12500.00	6888.00
1999-00	10500.00	8754.00
2000-01	12500.00	10875.00
2001-02	13600.00	13200.00*

Source: Department of Health

* Anticipated Expd.

During the Tenth Plan, the Focus will be on:

- ☒ expansion of the RNTCP to cover population of over 800 million by 2004 and the entire country by the end of the Tenth Plan;

- ☒ involvement of medical colleges, TB hospitals, hospitals run by the armed forces, railways, corporate sector, NGOs and private practitioners in the pro-gramme;
- ☒ involvement of PRIs to ensure the availability of requisite staff;
- ☒ quality assurance of sputum microscopy and quality control of drugs;
- ☒ provision of sufficient stock of drugs and consumables in the PHCs/CHCs;
- ☒ facilitate referral;
- ☒ inform the community of time schedule for availing treatment;
- ☒ evaluation of RNTCP and operational research to improve performance; and
- ☒ research and development efforts to develop newer drugs to tackle drug resistance, testing of new generation of TB vaccines;

2.8.98 The NHP envisages a 50 per cent reduction in mortality due to tuberculosis by 2010. Goals for the tenth plan are indicated in Table 2.8.8.

Table 2.8.8
Goals for the Tenth Plan

INDICATOR	2002	2003	2004	2005	2006	2007
Coverage under RNTCP (Population in Million)	550	650	800	900	1000	1070
Number of patients to be examined (Million)	2.08	2.50	3.04	3.42	3.80	4.07
Total Number of patients to be put on treatment under RNTCP (Million)	0.52	0.61	0.75	0.85	0.94	1.00
New smear positive patients to be put on treatment under RNTCP (Million)	0.21	0.24	0.29	0.33	0.37	0.40
Cure rate in new smear positive patients in RNTCP (%)	83	84	>85	>85	>85	>85

Source : Department of Health

National Leprosy Eradication Programme (NLEP)

2.8.99 Leprosy has been a major public health problem in India. In 1984 it was estimated that there were nearly four million cases of leprosy in the country, 15 per cent of whom were children. Recognising that leprosy is a major cause of disability and the infected persons face social ostracism, several NGOs and social service/voluntary agencies had taken up treatment and rehabilitation of leprosy patients in the pre-Independence period itself. However, the outreach of these services was very limited. With the availability of multi-drug therapy (MDT), it became possible to cure leprosy cases within a relatively short period of six to 24 months. The NLEP was launched in 1983 as a 100 per cent funded centrally sponsored scheme with the goal of arresting disease transmission and bringing down the prevalence of leprosy to one in 10,000 by 2000. The strategy adopted to achieve this was:

- ☒ early detection of leprosy cases through active community based case detection by trained health workers;
- ☒ regular treatment of cases with MDT administered by leprosy workers in endemic districts and mobile leprosy treatment units and primary health care workers in moderate to low endemic areas/districts;
- ☒ intensified health education and public awareness campaigns to remove the social stigma attached to the disease; and
- ☒ appropriate medical rehabilitation and ulcer care services.

2.8.100 Over the years there has been a substantial decline in the prevalence of leprosy from 57/10,000 in 1981 to 5/10,000 in the year 2000 (Figure 2.8.19). The focus during the Ninth Plan was on:

- ☒ intensifying case detection and MDT coverage in states with a high prevalence of leprosy and areas that are difficult to access;

Figure 2.8.19 - Prevalence of Leprosy Cases (1988-2000)

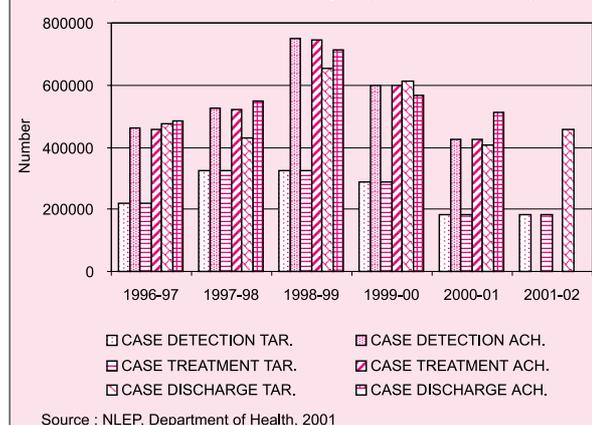


Source: NLEP, Department of Health, 2001

- ☒ preparing for and initiating horizontal integration of the leprosy programme into primary health care;
- ☒ strengthening laboratory services in PHCs/CHCs for detection of leprosy cases;
- ☒ establishing a surveillance system for monitoring time trends in prevalence of leprosy;
- ☒ providing greater emphasis on disability prevention and treatment; and
- ☒ implementation of the Modified Leprosy Elimination Campaign (launched in 1997).

2.8.101 The performance of the NLEP during the Ninth Plan is shown in Figure 2.8.20. The department of health has initiated steps for the phased integration of the vertical programme within the general health services by training health care personnel in the detection and management of leprosy cases, making MDT available at all health facilities, improving disability and ulcer care and strengthening of monitoring and supervision.

Figure 2.8.20 - National Leprosy Eradication Programme



Source: NLEP, Department of Health, 2001

Outlays and utilisation of funds during the Ninth Plan period is shown in Table 2.8.9.

Table 2.8.9
NLEP – Outlays and expenditure

(Rs in crore)

YEAR	OUTLAY	EXPD./RE
9TH PLAN	301.00	
1997-98	75.00	79.56
1998-99	79.00	78.03
1999-00	85.00	82.05
2000-01	74.00	73.86
2001-02	75.00	75.00*

Source: Department of Health, 2001

* Anticipated Expd.

2.8.102 During 1997-98, the duration of treatment with MDT was reduced from 24 months to 12 months for multi-bacillary patients and from 12 months to six months for pauci-bacillary patients. Single dose rifampicin, ofloxacin and minocycline (ROM) treatment for single lesion patients was introduced. Prior to the initiation of the fixed dose treatment, treatment was continued until clinical inactivity. With fixed dose treatment, patients are released from treatment once the duration of treatment is completed. Under the programme, smear examination is optional, it is, therefore, difficult to determine cure rates and relapse rates. It is important that surveillance is strengthened so that relapses are detected early.

2.8.103 As of 2001, the estimated prevalence rate of leprosy is 4.3 in 10,000. Elimination level (PR < 1/10,000) has been achieved in Nagaland, Haryana, Punjab, Mizoram, Tripura, Himachal

Pradesh, Meghalaya, Sikkim, Jammu and Kashmir, Rajasthan, Manipur and Assam. States that are close to achieving elimination (1-2/ 10,000) include Gujarat, Kerala, Arunachal Pradesh, Lakshadweep. Leprosy is now endemic mainly in the states of Bihar, Uttar Pradesh, Orissa, West Bengal, Madhya Pradesh, Jharkhand and Chattisgarh. These states account for 64 per cent of the country's case load, with Bihar alone contributing 24 per cent.

2.8.104 The Modified Leprosy Elimination Campaign (MLEC), aimed at the detection of unidentified cases, was taken up first in Tamil Nadu in 1997 and then extended to Maharashtra, Orissa, Gujarat, the Jammu division of Jammu and Kashmir and Daman and Diu during 1997-98. It was subsequently extended to all districts during 1998-99. Performance under MLEC is shown in Table 2.8.10.

2.8.105 Some of the evaluation studies indicate that during the MLEC there was both over diagnosis and under diagnosis in some districts as the detection was done by a large number of newly-trained persons. However, this campaign provided a mechanism for involving the entire health services and paved the way for the progressive integration of leprosy care within the health service infrastructure.

2.8.106 The NLEP has been successful in reducing the number of leprosy cases. However, this will not result in any immediate decline in the number of patients who have deformities. There is a need to give a major thrust to surgical correction of deformities so that the functional status of individuals can improve. So far 210 district leprosy societies were provided funds for conducting disability/ulcer care management training. Gujarat

Table – 2.8.10
Performance under MLEC

Population In Lakhs		No. of suspected cases	No. of confirmed cases	No. of single lesion	PR before MLEC	PR after MLEC	% increase in PR
Enumerated	Examined						
8209.67	6448.71	2858267.00	454290.00	53115.00	4.75	10.02	110.95

Source : MLEC 1998-99PR – Prevalence rate/10,000.

mobilised experienced surgeons from all over the country to undertake reconstructive surgery in different district hospitals so that patients get treatment near their residence. The impact and cost effectiveness of these initiatives need to be assessed.

2.8.107 The Tenth Plan goal is to eliminate leprosy as a public health problem by bringing prevalence to less than 1/10,000. The strategy to achieve this will focus on:

- ☒ completing horizontal integration of the programme into the general health care system by 2007. The personnel employed under the NLEP will be transferred to the states during the Tenth Plan;
- ☒ skill upgradation and redeployment of the over 30,000 leprosy workers and laboratory technicians so that existing gaps in male multi-purpose workers and laboratory technicians in PHC/CHS are filled and these workers get integrated into the primary health care system. This will result in improvement in all health programmes, including the leprosy programme;
- ☒ training of the existing personnel in primary health care institutions in the early detection and management of leprosy patient; identification and referral of those with complications;
- ☒ re-constructive surgery to improve functional status of individuals;
- ☒ inter-sectoral collaboration for rehabilitation of leprosy patients;
- ☒ increased involvement of PRIs/NGOs in the detection and management of leprosy patients; gram sabhas can facilitate house-to-house surveys by leprosy workers; and
- ☒ the panchayats can inform the community about institutions where facilities for treatment are available and facilitate referral.

National AIDS Control Programme

2.8.108 Sexually transmitted diseases (STD) have been a global problem since time

immemorial. In India, a National STD Control Programme has been in operation since 1967 but its outreach and coverage have been poor. There is no nation-wide surveillance system for STD. Available data from small-scale studies indicate that the annual incidence of STD may be about 5 per cent (40 million new cases every year). Small scale studies have suggested that over the last three decades, there has been some increase in sexual promiscuity and perhaps also in prevalence of STD. However, because of the availability of effective treatment, the increase, if any, in the incidence of STD has not resulted in rising morbidity or mortality rates.

2.8.109 With the advent of HIV infection, in the late 1970s and early 1980s, there has been a dramatic change in the situation because there is no effective drug for the treatment, or vaccine for protection against, HIV infection. In the early 1980s, the Acquired Immuno-Deficiency Syndrome (AIDS) was perceived as a rapidly fatal disease affecting young persons; health sector took up the challenge of combating and containing the infection. Over the last two decades the natural history of the disease has been documented and it is now realised that HIV infection has a long, silent phase, and that AIDS represents the pre-terminal phase of the infection. Sustained multi-sectoral efforts are needed to contain the infection, and combat the adverse consequences on the affected person, family, community and the country.

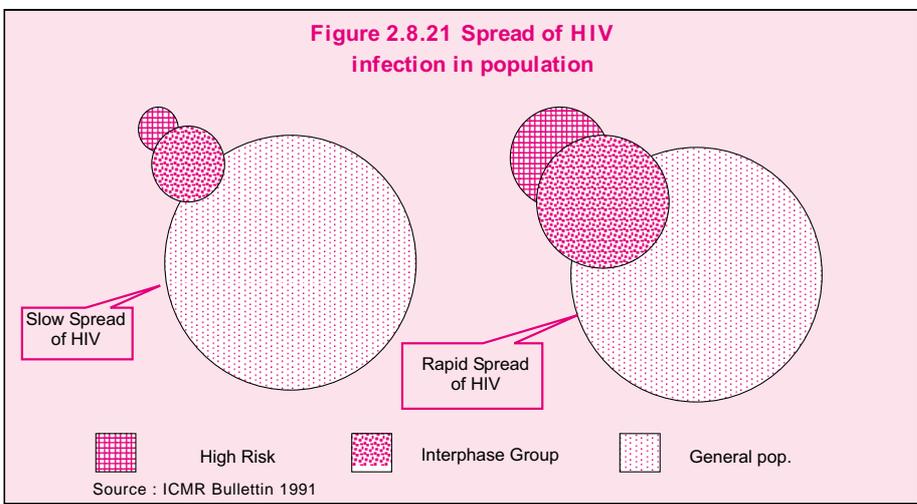
2.8.110 The load of HIV infection in the community depends upon the prevalence of infection in three groups of population – the high-risk group, the interphase group and the low risk group. The high risk group (HRG) is a relatively small group e. g. commercial sex workers, intravenous (IV) drug users. Soon after the introduction of infection in the community, there is a steep rise in prevalence of infection in this group because they are frequently exposed to the risk of infection. The inter-phase group consists mainly of men and women who have multiple sex partners. They form the link through

which infection spreads to the numerically vast low risk group of the general population. The general population (low risk group) acquires HIV infection mainly from spouses who have multiple sex partners. The size of the three groups and the extent of the interphase between them determines magnitude of the HIV infection in any country or community; these factors account for most of the observed differences between countries in the prevalence of HIV infection (Figure 2.8.21). Global epidemiological data on HIV infection indicate that soon after the introduction of the infection in the community seropositivity rates are low. In the next phase the infection spreads to susceptible persons in vulnerable groups resulting in steep rise in seropositivity rates. Finally in the third phase the sero positivity rates plateau when the number of persons who get infected is similar to the number who die of HIV infection. The steepness of the slope and the rapidity with which plateau is reached are determined by the proportion of susceptible at-risk persons in the community and the effective use of prophylactic measures by the risk groups.

2.8.111 India has the distinction of initiating a national sero surveillance in 1986 to define the magnitude and dimension of HIV infection in the silent phase of the HIV epidemic long before AIDS cases were reported. Currently, HIV infection in the general population is seen in all states both in the urban and rural areas. The apparent

differences between and within states in the prevalence of HIV infection may, to a large extent, be due to differences in the type and number of persons screened. Available data from sentinel surveillance suggests that over the last two decades, there has been a slow but progressive rise in the prevalence of infection in all groups in all states. The estimated number of HIV infected person rose from one to two million in 1991, to 3.5 million in 1998 and 3.9 million in 2000. More than 50 per cent of infected persons are women and children. Every year, approximately 30,000 deliveries in India occur among sero-positive women and between 6,000 to 8,000 infants are peri-natally infected with HIV. At present, the number of AIDS patients in the country is small. However, over the next decade, persons who got infected in the 1980s and 1990s will develop AIDS, resulting in a steep increase in the number of AIDS patients.

2.8.112 In spite of the relatively low investment in and low profile of the National AIDS Control Programme, the prevalence of HIV infection in India is relatively low. Some of the projections made by the National AIDS Control Organisation (NACO) suggest that HIV infection in India may reach the plateau by 2010. The UN Population Division had computed the impact of HIV infection on longevity in different countries/regions. There has been a steep fall in longevity in sub Saharan Africa. In India there has been only a small reduction in expected improvement in longevity



(Figure 2.8.22). The initiation of sero-surveillance during the silent phase, implementation of a multi-pronged strategy for HIV infection containment and control, the cultural ethos, relatively low IV drug use and dedicated work done by committed professionals are some of the factors responsible for this. However, because of the one billion plus population, India is likely to have the largest number of cases of and deaths due to AIDS.

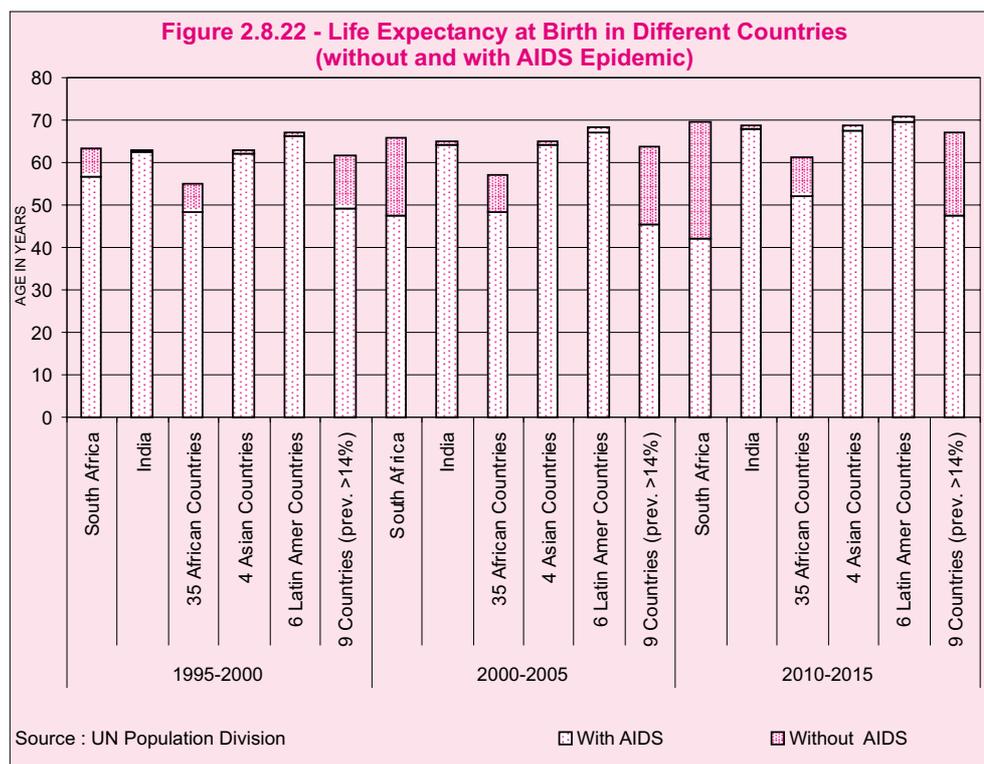
2.8.113 A National AIDS Control Programme (NACP) Phase I was launched in 1992 with World Bank assistance and was completed in 1999. Phase II of the programme, with funding from World Bank, Department for International Development (DFID) and United States Agency for International Development (USAID) is currently under way. AIDS Phase II programme focuses on:

- ☒ reducing HIV transmission among the poor and marginalised high risk group population by targeted intervention, STD control and condom promotion;
- ☒ reducing the spread of HIV among the general population by reducing blood-borne transmission;

Capacity building

- ☛ Awareness generation among all segments of population through Family Health Awareness campaigns;
- ☛ Focused attention and counselling to adolescents, sex workers, drug users, migrant labourers;
- ☛ Improvement in the quality of and access to condoms including social marketing;
- ☛ Hospital infection control and waste management to reduce accidental spread of infection in health care settings;
- ☛ Clinical trials on chemotherapy to prevent mother to child transmission;
- ☛ Establishment of behavioural surveillance.

- ☒ promotion of IEC, voluntary testing and counselling;
- ☒ developing capacity for community-based low cost care for people living with HIV/AIDs;



Infrastructure set up by NACO

Modernisation and strengthening of :

- ☒ 815 blood banks;
- ☒ 504 STD clinics in district hospitals;

Establishment of :

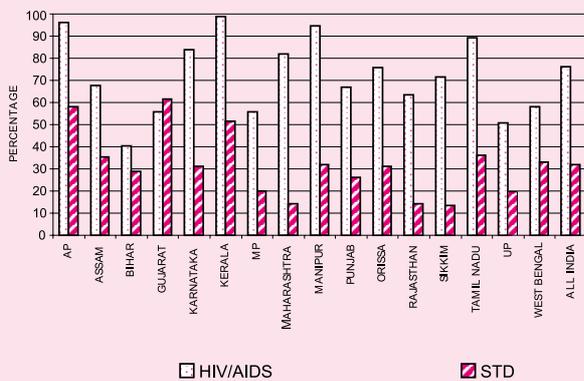
- ☒ 40 blood component separation facilities;
- ☒ 142 voluntary blood testing centers;
- ☒ 320 sentinel sites for monitoring the time trends in prevalence of HIV infection;
- ☒ 570 targeted intervention for prevention and management of HIV infection in high risk groups;
- ☒ low cost community based care for people living with HIV/AIDS.

- ☒ strengthening implementation capacity at the national, state and panchayat level through appropriate arrangements and increasing timely access to reliable information;
- ☒ forging inter-sectoral linkages between public, private and voluntary sectors.

All these efforts are being monitored.

2.8.114 The recently concluded behavioural survey and the NFHS-2 (1998-99) have shown that over two-third of the population knows about HIV infection. There are considerable urban-rural and inter-state differences. Awareness about STD was much lower than that about HIV infection (Figure-2.8.23). The outlay and expenditure on National

Figure 2.8.23 - Proportion Of Respondent Who Had Ever Heard of HIV/AIDS and STD



SOURCE : NACO, Department of Health

AIDS Control Programme during the Ninth Plan is given in Table 2.8.11.

**Table 2.8.11
AIDS Control Programme - Outlays & Expenditure (Rs lakh)**

YEAR	OUTLAY	EXPENDITURE
9TH PLAN	76000.00	
1997-98	10000.00	12100.00
1998-99	11100.00	9936.00
1999-00	14000.00	13525.00
2000-01	14500.00	17330.00
2001-02	21000.00	23500.00*

Source: Department of Health
* Anticipated Expd.

2.8.115 During the Tenth Plan, the programme will be continued with emphasis on:

- ☒ prevention of mother-to-child trans-mission;
- ☒ reduction in blood-borne trans-mission and accidental infection in health care settings;
- ☒ care of HIV-infected persons/AIDS cases;
- ☒ prevention and management of STD; and
- ☒ improved surveillance to obtain epidemiological data on time trends in HIV infection.

2.8.116 Monitoring of processes and the impact of ongoing intervention programmes and sentinel surveillance (serological, STD/behavioural) to monitor time trends in the HIV epidemic will receive adequate attention.

2.8.117 HIV is a multifaceted problem affecting all segments of society. Until now the department of health has been the nodal point of interventions not only for traditional activities of the health sector such as prevention, detection, counselling and management, but also for other areas such as legislation, rehabilitation of infected persons and their families. During the Tenth Plan it is expected that each Department will handle HIV infection related issues in their respective sectors. For instance, the Ministry of Labour will look after area of prevention of discrimination at the work place. Voluntary

organisations may be best suited for providing hospices for AIDS patients who do not have anyone to look after them and orphanages to take care of children who have lost their parents due to AIDS. If each sector takes up the tasks pertaining to that, the country will be able to look after the needs of HIV infected persons and their families without any adverse effect on other programmes.

2.8.118 The Tenth Plan goals for HIV/AIDS programme are:

- ☒ 80 per cent coverage of high risk groups through targeted interventions;
- ☒ 90 per cent coverage of schools and colleges through education programmes;
- ☒ 80 per cent awareness among the general population in rural areas;
- ☒ reducing transmission through blood to less than 1 per cent;
- ☒ establishing of at least one voluntary testing and counselling centre in every district;
- ☒ scaling up of prevention of mother-to-child transmission activities up to the district level;
- ☒ achieving zero level increase of HIV /AIDS prevalence by 2007.

Water Borne Diseases

2.8.119 In the pre-independent era and in the first decade after independence water supply and sanitation were two important schemes funded by the Public Health Department. In view of the importance of both these components in preventing water borne and vector borne diseases, allocation for the two components was nearly 50:50. Subsequently water supply and sanitation programmes become the responsibility of rural and urban development departments. While water supply received most of the funds, sanitation and sewage were under-funded and neglected. This resulted in environmental deterioration and increase in both water and vector borne diseases.

2.8.120 The contamination of drinking water with human or animal faeces leads to the spread of water-borne diseases. The risk of infection is higher in areas with poor sanitation, poor sewage handling,

inadequate water supply and poor quality of water. Water borne diseases occur throughout the year with a seasonal increase in summer, monsoon and post-monsoon period. Common water-borne diseases that are of public health importance include diarrhoeal diseases, cholera, bacillary dysentery, typhoid fever and viral hepatitis. In children the prevalence of diarrhoeal disease is higher; severity and chronicity is also more in children. Over the last few decades there has been no decline in the prevalence of water borne diseases though there has been some decline in mortality associated with them.

2.8.121 During the Tenth Plan, efforts will be made to:

- ☒ improve coverage under rational case management for diarrhoea/dysentery;
- ☒ explore the feasibility of monitoring the quality of water through public health engineering department and the PRIs;
- ☒ strengthen the diarrhoeal disease surveillance programme at the district level to detect and contain outbreaks;
- ☒ coordinate the efforts of the departments dealing with urban and rural water supply and sanitation, municipal corporations and PRIs for the prevention of water-borne diseases.

Ninth Plan Initiatives

Disease surveillance

2.8.122 Surveillance is the continuing scrutiny of all aspects of occurrence and spread of diseases that are pertinent to effective control. So far in India disease surveillance has been predominantly focused on communicable diseases. There has been some small scale research efforts for establishment of comprehensive communicable and non communicable disease surveillance but these have not been operationalised even on a pilot basis.

2.8.123 Given the poor environmental sanitation and the problems in the public health system, it will not be possible to completely prevent outbreaks of communicable diseases in the near future. Delays in recognition and reporting of focal outbreaks and

absence of a functioning HMIS and disease surveillance system has been responsible for delayed recognition and responses resulting in high morbidity and even mortality in communicable disease out breaks. In order to prevent these the Ninth Plan envisaged the establishment of a district-based system for early detection of disease outbreaks and prompt response for rapid containment and control through the existing infrastructure. The necessary back-up laboratory and epidemiological support was to be provided by strengthening and optimally utilising the facilities and expertise available in the national institutions/ medical colleges.

2.8.124 The Department of Health initiated a pilot project on disease surveillance coordinated by the National Institute of Communicable Diseases in 1997. Initially the project involved strengthening laboratories and setting up a disease surveillance system in 20 districts, and was expanded to cover 100 districts by 2002. Many states have not been able to utilise the funds released or carry out the programme as envisaged. The major disease control programmes continue to have their own vertical surveillance system; of these, only the polio surveillance has a good track record. There is as yet no organised effort to integrate all the ongoing surveillance under various disease control programmes into a single programme for disease surveillance. Common epidemic-prone diseases are still not being monitored locally and reported to district officers for analysis and response.

2.8.125 Private sector provides over 75 per cent of curative care for common illnesses. However, data from private health providers is not yet included in any disease surveillance system. In the eighties ICMR funded a research project in North Arcot District (NADHI) in Tamil Nadu which private and government sector practitioners participated. The Kerala government has replicated this model in three districts. Kerala has reported that the system has enabled early detection and containment of outbreaks of communicable diseases; the state government proposes to expand this programme to other districts in the Tenth Plan.

2.8.126 During the Tenth Plan, a comprehensive review of:

- ☒ disease surveillance programmes currently being implemented in different states, under different disease control programmes and under the CSS project on disease surveillance;
- ☒ laboratory facilities available for investigation of epidemic prone diseases;
- ☒ reporting systems currently in use.

will be carried out. Efforts will be made to integrate the ongoing programmes for disease surveillance and develop a comprehensive disease surveillance programme at the district level. The programme will:

- ☒ strengthen routine data collection at the village level for selected diseases; monthly reports will be prepared so that deviation from the normal pattern could be recognised early;
- ☒ Compile information pertaining to epidemic prone diseases which are prevalent throughout the country e.g. diarrhoea, tetanus, diphtheria will be reported by all; region specific problem such as malaria, filaria, leptospirosis will be reported from the endemic areas;
- ☒ ensure regular compilation and critical analysis of data generated at the district level so that outbreaks are recognised early and investigated by district health officers and appropriate timely response is initiated;
- ☒ use modern IT tools to communicate data on disease incidence on a real time basis, complete analysis at the state, regional and national levels and build up a mechanism for rapid and appropriate response.

Health Management Information System (HMIS)

2.8.127 HMIS is an essential management tool for effective functioning of the health system. During the Eighth Plan the Central Bureau of Health Intelligence and the state Bureaus of Health Intelligence developed a HMIS system for sending district-level information on morbidity reported by the government primary health care institutions through National Informatics district computer network. Though some states responded initially the system was never fully operationalised in any state. As a result there is no system through which reliable data on morbidity in different districts/ states could

be collected and analysed and used for decentralized district based planning. So far there has not been any effort to use the currently available IT tools to build up a comprehensive HMIS and use it to improve efficiency and functional status of the health system. During the Tenth Plan efforts will be made to ensure that effective two way management information system is built up through out the country; all the data pertaining to health and family welfare programmes will be collected, collated and reported from all districts and utilised to improve functional status and efficiency of the health system. Efforts will also be made to build up a fully functional, accurate HMIS utilizing currently available IT tools; this real time communication link will send data on births, deaths, diseases, request for drugs, diagnostics and equipment and status of ongoing programmes through service channels within existing infrastructure and manpower and funding. It will also facilitate decentralized district based planning, implementation and monitoring.

Disease Burden Estimates

2.8.128 Traditionally policy makers have used mortality statistics for identifying major public health problems. In India, reliable age specific mortality data is available through SRS ; though there are lacunae in the system for ascertainment of causes of death, fairly reliable data is available on major causes of death. In addition to these data, the country has under taken surveys for estimating the prevalence of major public health problems such as morbidity in women and children, nutritional deficiencies and major communicable diseases. The estimated share of India in some of the global health problems is shown in the Text Box . In India reliable information on overall morbidity is not available. In the absence of reliable morbidity data, mortality statistics and available survey data have formed the basis on which health policy makers and programme managers evolved public health programmes and allocated funds. While this might have been the appropriate option in a situation where communicable diseases and maternal and child health problems predominate, appropriate modification will be required as the country undergoes demographic and epidemiological transition and non communicable diseases emerge as major public health problems. In view of this,

India's share in global health problems

- ☒ 17 per cent of the population
- ☒ 17 per cent of the total deaths
- ☒ 23 per cent of child deaths
- ☒ 26 per cent of the childhood vaccine preventable deaths
- ☒ 20 per cent of maternal deaths
- ☒ 68 per cent of leprosy cases
- ☒ 30 per cent of tuberculosis cases
- ☒ 10 per cent of HIV infected persons

there is a need to obtain data on not only mortality but morbidity due to chronic illnesses and disabilities and take them account while formulating public health programmes. For instance, morbidity due to mental illnesses is estimated to account for about 15 per cent of the total morbidity but deaths due to psychiatric illnesses are usually less than 1 per cent of total deaths even in developed countries.

2.8.129 The disease burden estimates measured in terms of Disability Adjusted Life Years (DALY) which takes into account both morbidity and mortality as well as the age at which the problem occurred has been used by World Health Organisation in making global comparisons with respect to public health problems and investment in health care. The estimated disease burden in 1990 due to major categories of public health problems in the world and India is shown in Figure 2.8.24. Disease burden due to four major diseases in different

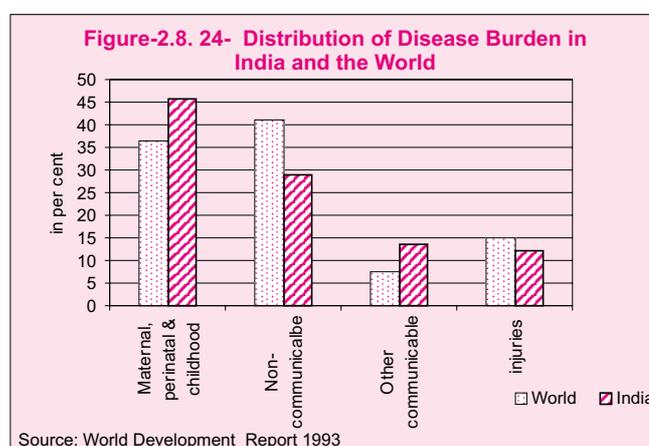


Table 2.8.12
Burden for four major diseases (millions of DALYs)

Disease and sex	Age (years)					Total
	0-4	5-14	15-44	45-59	60+	
Diarrhea						
Male	42.1	4.6	2.8	0.4	0.2	50.2
Female	40.7	4.8	2.8	0.4	0.3	48.9
Worm infection						
Male	0.2	10.6	1.6	0.5	0.1	13.1
Female	0.1	9.2	0.9	0.5	0.1	10.9
Tuberculosis						
Male	1.2	3.1	13.4	6.2	2.6	26.5
Female	1.3	3.8	10.9	2.8	1.2	20
Ischemic heart disease						
Male	0.1	0.1	3.6	8.1	13.1	25
Female	**	**	1.2	3.2	13	17.5

** Less than 0.05 million

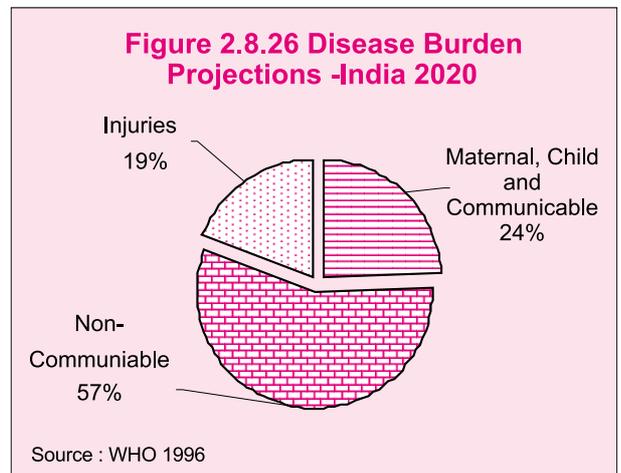
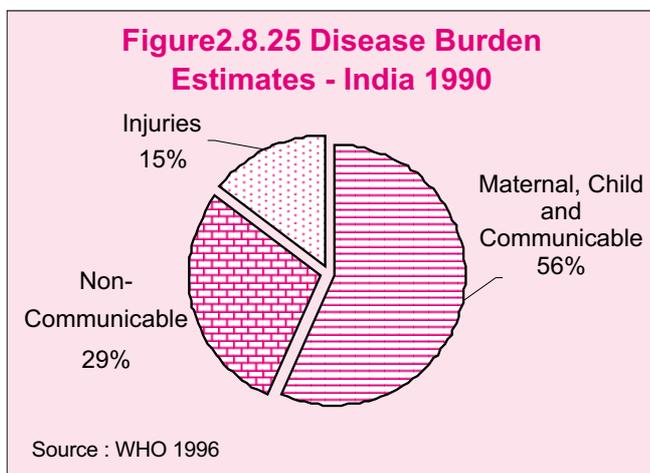
Note : DALY, disability-adjusted life year.

Source : World Development Report 1993

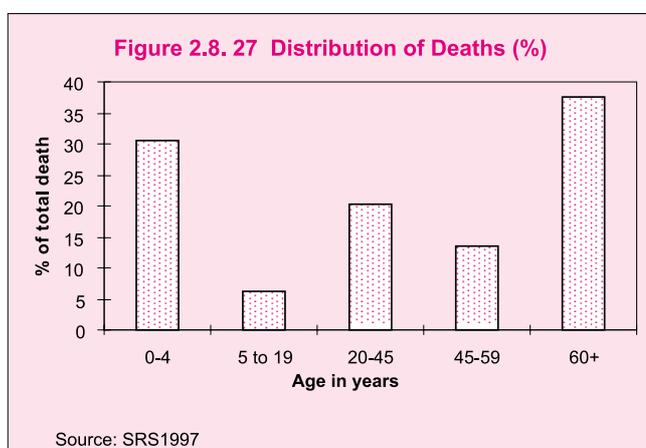
age and sex population computed by WHO is in Table 2.8.12. The fact that while estimates regarding mortality are reasonably adequate, the estimates of morbidity based on the available data from the developing countries are often inadequate has to be kept in mind while interpreting these global data.

2.8.130 Using the 1990 database (Figure 2.8.25) and assuming that the trends in

epidemiological transition achieved by other countries during the previous two decades will occur in India, the changing pattern of disease burden for 2020 was also computed by WHO (Figures 2.8.26). However, data from National Family Health Survey (NFHS) suggest that during the 1990s, there has not been any significant decline in the infant mortality rate and the maternal mortality rate. Data from SRS does not show any major change in the age specific



mortality rate (Figure 2.8.27) or cause of death. It would appear that the epidemiological transition is occurring at the slower pace than projected for the country. This is perhaps due to persistent maternal and child health problems and advent of HIV infection. However, there has been some increase in the mortality and morbidity due to non-communicable diseases, accidents and trauma. There are wide inter-state differences in health indices, morbidity rates, magnitude and rate of demographic and epidemiological transition. Under these conditions, it is important to :



- ☒ ascertain and document morbidity and mortality due to major health problems in different states/districts;
- ☒ evolve appropriate intervention programmes;
- ☒ invest adequately in well targeted interventions;
- ☒ implement them effectively by modifying the health care system, and;
- ☒ monitor the impact on the morbidity and mortality.

2.8.131 Such an effort would require a reliable sustainable database for mortality and morbidity. While mortality data can be obtained through strengthening of CRS/SRS and ascertainment of the cause of death, the data base for morbidity can come only through a strengthened HMIS supplemented by the data from disease surveillance. When sustained, these three systems will, over the next two decades, provide valuable insights regarding time trends in morbidity and mortality in different states/ districts. Development of this data

base is critical for evolving appropriate health policies and strategies, identifying priority areas for investment of available funds and bringing about modifications in the existing health system to ensure equitable, efficient and effective implementation of the programmes to tackle dual disease burden.

Infection Control and Waste Management in Health Care Settings

2.8.132 There has been increasing concern over the incidence of hospital-acquired infections and accidental infection in health care providers and waste disposers. One of the major new initiatives during the Ninth Plan was improvement of infection control and waste management through appropriate, affordable technology at all levels of health care. In November 1998, the Department of Health has constituted National Hospital Waste Management Committee under the chairmanship of the Secretary Health, to coordinate and guide policy and programme initiatives in the field. A pilot project was initiated in 11 institutions with assistance from the department. Hospital infection control and waste management is also being taken up as a component of all World Bank-assisted secondary health system projects. Guidelines on hospital waste management were prepared and circulated to states and union territories in November 2000 for their comments. Some states are providing funds under the PMGY for infection control and waste management in primary health care institutions. During the Tenth Plan, hospital infection control and waste management will be incorporated as an essential routine activity in all health care institutions at all levels of care.

Horizontal Integration of Vertical Programmes

2.8.133 Initially, when sufficient infrastructure and manpower were not available for the management of major health problems, several vertical programmes like the NMEP and NLEP were initiated. Over the years, the three-tier health care infrastructure has been established. The Ninth Plan envisaged that efforts will be made to integrate the existing vertical programmes at the district level and ensure that primary health care institutions provide compre-

hensive health and family welfare services. The pace of horizontal integration has been very slow and uneven. During the Ninth Plan, attempts were made to:

- ☒ integrate the activities related to training and IEC under different vertical programmes;
- ☒ coordinate the activities for prevention and management of STD/reproductive tract infections (RTI) under the RCH and AIDS control programmes;
- ☒ improve coordination between ongoing HIV and TB control programmes; and
- ☒ provide leprosy services through the primary health care infrastructure.

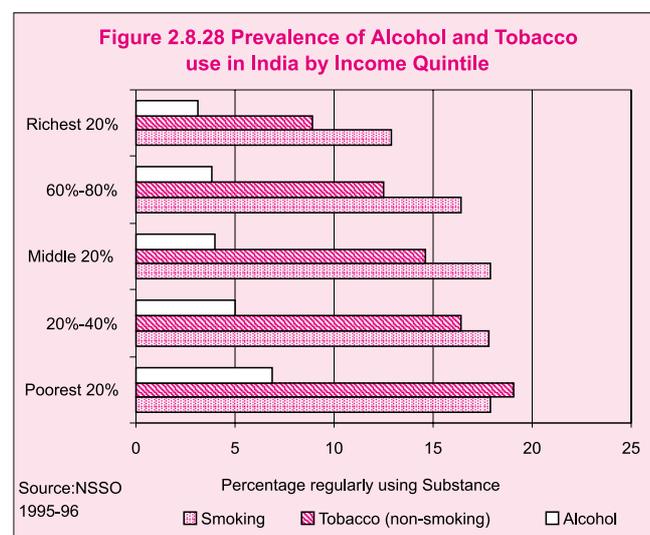
2.8.134 Some states like Orissa and Himachal Pradesh have formed a single health and family welfare society at the state and district level for implementing all health and family welfare programmes. In some states, middle-level public health programme managers, who are currently heading the vertical programmes at the district-level, are being given the additional task of ensuring coordination and implementation of the integrated health and family welfare programme at primary health care institutions in defined blocks. Their involvement is also expected to improve data collection, reporting, strengthen HMIS, improve the supply of essential drugs and devices at PHCs/CHCs and enable the operationalisation of disease surveillance and response mechanism at the district level. The National Health Policy 2002(NHP2002) envisages a progressive convergence of all health and family welfare programmes under a single field of administration beginning at the district and below-district levels for funding, implementation and monitoring. During the Tenth Plan, efforts will be mainly directed to improving the pace and coverage of this convergence. The NHP 2002 envisages manpower in rural/urban health system should be available for the entire gamut of public health activities at the decentralised level, irrespective of whether these activities relate to national programmes or public health activities initiated by state/PRI.

PREVENTION AND MANAGEMENT OF NON-COMMUNICABLE DISEASES (NCD)

2.8.135 Non-communicable diseases cover a wide range of heterogeneous conditions affecting different organs and systems in different age and socio-economic groups. Over the last two decades, morbidity and mortality due to cardio-vascular diseases, mental disorders, cancers and trauma have been rising due to an increase in:

- ☒ the number of senior citizens with higher prevalence of non-communicable diseases;
- ☒ prevalence of non-communicable diseases in younger people due to life-style changes, obesity and stress; and
- ☒ exposure to environmental risk factors and use of tobacco.

2.8.136 Data from the 52nd round of NSSO showed that tobacco intake (smoking and non-smoking) and alcohol use are higher in the poorest 20 per cent of the income quintile (Figure 2.8.28) and hence the prevalence of tobacco-related non-communicable diseases is likely to be high in this group. In view of the chronic morbidity and high cost involved in the management of non-communicable diseases, attention need be focused on prevention, early detection and appropriate management. It is estimated that currently there are 2.5 million cases of cancer in the country and this



will double over the next two decades. Data on the prevalence of cardiovascular disease are insufficient for national level projections. The reported prevalence of Coronary Heart Disease (CHD) in urban Kerala is 14 per cent (17 per cent in men and 10 per cent in women), 7 per cent in rural Thiruvananthapuram and 3 per cent in rural parts of North India. Ten per cent of the urban and 5 per cent of the rural adult population suffer from hypertension. The estimated prevalence of rheumatic heart disease (which constitutes 20 to 30 per cent of hospital admissions due to all cardio vascular disease (CVD) in India) is five to seven in 1,000 in the 5-15 year age group. A recent study carried out in six cities in India showed an age standardized prevalence of diabetes and impaired glucose tolerance in 12.1 per cent and 14.0 per cent respectively, with no gender difference.

2.8.137 During the Ninth Plan, ongoing programmes for control of non-communicable diseases included two centrally-sponsored schemes (National Iodine Deficiency Disorders Control Programme, discussed in the Chapter on Nutrition, and the National Programme for the Control of Blindness discussed in this section) and one central sector scheme (the National Cancer Control Programme). During the 1990s, several pilot projects such as the national mental health programme, the diabetes control programme, cardiovascular disease control programme, prevention of deafness and hearing impairment, oral health programme and medical rehabilitation were initiated as central sector pilot projects. After completion of the pilot phase, these programmes have been merged with the Central Institutes dealing with these problems.

2.8.138 The Ninth Plan envisaged the provision of integrated non-communicable diseases prevention and control services through the existing infrastructure. However, the progress on this front has been very slow. In some states like Kerala efforts are being made to implement an integrated non-communicable disease control program at the primary and secondary care level with emphasis on prevention, early diagnosis, management and building up of a suitable referral system. Tertiary

care centres are being strengthened to provide treatment facilities for the management of complications.

2.8.139 During the Tenth Plan, efforts will be made to improve preventive, promotive, curative and rehabilitative services for non-communicable diseases throughout the country at all levels of care so as to reduce morbidity and mortality. The major thrust will be on:

- ☒ a well-structured IEC&M for primary and secondary prevention of non-communicable diseases;
- ☒ re-orientation and skill upgradation of health care providers in diagnosis and management of non-communicable diseases at different levels of care;
- ☒ establishment of referral linkages between primary, secondary and tertiary institutions;
- ☒ production and provision of drugs for treatment of non-communicable diseases at affordable costs;
- ☒ development of institutions for rehabilitation of disabled persons, teaching persons to live with their disability;
- ☒ development of hospices for care of terminally ill people who cannot have home-based care; and
- ☒ creation of an epidemiological database on non-communicable diseases especially CVDs, stroke and diabetes.

National Cancer Control Programme (NCCP)

2.8.140 India has one of the lowest rates of cancer in the world. It is estimated that there are two to 2.5 million cases of cancer in India, with 700,000 new cases being detected every year. About two-thirds of the cases are in an advanced stage at the time of detection and 300,000 to 350,000 cancer patients die each year. Current projections suggest that the total cancer burden in India for all sites will double by 2026 because of increasing longevity, greater exposure to environmental carcinogens due to industrialisation, use of fossil fuels, the use of a wide variety of chemical agents in industry and agriculture, and the continued use of tobacco.

2.8.141 The most frequent cancers among Indian males are those of the mouth/oropharynx, oesophagus, stomach and the lower respiratory tract. In women, cancers of the cervix, breast, mouth/oropharynx and oesophagus are common. About one-third of cancers are easy to detect and can readily be cured. Tobacco-related cancers (especially cancer of oral cavity, lung and cancer cervix) form more than 50 per cent of the overall cancer burden in the country. An increase in tobacco smoking instead of chewing might lead to a rise in the incidence of lung cancer, which is more difficult to detect and treat. Changing dietary patterns (high calorie, high fat intake) and lower parity may result in increasing incidence of breast cancer.

The objectives of the National Cancer Control Programme are:

- ☒ primary prevention of cancers by health education through the government and NGOs;
- ☒ early detection and diagnosis of cancers especially cancer cervix, breast and oropharyngeal cancers;
- ☒ developing and strengthening of existing cancer treatment facilities;
- ☒ increasing access to palliative care in the terminal stage of cancer.

2.8.142 The Cancer Control Programme was initiated in 1975-76 as a central sector project. It was renamed as the National Cancer Control Programme (NCCP) in 1985. The programme provides funds to 17 Regional Cancer Centres (RCCs). The RCCs are regional centres for diagnosis, treatment and follow up of cancer patients; they undertake surveys of mortality and morbidity due to cancer, training of medical and paramedical personnel in cancer care and preventive measures with emphasis on health education and research. NCCP provided funds for the purchase of equipment (cobalt unit, mammography unit) and for development of oncology wings in Government Medical Colleges/voluntary organisations. The District Cancer Control Programme aimed at promoting health education,

early detection of cancer and pain relief was initiated in 1990-91. The progress in ongoing efforts for cancer prevention, early detection and management has been very slow.

2.8.143 The ICMR established a National Cancer Registry Programme (NCRP) in 1981-82, there are five population-based urban cancer registries in Mumbai, Bangalore, Chennai, Bhopal, Delhi and a rural registry at Barsi in Maharashtra and six hospital-based registries at Chandigarh, Dibrugarh, Thiruvananthapuram, Bangalore, Mumbai and Chennai. The NCRP provides data on regional difference and time trends in cancer prevalence so that appropriate modifications in the ongoing programmes could be made.

2.8.144 During the Tenth Plan, a major effort will be made to sensitise and upgrade the skills of health care providers in the primary, secondary and tertiary institutions so that they can take up the responsibility of:

- ☒ health education for cancer prevention;
- ☒ early diagnosis and management according to standard treatment protocols at appropriate institutions; and
- ☒ referral of cancer patients with complications.

National Programme for Control of Blindness (NPCB)

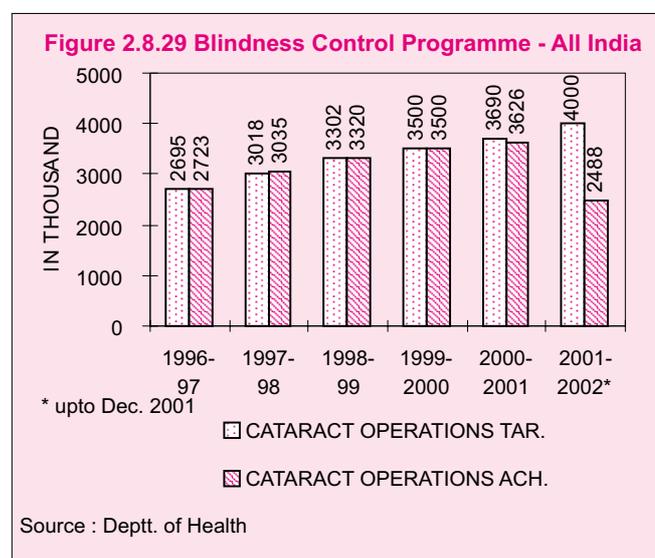
2.8.145 Surveys carried out by the ICMR in the 1970s indicated that the prevalence of blindness is about 1.4 per cent, with cataract accounting for over 80 per cent of the cases. Most of cataract blind individuals are in their 60s. They may not be able to afford surgery and have difficulty in accessing services, unless these are available close to their residence. The National Programme for Control of Blindness was initiated in 1976 with the objective of providing comprehensive eye care services at the primary, secondary and tertiary level and achieving a substantial reduction in the prevalence of eye disease in general, and cataract blindness in particular. The progress of the programme was very slow. A Government of

India-WHO survey in 1986-89 showed that prevalence of blindness remained unaltered. Prevalence of blindness was higher than the national average of 1.4 per cent in eight states (Andhra Pradesh, Madhya Pradesh, Maharashtra, Orissa, Rajasthan, Tamil Nadu, Uttar Pradesh and Jammu and Kashmir).

2.8.146 In 1994, World Bank assistance was obtained for NPCB in seven of the eight states. Domestic budgetary support was provided to implement the project in Jammu and Kashmir. The major objectives of the programme were:

- ☒ to improve the quality of cataract surgery and clear the backlog of cataract by performing 11 million operations over a seven-year period;
- ☒ to strengthen the country's capacity to provide high volume, high-quality, low-cost eye care by upgrading the knowledge and skills of eye care personnel and improving access to service delivery through government, voluntary and private sector collaboration; and
- ☒ to increase eye care coverage among the underprivileged section of the population including women, urban slum dwellers and tribals.

2.8.147 During the Ninth Plan, the programme was revised to cover the entire country. The performance during the Ninth Plan is given in Fig. 2.8.29. Outlays



and expenditure under the NPCB is shown in Table 2.8.13.

Table 2.8.13
NPCB- Outlays and Expenditures

(Rs. In Lakhs)

YEAR	OUTLAY	EXPENDITURE
9TH PLAN	44800.00	
1997-98	7000.00	5806.00
1998-99	7500.00	7285.00
1999-00	8500.00	8373.00
2000-01	11000.00	10941.00
2001-02	14000.00	14000.00*

Source : Department of Health

* Anticipated Expd.

2.8.148 The review of the World Bank assisted project in 2000 showed that even though infrastructure and manpower has been provided, performance both in fixed facilities and in camps have been far below the norms. Most of the district hospitals did not achieve the goal of 700 cataract surgeries/surgeon/year; many mobile units did not achieve the goal of 1500 cataract surgery per year. As a result only 8.15 million cataract surgeries (the target was 11 million) could be done and cataract prevalence could not be reduced to 0.3 per cent

2.8.149 The need to restore vision by operating on one eye in economically blind people has not been given conscious priority over operating on the cataract in the second eye. A comparative assessment of extra capsular cataract extract vs. intra ocular lens insertion in terms of logistics of implementation, cost of care and complication rate, when surgery was done at tertiary hospital/district hospital vs. those done in camps is yet to be carried out. The quality of care in institutions and more so in camps had been sub-optimal. Infections resulting in permanent blindness have been reported. In view of this NPCB has revised its strategy, emphasis is now on surgery in fixed facilities; mobile units will take up only screening of cases and provide follow up care.

2.8.150 A pilot survey carried out in 1999 in two districts showed that there has been a shift in the

causes of blindness (Table 2.8.14). The NPCB will have to be geared up to tackle the backlog of cataract surgery, glaucoma, corneal blindness as well as other emerging problems including diabetic retinopathy (estimated prevalence 20 per cent among diabetic).

Table 2.8.14
Pilot Survey on causes of blindness (1999)

	Percent
Cataract	55.0
Refractive errors	9.8
Corneal blindness	8.0
Glaucoma	3.5
Surgical complication	3.0
Other causes	10.7

2.8.151 During the Tenth Plan, attempts will made to:

- ☒ clear the backlog of blindness due to cataract by performing 4.5 million cataract operations per year. A majority of these will be done in fixed institutions; and wherever adequate facilities are available, Intra-Ocular Lens (IOL) will be used;
- ☒ improve the utilisation of facilities created in the government, private and voluntary sector to cope with the broader spectrum of eye care, including screening of children for refractive errors, diabetics for retinopathy and all persons beyond 35 years for glaucoma;
- ☒ develop a system for accreditation of centres providing eye care;
- ☒ improve the quality of care before, during and after surgery through operationalisation of standard protocols for management;
- ☒ monitor quality of care;
- ☒ modify the ophthalmology curriculum in both the undergraduate and postgraduate stages so that the students have the necessary skills to deal with common ocular problems at all levels of health care;
- ☒ develop an appropriate continuing medical education programme to enable practitioners to deal with emerging ophthalmic problems effectively.

Mental Health

2.8.152 Mental health care has three aspects - restoration of health in mentally ill persons, early identification of persons who are at risk and appropriate protection and promotion of mental health in normal persons. It is estimated that 10 to 15 per cent of the population suffers from mental health problem and the stress of modern life is resulting in an increasing prevalence of mental illness. Till about three decades ago, mental health services consisted mainly of large, centralised mental hospitals. At the time of independence, there were 17 mental hospitals accommodating over 8,000 patients. Most of these hospitals had poor infrastructure and manpower and did not provide good quality mental health care. A majority of mentally ill patients did not have access to good quality psychiatric care and there was no home-based care available for them.

Magnitude of Mental Health Problems

It is estimated that :

- ☒ ten million people are affected by serious mental disorders.
- ☒ 20-30 million people have neurosis or psychosomatic disorders.
- ☒ 0.5 and 1 per cent of all children have mental retardation.

2.8.153 Soon after Independence, efforts were made to improve the access to mental health services by increasing the number of mental hospitals and opening psychiatric units in general hospitals. Providing psychiatric care through general hospitals and bringing mental health care out of the confines of mental hospitals reduced the stigma associated with treatment of mental illness, removed legal restrictions on admission and treatment and facilitated the early detection of associated physical problems. Most importantly, it ensured that the family was involved in the care and that on being discharged the patient went back to the family. Encouraged by the success in this effort, many states embarked on the development of district psychiatric units. Some states like Kerala and Tamil

Nadu have a district psychiatric unit in all districts. Though others lag behind in this respect, the concept of mental health care provided as an integral part of health care system has been accepted and implemented by all states. Ambulatory treatment for psychiatric illnesses became accepted as a norm and effective, relatively inexpensive drugs for common mental disorders were made available in tertiary and secondary care institutions.

2.8.154 Currently, 50 per cent of the medical colleges have a psychiatry department. It is estimated that there is one psychiatry bed per 30,000 population. There are 20,000 beds in mental hospitals and 2,000 to 3,000 psychiatric beds in general and teaching hospitals. Fifty per cent of the psychiatric beds are occupied by patients undergoing long term treatment. However, in spite of all these facilities, even now less than 10 per cent of the mentally ill persons have access to appropriate care; prevention of mental illness and promotion of mental health remain of distant dreams.

2.8.155 The national mental health programme was initiated in 1982 with the objective of improving mental health services at all levels of health care through early recognition, adequate treatment and rehabilitation of patients. The programme also envisaged improvement in the conditions in existing mental hospitals, effective implementation of the Mental Health Act, 1987 and adequate manpower development to meet the growing needs for mental health care. The Programme did not make much headway in the Seventh Plan.

2.8.156 During the Eighth Plan, the National Institute of Mental Health and Neuro Sciences (NIMHANS) developed and implemented a district mental health care model in the Bellary district of Karnataka with the objective of:

- ☒ providing sustainable basic mental health services to the community and to integrate these services with health services;
- ☒ early detection and prompt treatment of patients with mental illness;

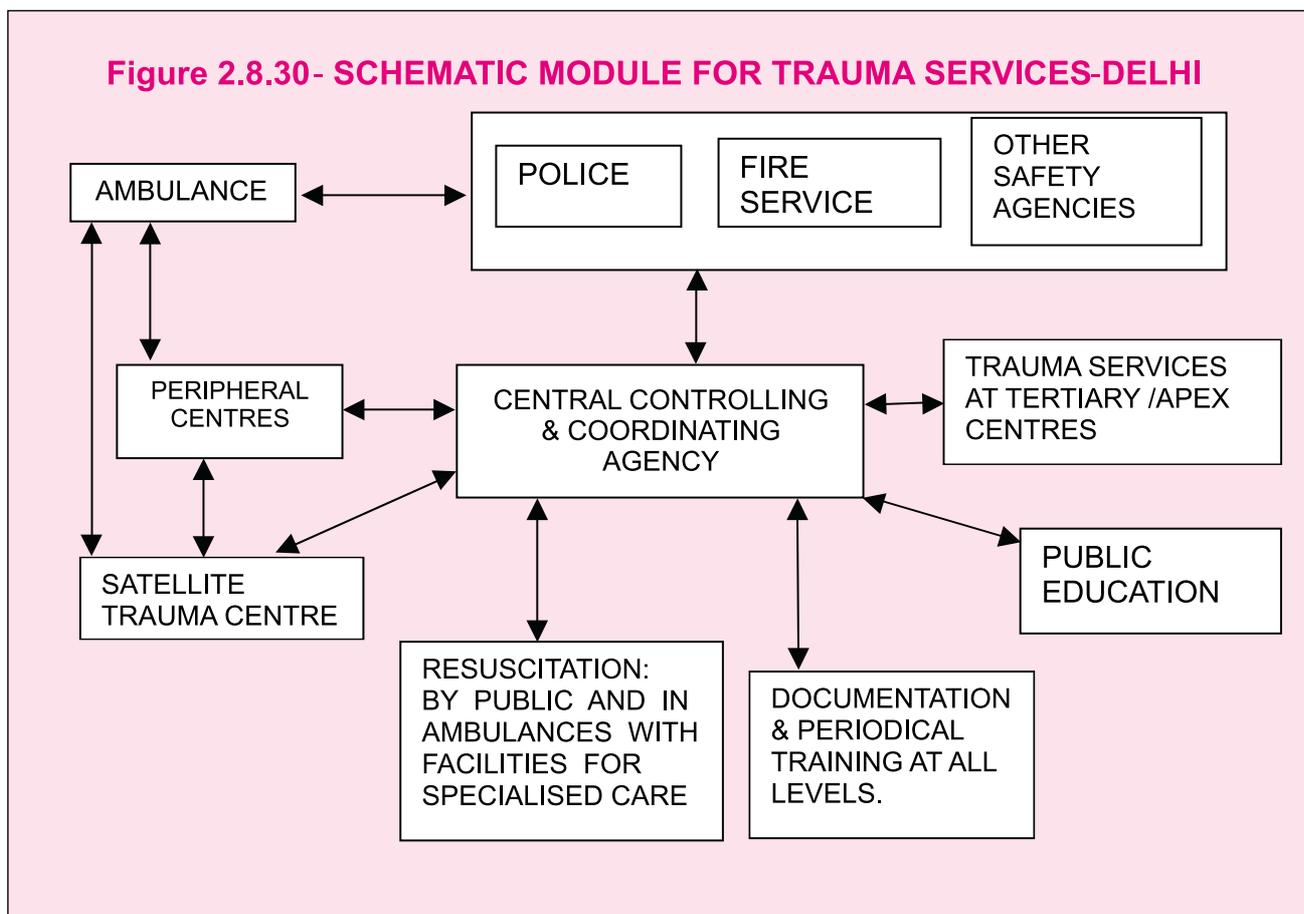
- ☒ providing domiciliary mental health care and reducing patient load in mental hospitals;
- ☒ community education to reduce the stigma attached to mental illness; and
- ☒ treatment and rehabilitation of patients with mental illnesses within their family setting.

2.8.157 Following encouraging results, the programme was expanded during the Ninth Plan to 22 districts in 20 states. It was envisaged that decentralised district-based training in essential mental health care will be provided to all health professionals so that psychiatric care will be provided in all health care facilities. Attempts were made to improve early detection of mental illness in the community, provide ambulatory care at home and follow up discharged cases. A district mental health team was to provide referral support and supervision of the mental health programme. Simple, accurate records of work done maintained by the health care providers was to be monitored by the district team. The progress in these districts has not yet been evaluated.

2.8.158 During the Tenth Plan, it is expected that states will progressively improve access to mental health care services at the primary and secondary care levels to cover all the districts in a phased manner. Psychiatry departments in medical colleges will play a pivotal role in the operationalisation and monitoring of the programme in the district in which they are located and synergistic links will be formed with other ongoing related programmes.

Accident and Trauma Services

2.8.159 Increasing mechanisation in agriculture and industry, induction of semi-skilled and unskilled workers in various operations, and rapid increase in vehicular traffic have resulted in an increase in morbidity, mortality and disability due to accident and trauma. Overcrowding, lack of awareness and poor implementation of essential safety precautions result in an increasing number of accidents. The consumption of poisonous substances accidentally or intentionally is also on the rise. Technological advances in the last two decades have made it possible to



substantially reduce mortality, morbidity and disability due to accidents, trauma and poisoning. At present there is no organized comprehensive trauma care service either at the centre or in the state. People are unable to benefit from these advances because of limited access to these services. During the Ninth Plan facilities for the management of accident and trauma care have been strengthened in several hospitals but these have not been linked into an effective multi-disciplinary trauma care system. A conceptual model (Figure 2.8.30) of such a system for Delhi has been prepared which optimises utilisation of available facilities and prevents wastage of scarce resources due to duplication of efforts. The model includes arrangements for:

- ☒ for on-site resuscitation of trauma victims;
- ☒ first aid and transport to the nearest tertiary care hospital by ambulances with essential equipment and trained paramedical staff;

- ☒ networking among and within institutions for manpower, materials, communication, training and research; and
- ☒ other allied trauma care activities.

2.8.160 Apart from communication networking, the apex centre would be utilized for human resource development and creation of a comprehensive computerized information database on trauma cases.

2.8.161 **During the Tenth Plan** efforts will be made to strengthen primary, secondary and tertiary care institutions for trauma care through:

- ☒ adequate training to medical and paramedical personnel;
- ☒ provision of facilities for transport of patients;
- ☒ suitable strengthening of existing emergency and casualty services; and
- ☒ improving referral linkages.

Environment and Health

2.8.162 Environment can affect human health in many ways. Deficiency of iodine in soil and food items is the cause of iodine deficiency disorder. Excessive fluoride in water causes fluorosis. Environmental degradation may affect air, land and water. Pollutants may enter the food chain and, hence, the human body. Rapidly growing population, urbanization, changing agricultural, industrial and water resource management, increasing use of pesticides and fossil fuels have all resulted in a perceptible deterioration in the quality of environment and all these have adverse health consequences. Environmental health would have to address

- ☒ the prevention, detection and management of the existing deficiencies or excess of certain elements in the environment;
- ☒ macro environmental contamination of air, land, water, and food; and
- ☒ disaster management.

2.8.163 So far, the major focus of environmental health has been on the communicable disease burden due to poor environmental sanitation in urban and rural areas and methods to tackle these. These efforts will be intensified during the Tenth Plan. Emphasis will be laid on

- ☒ establishing cost-effective and environment friendly technologies for safe, sanitary disposal of solid waste and waste water;
- ☒ improvement in access to potable drinking water, especially in urban slums and remote rural areas;
- ☒ prevention and management of health consequences of environmental deterioration.

2.8.164 Major developmental activities in any field such as agriculture, industries, urban and rural development can result in environment changes which could have adverse health implications. In the Tenth Plan period, efforts will be made to fully operationalise the Ninth Plan recommendations that:

- ☒ health impact assessment should become a part of environmental impact assessment of all large developmental projects; and
- ☒ health care of people involved in these projects and the prevention and management of health consequences of the population living in the vicinity of the project should be met from the project budget.

2.8.165 The rapid growth of industry especially in the small-scale and unorganised sectors is central to economic development but in the absence of appropriate technology and environmental safeguards, these become a major source of air, water ground and noise pollution. The Central Pollution Control Board (CPCB) under the Ministry of Environment and Forests regularly monitors pollution levels in all major cities and initiates appropriate remedial measures. In India, the problem of indoor air pollution due to the combustion of unprocessed biomass fuels by the urban and rural poor has to be reduced by providing appropriate fuel for cooking. Noise pollution is another area of increasing concern. During the Ninth Plan, the Biomedical Waste Management and Handling Rules (1998) and the Municipal Waste Management and Handling Rules (2000) were notified. A manual on Municipal Solid Waste Management was published in May 2000 by the Ministry of Urban Development. The CPCB has evolved a code of practice for controlling noise pollution in public places. Efforts to reduce air pollution, ground water as well as river water pollution have been taken up.

2.8.166 During the Tenth Plan priority will be accorded to :

- ☒ monitoring, detection and alleviation of the macro environmental pollution;
- ☒ creation of national data base on environmental pollution and related health problems by linking the existing area specific environmental monitoring data with data on health status of the population living in these areas;
- ☒ epidemiological studies on the impact of the biomass fuel on the health status;
- ☒ health consequences of noise pollution;

- ☒ R&D efforts for producing cleaner fuels from traditional material;
- ☒ development of biomarkers for long term bio-monitoring designed to detect changes in aquatic eco systems due to water pollution.

Occupational Health

2.8.167 A healthy workforce is an essential prerequisite for agricultural and industrial development. Over the last five decades, efforts have been made to provide health care to workers through schemes such as ESIS, creation of health care facilities in industrial towns and arrangement for health care for workers and their families through existing public and private health care services. However, both coverage and quality of care have not been adequate. There is no attempt to link existing data from ongoing environmental monitoring at the work place with the health status of workers and initiate appropriate interventions. Workers in the agricultural and unorganised sectors have not been covered under specific health care programmes. The increasing use of mechanisation, induction of poorly trained workers who operate machines with which they are not familiar, use of insecticides, pesticides and chemicals by persons who are ignorant of the precautions to be taken are resulting in increasing health hazards to workers in these sectors. The Ninth Plan had recommended

- ☒ continuous monitoring of the safety of the work environment and workers' health status in industry and agriculture;
- ☒ special attention to the health problems of vulnerable groups such as women and children with a focus on the prevention, early detection and prompt treatment.

2.8.168 Not much progress was achieved during the Ninth Plan. During the Tenth Plan the focus will be on:

- ☒ establishment of norms for work environment in organized, unorganized and agricultural sectors;

- ☒ monitoring the work environment for detection and correction of micro environmental pollution;
- ☒ monitoring of health status of workers;
- ☒ interventions aimed at prevention, early detection and effective management of health problems of workers, including occupational health problems, with special attention to health problems in women and children.

Drugs – Production, Quality and Supply

2.8.169 Nearly one-third of the health budget at the centre and in the states is spent on providing drugs free of cost in all public health facilities. However, adequate stock of good quality drugs are not available in many of these institutions, and health benefit from treatment are sub optimal. Some of the factors responsible for this include :

- ☒ lack of a uniform essential drug list;
- ☒ poor quality control;
- ☒ problems in the procurement and supply of drugs;
- ☒ the absence of treatment protocols for common diseases leading to unnecessary and irrational drug prescriptions; and
- ☒ poor compliance with the prescribed regimen due to lack of awareness and counselling.

2.8.170 During the Ninth Plan, several state governments (e.g. Tamil Nadu, Delhi and Orissa) have introduced an essential drug programme with the following components:

- ☒ development of a drug policy;
- ☒ preparation of an essential drug list;
- ☒ establishing a quality control and assurance system;
- ☒ pooled procurement system and improvement in logistics of drug supply;
- ☒ improvement in the availability of safe and effective drugs;
- ☒ preparation of standard treatment guidelines and dissemination of information; and

- ☒ providing information about treatment to patients to improve compliance.

2.8.171 Research and monitoring of all aspects of drug use including adverse drug reaction were attempted.

2.8.172 During the Tenth Plan efforts will be made to:

- ☒ cover all states with expanded and strengthened essential drug programmes;
- ☒ adopt an online computer inventory control programme for the procurement and supply of drugs; and
- ☒ establish a system to monitor cost, quality, availability and use of drugs.

2.8.173 India has a large pool of technically skilled manpower and research infrastructure in both government and private sector laboratories. The Indian pharmaceutical industry has the ability to develop and commercialise chemical processes for manufacturing of a variety of drugs at low cost. However, financial problems and fragmentation of capacities makes production of some bulk drugs uneconomical; this has prevented Indian industry from achieving its full potential, both in the domestic and international market. The existence of nearly 20,000 manufacturing units and poor quality control have led to spurious and poor quality drugs reaching the market. The revised National Drug Policy 2001 had reviewed the situation and suggested remedial measures. The limit for the situatory foreign direct investment in the pharmaceutical sector was increased from 51 per cent to 74 per cent. Several products reserved for production in the public sector were de-reserved. Industrial licensing for all bulk drugs has been abolished except in the case of those produced by the use of recombinant DNA technology and bulk drugs requiring in-vivo use of nucleic acids as the active principles.

2.8.174 The Central Drugs Standard Control Organisation (CDSCO) under the Drug Controller General of India is responsible for ensuring the safety, efficacy and quality of drugs. The provisions

under the Drugs and Cosmetics Act (1940) provide for good manufacturing practices. During the Tenth Plan, the regulatory requirements pertaining to safety, efficacy and quality have to be effectively implemented by:

- ☒ strengthening the drug control machinery at the centre and in the states;
- ☒ strengthening quality assurance systems;
- ☒ making good manufacturing practices (GMP) mandatory for pharmaceutical houses; and
- ☒ enforcing stringent quality regulatory processes for the import of drugs.

2.8.175 Post-marketing surveillance, development of a self-sustaining and viable adverse drug reaction (ADR) monitoring and response at the national level will receive due attention.

2.8.176 Currently, Indian industry is investing about 5 per cent of turnover on research and development. These investments may have to be augmented so that the Indian pharmaceutical industry achieves its full potential. Parallel efforts to improve public sector-funded research are also essential for the development of drugs for the treatment of public health problems such as emerging drug resistance, development of newer contraceptives and vaccines. The private sector may not be willing to make requisite investments in these areas because of very low profit margins.

Information, Education, Communication and Motivation (IEC&M)

2.8.177 An aware and informed population, actively participating in programmes aimed at promoting health, preventing illness, accessing health care at appropriate level is an essential prerequisite for improvement in health status of the country. Health education, which is the major tool for achieving this objective had received a lot of attention in the 1950s and 1960s. During the development of various centrally sponsored vertical programmes for disease control, family welfare programme and state's efforts to build up state specific programme, health education efforts got fragmented. Currently, health education efforts are mostly limited to information being provided through

mass media and health functionaries regarding Family Welfare services and disease control programmes. These efforts have resulted in improved awareness of the population who accessed these programmes. However, active participatory health education aimed at motivating the population on life style changes and preventive and promotive health care programmes have not received due attention. Lack of readily available information at household and community level on where to go and whom to access for various health problems continue to remain a major barrier for seeking appropriate care.

2.8.178 During the Tenth Plan, attempts will be made to:

- ☒ review existing training programmes on health promotion/health education and make them more relevant;
- ☒ integrate the various health education programmes under different vertical programmes so that health personnel at each level of care provide comprehensive IEC to the population;
- ☒ involve PRIs and NGOs in health promotion/education and IEC&M; and
- ☒ ensure the involvement of non-formal leaders in the community in order to make health promotion/ education/ IEC&M a people's movement; and

Public Health

2.8.179 In the pre-Independence era, India's health services had two distinct components:

- ☒ public health services manned mostly by non-health professionals implementing interventions aimed at preventing health hazards, improving environmental sanitation, monitoring water quality, and prevention of adulteration in food and drugs; and
- ☒ medical care services manned by health professionals and paraprofessionals providing

promotive, preventive, curative and rehabilitative care to individuals.

2.8.180 In the post-independence period, tasks relating to civic services infrastructure and environment got transferred to other departments dealing with urban and rural development, environment and forests. Medical care also underwent changes. Specialists in community medicine and public health focused on providing promotive and preventive care for major public health problems through outreach services. The clinicians provided institution-based preventive, promotive, curative and rehabilitative health care to individuals who came to the health care institutions.

2.8.181 With increasing knowledge and experience the earlier concept that prevention and curative care are two sides of the same coin, which mutually reinforce each other gained wider acceptance. This led to the re-emergence of the concept of public health providing comprehensive health care. This concept was initially developed and implemented in maternal and child health but soon all other disciplines including clinical specialities dealing with non-communicable diseases such as cardiology adopted this. As a result, public health is today defined as a discipline aimed at developing a health system to deliver equitable, appropriate and holistic care to improve the health status of the individual and health indices of the country at an affordable cost.

2.8.182 The newer concepts of public health were discussed in 1999 and the 'Calcutta Declaration 1999' redefined the role of public health. The declaration stated that as the countries in the Southeast Asian region are stepping into the new century with an unfinished agenda of existing health concerns, amidst new and complex emerging challenges, there is a need for innovative solutions. Public health should meet the health needs of the community and preserve, protect and promote the health of the people. The declaration emphasized the need for capacity building in public health as a multi-disciplinary endeavour to design, develop and provide health care to meet health needs of the population.

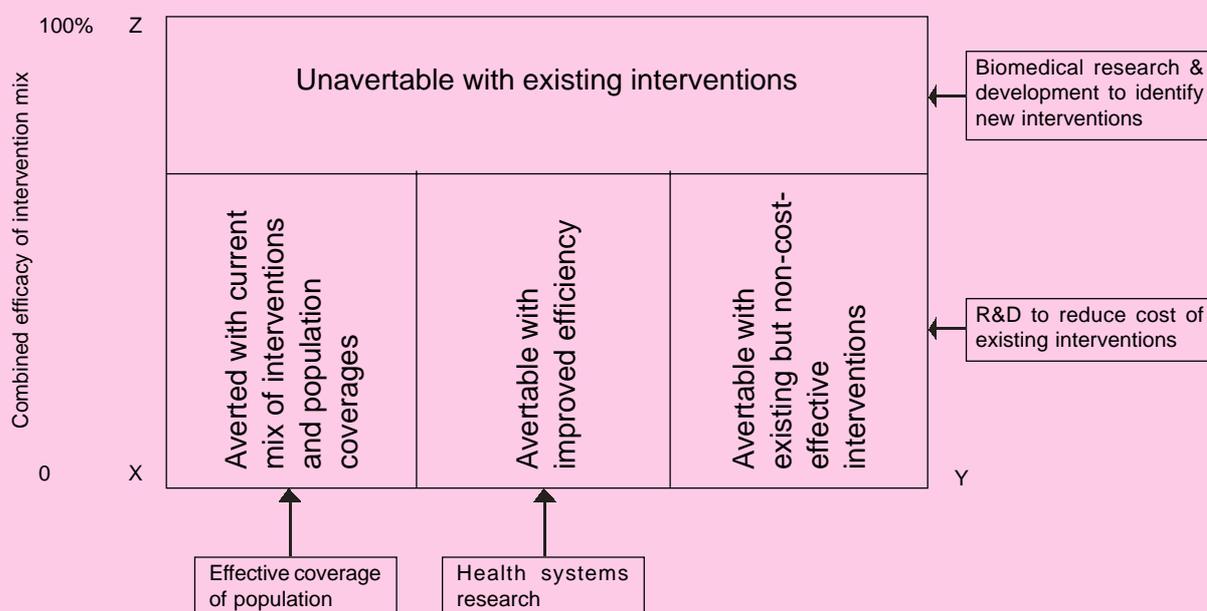
2.8.183 Taken in this broader perspective, public health deals with the formulation, implementation and monitoring of evidence-based health policies, strategies and programmes. It also attempts to create a supportive environment for the effective implementation of such programmes by addressing critical issues that affect health care including quality, equity, ethics, environment and globalisation. Every effort has to be made to ensure that policy makers, programme managers, health care providers and people themselves internalise and support this broad concept of public health and contribute towards attaining the public health goals.

Health Systems Research and Bio-medical Research

2.8.184 India had invested in health system and biomedical research from as early as 1911 so that appropriate policies, strategies and programmes to improve the health status of the population can be evolved on the basis of data from research studies. Bio-medical and health systems research is being

carried out by research institutions, universities, medical colleges and health service providers. Biomedical research is currently funded by several agencies including the ICMR, the Departments of Biotechnology, Department of Science and Technology, the Council of Scientific and Industrial Research (CSIR) and the concerned ministries. Basic, clinical and operational research studies relevant to major health problems have been the focus of research programmes. In addition, the private sector has been investing in research, mainly in the pharmaceutical sector. The national research efforts have laid the foundation of various health care programmes in the country and have gained global recognition. ICMR research studies have also led to the development of appropriate guidelines for the implementation of major programmes such as tubal sterilisation, medical termination of pregnancy and assisted reproduction. Data from ICMR surveys on HIV infection, cancer, under-nutrition and blindness have provided the database for the formulation of national programmes on these diseases and for monitoring their impact.

Figure 2.8.31 Research Needs



X = population coverage with current mix of interventions;

Y = maximum achievable coverage with a mix of available cost-effective interventions

Z = combined efficacy of a mix of all available interventions

Source : Investing in Health Research and Development, WHO, 1996

National Programmes formulated on the basis of ICMR's R&D efforts

- ☒ Domiciliary treatment for tuberculosis,
- ☒ Short course chemotherapy for tuberculosis,
- ☒ Multi drug therapy for leprosy,
- ☒ Oral rehydration therapy for treatment of diarrhoeal disease,
- ☒ Programme for prevention of blindness due to Vitamin A deficiency,
- ☒ Programmes for antenatal care,
- ☒ Management of anaemia in pregnancy.

2.8.185 In India, most of the morbidity and mortality is due to illnesses for which simple, inexpensive and effective preventive measures and time-tested cost-effective curative interventions are available. Therefore, priority has been given to health systems research for improving service delivery and coverage as well as operational research aimed at improving access to technological advances. Basic and clinical research leading to development of products, drugs, vaccines for prevention, diagnosis and management of illnesses especially major health problems for which currently there is no effective cure are encouraged (Figure 2.8.31).

2.8.186 During the Ninth Plan, the major focus of research efforts was on basic, applied and operational research for improving the quality, coverage, efficiency of health services. The thrust areas of research included communicable diseases, improvement of the health and nutritional status of women and children and improving contraceptive acceptance and continuation rates. In communicable diseases, research has focussed on development of indigenous immuno-diagnostics, improved drug regimens to combat emerging drug resistance among microbes, alternative strategies for vector control to combat increasing insecticide resistance and testing innovative disease control strategies through increased community partici-

pation. Studies on the health consequences of the Bhopal gas disaster (1984) and providing a database for planning the infrastructure needed to meet the health care requirements of the affected population continue. The major research areas relating to non-communicable diseases include early detection of cervical cancer in women and oral cancer in both sexes, anti-tobacco education, lifestyle modification to reduce the rising morbidity due to hypertension and cardiovascular diseases, documenting the health problems associated with lifestyle changes and increased longevity. Evaluation of the ongoing mid-day meal programmes in schools, assessment of changes in the dietary intake and nutritional status of urban and rural population over the last two decades, investigating the health effects of food contaminants and adulterants are some of the major areas of nutrition research.

2.8.187 During the Tenth Plan, efforts to generate data on the health impact of the socio-economic, demographic and epidemiological transition on the health and nutritional status of the population will continue. Health system research which will enable the existing systems to provide appropriate health care using effective, inexpensive technology for detection and management of health problems and ensure equitable, economical, and efficient service delivery will receive priority. Clinical, and operational research in both the modern system of medicine and ISM&H will continue. The major thrust areas of research in communicable, non-communicable diseases, nutrition and family welfare have been indicated in the respective sections. Other important areas include new drug development, improved drug delivery system and harnessing emerging technologies in genomics for diagnosis and management of diseases. Appropriate bio-safety containment facilities have to be set up in selected laboratories in order to facilitate basic research on pathogenic microbes, storage, handling, cultivation of virulent pathogens and in-vitro and in-vivo screening of anti-microbials. Inter-agency collaboration will ensure optimal utilisation of available resources and avoid unnecessary duplication of efforts.

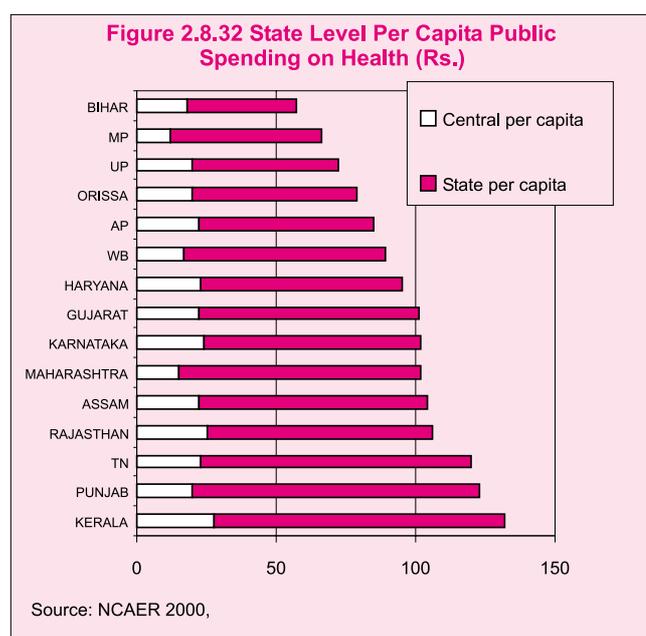
Health Care Financing

2.8.188 Since independence, health care has been recognized as an essential social sector investment. It was, therefore, initially envisaged that health services in government institutions will be provided free of cost to all. During the 1990s, it was recognized that, given the increasing awareness and expectations of the people, and the escalating costs of health care, this policy could not continue. The Ninth Plan envisaged that major public health priorities such as essential primary health care, emergency life saving services, services under the disease control and family welfare programmes will be provided free of cost for all. The Ninth Plan advocated that the Centre and the state governments should work out appropriate norms for levying user charges on people above the poverty line for other services and hospitalisation and evolve mechanisms for collection and utilisation of funds. The Planning Commission provided additional central assistance to the Kerala government for an experimental model in a district hospital where different segments of the APL population pay for health care and the hospital meets the costs of care of BPL (lowest 20 per cent) population through a system of cross-subsidisation.

2.8.189 The issue of how much the government sector, private individuals and the country as a whole is spending on health care and which segments of the population are benefiting has been debated widely during the last decade. As there is no National Health Accounting system, there is no information on total government expenditure on health and categories of people who benefit from this expenditure. The WHO has estimated that India, at present, is spending 4.5 per cent of gross domestic product (GDP) on health, of which 0.9 per cent is public expenditure. India ranks thirteenth from the bottom in terms of public spending on health (World Health Report 2000). The Central Statistical Organisation (CSO) reported that final government expenditure on health (which does not include expenditure on family welfare) for 1998-99 is Rs. 10,588 crore, accounting for 0.6 per cent of GDP. For the same year the plan and non-plan expenditure of 26 States and the Central Ministry of Health and Family Welfare alone comes to Rs.

16,771 crore or 0.95 per cent of the GDP. The Railways, Defence and the Department of Post and Telegraph have created health care infrastructure and spend substantial sums on the health care of their employees and their families. ESIS and PSUs spend large amounts of government funds on health care. The expenditure of PRIs and other local bodies on health is never accounted for as health expenditure nor is the reimbursement of health care costs by different departments at the Centre, in the States and PSUs taken into account while computing public expenditure on health. It is imperative that a system of National Health Accounting, reflecting total government expenditure on health is established. This will enable periodic review and appropriate policy decisions regarding modalities for ensuring optimal utilisation of the current government investment in the health sector and also future investments to meet public health needs.

2.8.190 Given India's size and the fact that health is a state subject, it is important to examine inter-state differences in spending patterns. While the central government provides funds to the states under centrally sponsored schemes based on uniform norms, per capita expenditure in states vary depending upon the prevalence of diseases and utilisation of funds allocated. If these are taken into account, the central government expenditure does not show much variation between states (Fig 2.8.32)



2.8.191 There are substantial variations in per capita expenditure on health by the states. At one end of the spectrum are states like Bihar, Madhya Pradesh, Uttar Pradesh and Orissa with low per capita expenditure, poor access to health care and poor health indices. At other end are Kerala, Punjab and Tamil Nadu with high expenditure and good health indices. However, Rajasthan and Assam continue to have poor health indices in spite of relatively higher expenditure (Figure 2.8.32). While funds are, no doubt, needed to improve health care and health indices, awareness, equitable distribution and utilisation of services is equally critical for the improvement of health indices. Kerala ranks high in two important dimensions-equitable spending between income groups and efficiency of the use of resources.

2.8.192 In all states, patients incur out-of-pocket expenses to meet the health care cost in public and privately-funded hospitals. There are massive differences in private spending on health care services in public and private facilities between states. Patients from Kerala and Punjab spend about four times more on health as compared to patients from Bihar. The high and low spending in private and public sector do not always go hand in hand with each other. In

Rajasthan out of pocket expenditure in private and government hospitals is almost equal, because the state has been levying user charges and providing drugs at cost price to persons admitted in government hospitals (Figure2.8.33). It is important that each state undertakes a detailed analysis of the current situation, identify critical points where appropriate interventions would enable the BPL population to utilise subsidised government health services while providing affordable health care to other segments of the population.

2.8.193 The poorer segments of population have less access to both public and private sector curative services than the better off sections. The out-of-pocket expense on both public and private facilities for the lowest income quintile is about one-fifth that of the highest quintile population (Figure2.8.34) suggesting thereby that the richest quintile utilise both private and public facilities more than the poorest quintile. The question whether the amount spent by different segments of the population results in their receiving the appropriate care remains unanswered as the country is yet to evolve and monitor appropriate treatment protocols and cost of care for specific illnesses in different settings.

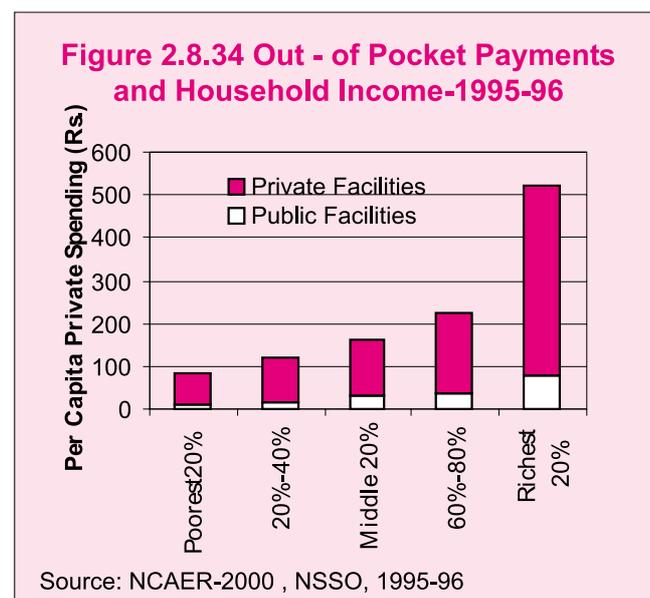
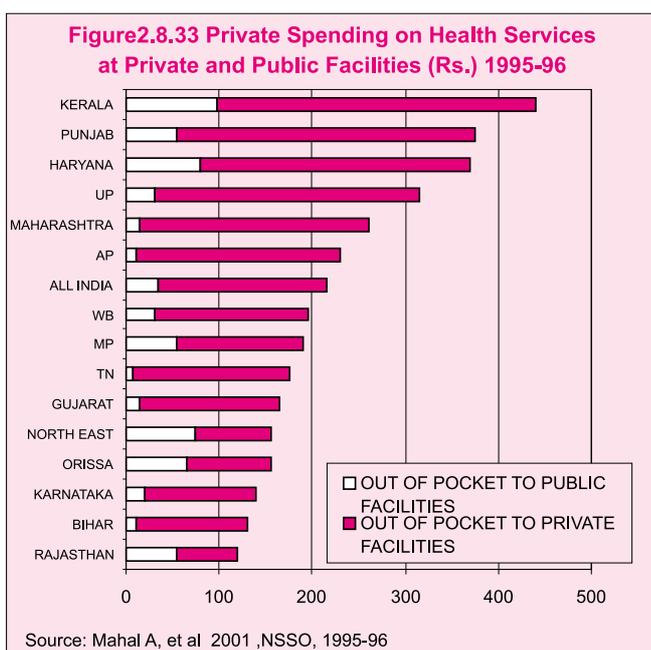


Figure 2.8.35 Distribution of Total out of Pocket Health Expenditures as A Proportion of Non-food Expenditures, All India, 1995-96



2.8.194 Out-of-pocket expenditure is the most common method of payment for private health care services. The poorest 20 per cent spent 12 per cent of the non-food expenditure on health care and the richest about 14 per cent. (Figure 2.8.35)

2.8.195 The out-of-pocket expenses of the SC/ST population is higher than the BPL families perhaps because they have greater problem in access to health care services (Figure 2.8.36). The urban population spent larger amount on health care as compared to their rural counterparts perhaps because they have ready access to high cost or hi-tech care.

2.8.196 Mechanisms by which different income groups meet the out-of-pocket expenses for hospitalisation is shown in

Figure 2.8.36 Out-of Pocket Payments by Socioeconomic Group, 1995-96

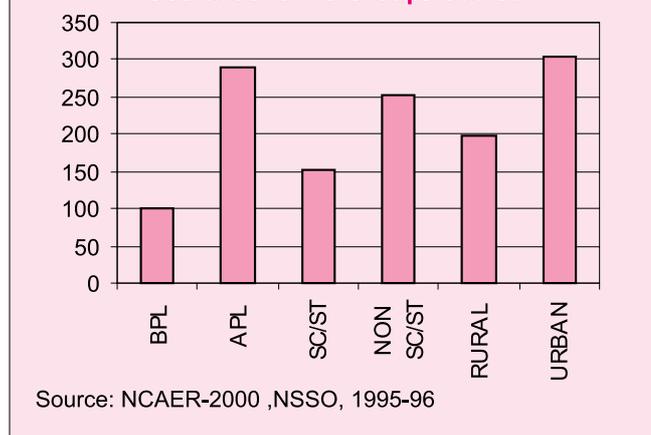
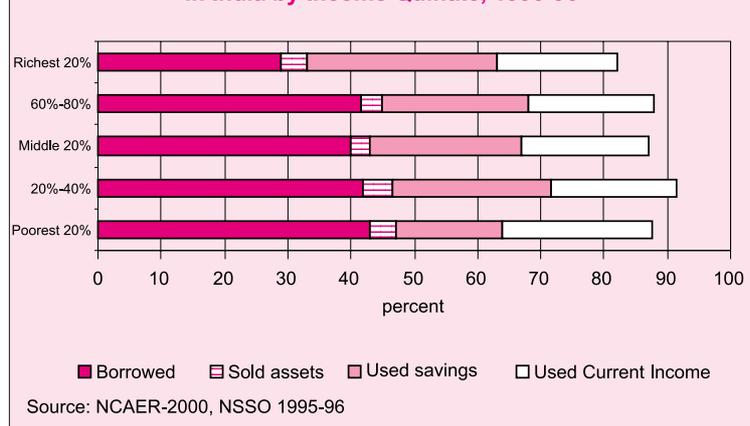


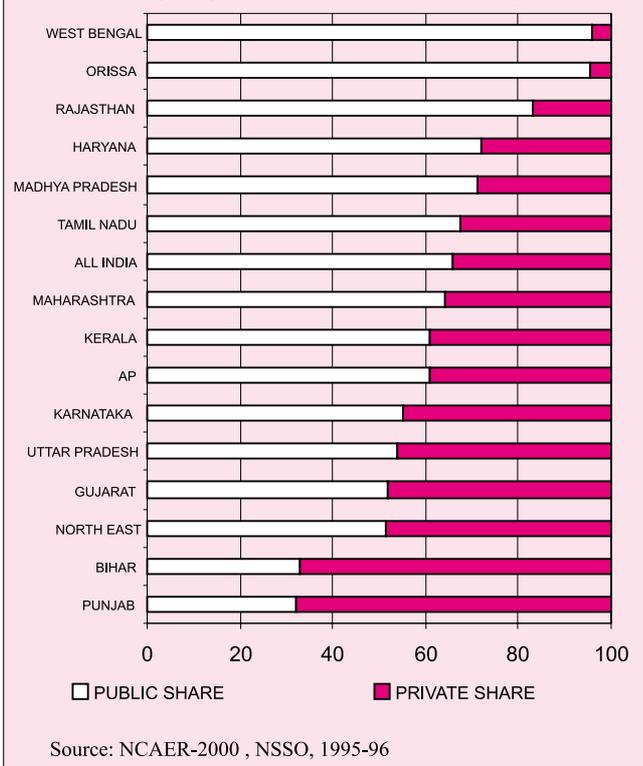
Figure 2.8.37. Hospitalisation for major illness is a cause of indebtedness in all income groups. With increasing awareness, people are willing to spend on health care. However, there is, at present, no mechanisms by which they can pay a part of their income, throughout their working life, so that the cost of health care or hospitalisation can be met without severe financial crisis. Health insurance in the government and private sector covers less than 10 per cent of the population, mostly from upper income group, government or industrial employees. There is need to explore mechanisms for providing near-universal coverage of the population for meeting the cost of hospitalisation and continuous care for chronic disease.

Figure 2.8.37 Sources of Financing for Private Expenditures on Hospitalisation in India by Income Quintile, 1995-96



2.8.197 There are substantial inter-state differences in the utilisation of public and private facilities by people below the poverty line. In Himachal Pradesh, West Bengal and Orissa the poor predominantly use public facilities. In contrast, the poor in Bihar and Punjab make very limited use of public sector in-patient facilities. The lack of functional government-funded hospitals in Bihar may be the reason for the poor going to private hospitals. In Punjab, the perception regarding convenience, comfort and quality of care may be the reason why private sector hospitals are preferred to functional public sector hospitals. In Orissa, the absence of private sector facilities in the remote rural and tribal

Figure 2.8.38 Public And Private Sector of Inpatient Bed Days by People Below the Pverty Line



areas might be the reason for the poor using public sector hospitals (Figure 2.8.38).

2.8.198 Health sector reforms during the Tenth Plan will focus on:

- ☒ addressing the issues of need and equity in access to health care;
- ☒ devising a targeting mechanism by which people below poverty line have ready access to subsidised health services to meet essential health care needs, while those from above the poverty line pay for the services both in government and private care facilities.

2.8.199 There is an urgent need to evolve, implement and evaluate an appropriate scheme for health financing for different income groups. Health finance options may include health insurance for individuals, institutions, industries and social insurance for BPL families. Health insurance has been suggested as a mechanism for reducing the adverse economic consequences of hospitalisation and treatment for chronic ailments requiring expensive and

continuous care. However, the experience in developed countries show that health insurance runs the risk of market failure and cost escalation because:

- ☒ disproportionately large number of individuals who get insured are those who expect significant health expenditure in the future;
- ☒ reduced incentives for individuals to take precautions against poor health;
- ☒ health care providers tend to give more care than medically appropriate; and
- ☒ insurance companies have low capital reserves and incomplete epidemiological information.

2.8.200 Attempts by insurance companies to prevent market failure may have serious health implications, if it is achieved either by exclusion of high risk individuals or by escalation of cost of insurance.

2.8.201 Health insurance can improve access to good quality health care only if it is able to provide for health care in institutions with adequate facilities and skilled personnel at affordable cost. Some states like Kerala and Delhi are conceptualising pilot projects where the government pays the social insurance premium to meet the hospitalization cost for the poor admitted in government institutions. During the Tenth Plan global and Indian experience with health insurance/health maintenance organisations will be reviewed and suitable models replicated. In order to encourage healthy lifestyles, a yearly 'no claim bonus'/adjustment of the premium could be made on the basis of previous year's hospitalisation cost reimbursed by the insurance scheme.

Financing Health Care in India

2.8.202 The importance of health as a determinant of human development is well accepted. Health is high on the agenda of the government and the people, both of whom are willing to invest for improving health status. Spiraling costs and rising demand are putting a severe strain on the health

system, whether government-funded or private. Health care can absorb a very large quantity of investments from the government and individuals and yet leave millions of people, especially the poor who suffer from a high disease burden, inadequately covered (Figure 2.8.39) It is also being

increasingly realized that merely investing more in health is unlikely to improve the health status of the population. It is essential that policies and strategies are developed to promote equitable access to preventive and curative services so that there is an improvement in health indices (Figure 2.8.40).

Figure 2.8.39 Unproductive Investment in Health : a Vicious Cycle

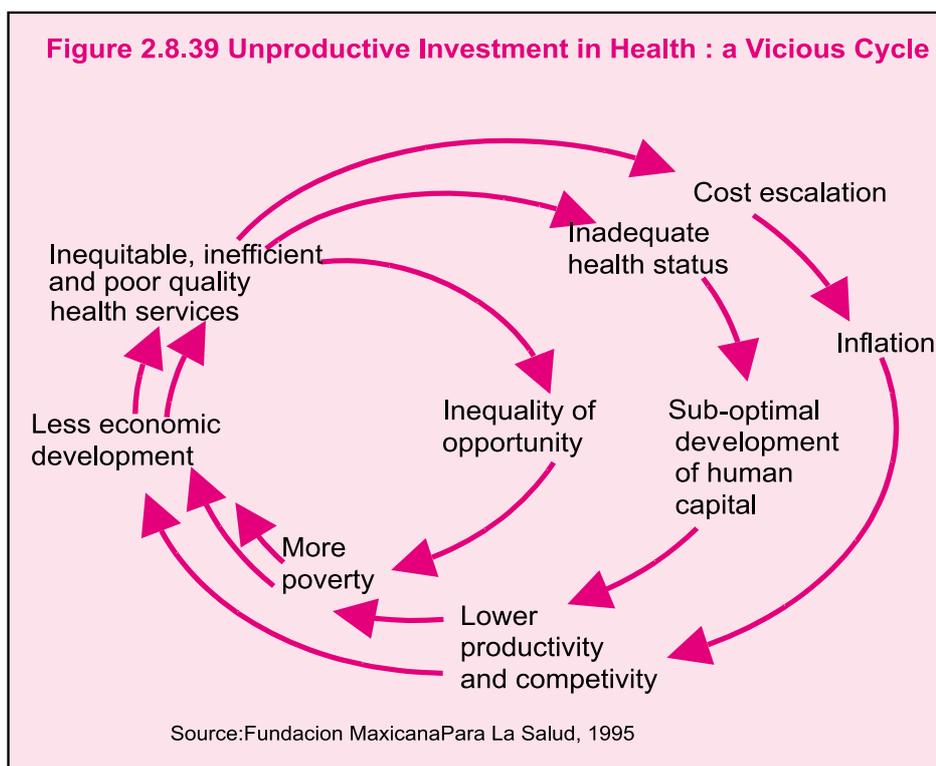
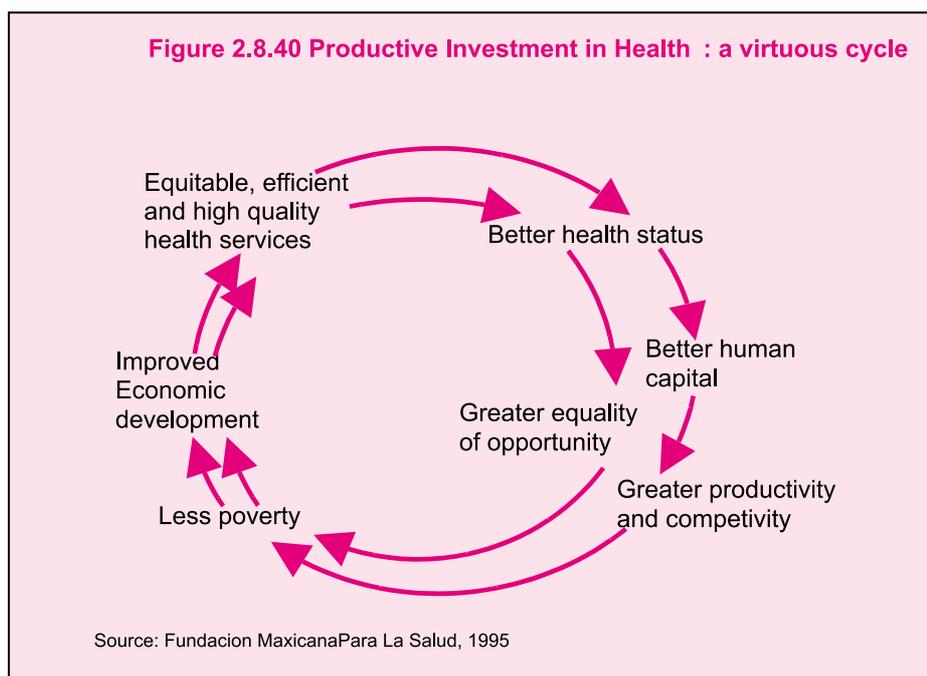


Figure 2.8.40 Productive Investment in Health : a virtuous cycle



2.8.203 It is essential to quantify the interactions between the health of the population and economy, gauge essential potential benefits of various interventions and ensure adequate investment in chosen priority sectors. Concurrently, every effort should be made to organise and deliver health services equitably and efficiently. It is important to get adequate data on disease burden and current modalities of funding health care in different states. These data should then be used for:

- ☒ making an enabling policy framework;
- ☒ selecting appropriate strategy;
- ☒ implementing and evaluating packages of health interventions; and
- ☒ assessing quality of care and its cost effectiveness.

2.8.204 Health policy research and health system research at the national level is essential and a reliable information base is a pre-condition for effective investment in health care and performance assessment of the health system.

Health Sector Outlay:

2.8.205 The health sector is funded by the central and state governments and externally assisted projects (in both the Centre and the states).

Externally Assisted Projects

2.8.206 Externally-assisted projects can be classified under the following:

- ☒ assistance to different components of the family welfare programme;
- ☒ assistance to centrally sponsored schemes of the disease control programmes;
- ☒ assistance to state governments to strengthen infrastructure and manpower through bilateral direct assistance to the states and from funding agencies like the World Bank routed through the central government.

2.8.207 Externally assisted projects initially focused on rural primary health care e.g. India Population Project (IPP I to IV, VI & VII) and later also covered urban primary health care (IPP V, VIII). During the 1990s, externally assisted projects for strengthening secondary care institutions were taken up in seven states. The tertiary care institutions have not received much funding from externally-assisted projects, except for individual institutions like Sanjay Gandhi Institute of Medical Education and Research (from Japan).

2.8.208 Investment from externally assisted projects was used for strengthening infrastructure, purchase/replacement of equipment, meeting the cost of drugs and consumables and for operationalising health sector reform. However, it has been reported that externally assisted projects introduce a project framework, management structures, parameters of expenditure, unit costs and institutional arrangements for monitoring which are very different from the ones already in place under national and state level programmes. This creates distortions and the performance in other programmes deteriorates. Also, service providers who have worked in the externally-assisted projects become de-motivated after the project is completed because similar parameters of expenditure may not be sustainable. It has also been reported that improvement in facilities and equipment through externally-assisted projects have not resulted in improved performance. For example, despite the construction of a large number of sub-centres and staff quarters, occupancy remained low and deliveries in these institutions did not go up. States have not been able to provide adequate funds for maintenance of these infrastructure and equipment procured under the EAPs, so that there has been a progressive deterioration of these. These aspects and the issue of sustainability of the projects after they are completed need be looked into at the time of deciding areas/schemes for external assistance in the health sector. The mechanisms for repayment of loans when the EAP is in the

form of loans is another aspect that has to be considered before EAPs in health sector are initiated.

State Government:

2.8.209 The state governments provide funds for primary, secondary, tertiary care institutions (including medical colleges and their associated hospitals). State governments also receive funds from centrally sponsored disease control programmes and family welfare programme. Health was one of the priority sectors for which funds were provided during the Ninth Plan as additional central assistance under PMGY. These funds were to be utilised for meeting the essential requirements for operationalising rural primary health care. The ongoing and proposed externally assisted projects provide additional resources. The major activities that received funds during the Ninth Plan were:

- ☒ restructuring of the health care infrastructure;
- ☒ re-deployment and skill up gradation of personnel;
- ☒ development of referral network;
- ☒ improvement in the HMIS;
- ☒ disease control programmes; and
- ☒ development of a disease surveillance and response system at the district level.

2.8.210 Funds provided during the Tenth Plan will be utilised to improve the existing health care infrastructure and manpower in the states so that quality and coverage improves. The state-wise outlay and expenditure in the Ninth Plan is shown in Annexure 2.8.5.

Central Sector

2.8.211 Funds from the central sector are being utilised for supporting:

- ☒ medical education institutions of excellence;

- ☒ training institution for nurses;
- ☒ vaccine production institutes and special centres for specific diseases;
- ☒ Central Government Health Schemes;
- ☒ emergency relief measures; and
- ☒ pilot central sector projects either to demonstrate the feasibility of disease control or for working out strategies for health care.

2.8.212 In addition to the domestic budgetary support, external funds have also been obtained for several centrally sponsored disease control programmes.

Zero Based Budgeting-2001

2.8.213 In November-December 2001 the Planning Commission and the Department of Health had reviewed all the ongoing Ninth Plan schemes/programmes and undertaken a zero-based budgeting exercise. In the Ninth Plan, there were a total of 91 schemes (22 centrally sponsored schemes and 69 central sector schemes). Of these 45 are being retained, one is being transferred to the states, 38 are being merged into 14 schemes and seven are being weeded out. A total of 59 schemes, with a Ninth Plan outlay of Rs. 5,088.19 crore are continuing during the Tenth Plan. The summary of the zero-based budgeting exercise is given in Table 2.8.15.

Path Ahead And Goals

2.8.214 Major focus in the Tenth Plan will be to fully operationalise the structural and functional health sector reforms initiated in the Ninth Plan and

- ☒ improve efficiency of the existing health care system – in government, private and voluntary sectors;
- ☒ improve quality of care at all levels;
- ☒ mainstream ISM&H practitioners so that in addition to practising their system of care, they

Table 2. 8.15
Zero Based Budgeting Exercise 2001–Centrally Sponsored Schemes & Central Sector Schemes

Rs. in Crore

Category	Central sector			Centrally sponsored		
	No. of Schemes	Ninth Plan Outlay	Ninth Plan Anticipated Expenditure	No. of Schemes	Ninth Plan Outlay	Ninth Plan Anticipated Expenditure
Schemes to be retained	39	995.24	968.39	6	1,984.00	2,055.94
Schemes to be merged	8/24	766.45	850.73	6/14	1,342.50	1,202.59
Schemes to be transferred to the states	1	4.00	1.88	NIL	NIL	NIL
Schemes to be weeded out/dropped	5	22.00	5.69	2	4.00	2.98
Total Ninth Plan schemes	69	1,787.69	1826.69	22	3,330.50	3,261.51
No. of ongoing schemes that will continue in Tenth Plan	47	1,761.69	1819.12	12	3,326.50	3,258.53

can help in improving coverage and utilization of national disease control programme and family welfare programme;

- develop efficient logistics of supplies of drugs and diagnostics and promote rational use of drugs;
- explore alternative systems of health care financing so that essential health care based on needs is available to all at affordable cost.

2.8.215 The National Health Policy (NHP) formulated in 1983 - after the Alma Ata declaration - articulated the ambition of the country to provide health care for all based on needs and to rapidly achieve all round improvement in the health indices

The Ninth Plan recommended a review of the National Health Policy in view of:

- ongoing demographic transition;
- ongoing epidemiological transition;
- expansion of health care infrastructure;
- changes in health care seeking behaviour;
- availability of newer technologies for diagnosis and treatment;
- rising expectations of the population, and escalating cost of health care.

of the population. The NHP (1983) provided a comprehensive framework for planning, implementation, monitoring of health services and goals to be achieved by 2000. The Department of Health has reviewed the performance since 1983 and formulated the NHP, 2002 so that it provides a reliable and relevant policy framework for improving health care and measuring and monitoring the health care delivery systems and health status of the population; NHP2002 has laid down the goals upto 2015.

2.8.216 The NHP 2002 emphasises that any significant improvement in the quality of health services and health status of the citizens, would depend on increased financial and material inputs, service providers treating their responsibility not as a commercial activity, but as a service (albeit a paid one), the citizens demanding improvement in the quality of services, a responsive health delivery system, particularly in the public sector, and improved governance. Recognising that the health needs of the country are enormous and dynamic and acknowledging the human and financial resource constraints, the NHP 2002, attempts to make choices between various priorities and focuses on:

- expanding and improving primary health care facilities;

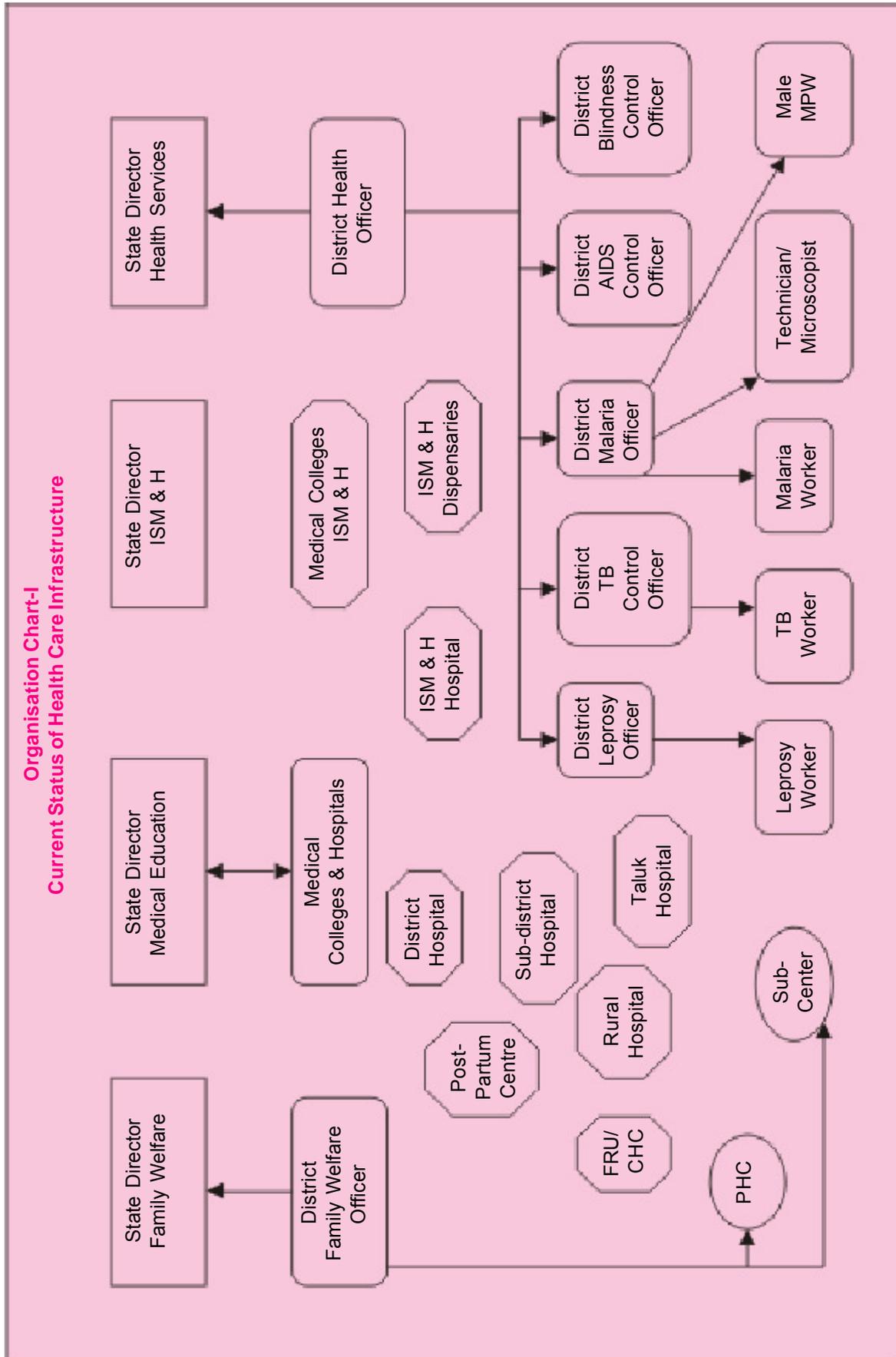
NHP2002- Goals to be achieved	
Eradicate polio and yaws	2005
Eliminate leprosy	2005
Eliminate kala azar	2010
Eliminate lymphatic filariasis	2015
Achieve zero level growth of HIV/AIDS	2007
Reduce mortality on account of TB, malaria and other vector and water- borne diseases by 50 per cent	2010
Reduce prevalence of blindness to 0.5 per cent	2010
Reduce IMR to 30/1000 and MMR to 100/100,000 live births	2010
Increase utilisation of public health facilities from the current level of <20 per cent to >75 per cent	2010
Establish an integrated system of surveillance, national health accounts and health statistics.	2005

Source : NHP 2002

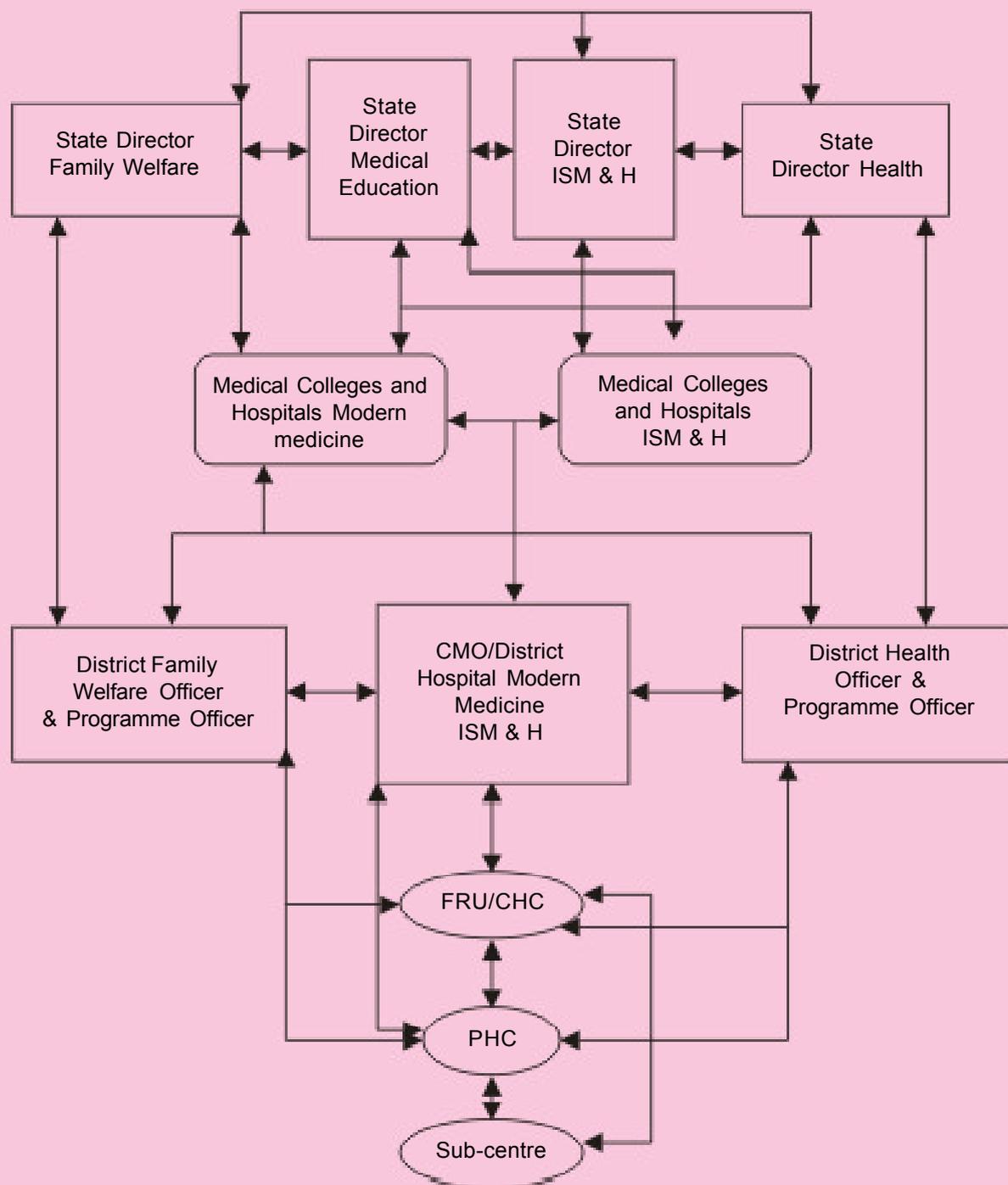
- ☒ organisational restructuring of the national public health systems to facilitate more equitable access to the health care;
- ☒ area-specific programmes to meet the health needs of women, children, elderly, tribals and socio-economically under-served sections;
- ☒ programmes for the control of diseases like TB, malaria, blindness and HIV/AIDS;
- ☒ disaster management plan to cope with natural and man-made calamities; and
- ☒ macro-policy prescriptions for coordination between government, voluntary, private sector, NGOs and other institutions of civil society.

2.8.217 It is expected that with effective implementation of the policies and strategies indicated in the Tenth Plan and NHP 2002 ,the country will achieve goals set and complete the health and demographic transition with in the set time frame. The schemewise outlays of Department of Health for the Tenth Plan is indicated in Annexure 2.8.6 and Appendix.

**Organisation Chart-I
Current Status of Health Care Infrastructure**



**Organisational Chart-II
Proposed Reorganisation and Linkages**



STATE WISE/SYSTEM WISE NUMBER OF HOSPITALS AND DISPENSARIES UNDER MODERN SYSTEM AND ISM & H

STATES/UTs	RURAL HEALTH CARE INFRASTRUCTURE						DISPENSARIES				HOSPITALS								
	Sub centres	Primary Health Centres	Community Health Centre	Modern System of Medicine @	ISM&H @	Urban Family Welfare Centres	PostPartum Centres	Reqd. 1991	In Position 1991	Goal For the 10th Plan	Reqd. 1991	In Position 1991	Goal For the 10th Plan	Dispensaries	Hospitals	Urban Family Welfare Centres	PostPartum Centres		
1 ANDHRA PRADESH	10242	10568	(326)	1707	1386	321	427	219	208	134	0	1930	3133	69778	22	1249	131	28	55
2 ARUNACHAL PRADESH	220	273	(53)	37	65	(28)	9	20	(11)	11	0	46	-	-	1	15	6	-	1
3 ASSAM	4356	5109	(753)	726	610	116	181	100	81	325	42	409	268	12661	6	260	10	11	30
4 BIHAR	11547	10332	1215	1961	1642	319	490	87	403	427	96	831	328	29090	14	1385	42	37	54
5 CHHATISGARH	4692	3818	874	704	545	159	176	150	26										
6 GOA	138	172	(34)	23	19	4	6	5	1	33	0	115	105	3848	6	245	-	4	-
7 GUJARAT	6168	7274	(1106)	1028	1001	27	257	242	15	7255	9289	583	2528	63417	55	2476	113	28	33
8 HARYANA	2482	2299	183	414	401	13	103	64	39	130	126	454	80	7230	7	850	19	16	20
9 HIMACHAL	973	2069	(1096)	162	302	(140)	40	65	(25)	173	169	1081	63	5463	18	355	89	-	11
10 JAMMU & KASHMIR	1176	1700	(524)	196	337	(141)	49	53	(4)	610	0	445	67	8202	4	235	12	-	6
11 JHARKHAND	4278	4462	*	676	561	115	169	47	122										
12 KARNATAKA	6431	8143	(1712)	1072	1676	(604)	268	249	19	797	1163	642	293	38479	178	8400	87	-	39
13 KERALA	4325	5094	(769)	721	944	(223)	180	105	75	53	164	3523	2107	97840	182	4031	-	22	60
14 MADHYA PRADESH	7430	8835	*	1316	1193	123	329	229	100	256	2	2363	363	18141	47	1810	63	99	47
15 MAHARASHTRA#10533	9725	9725	808	1756	1768	(12)	439	351	88	8143	1622	486	3115	78920	160	18618	74	278	52
16 MANIPUR	344	420	(76)	57	69	(12)	14	16	(2)	42	0	10	17	1626	3	75	2	-	3
17 MEGHALAYA	464	413	51	77	85	(8)	19	13	6	21	0	5	9	1828	0	0	1	-	3
18 MIZORAM	122	346	(224)	20	58	(38)	5	9	(4)	13	130	2	12	1021	0	0	1	-	2
19 NAGALAND	325	302	23	54	46	8	14	9	5	17	68	2	29	1158	0	0	-	-	1
20 ORISSA	6374	5927	447	1062	1352	(290)	265	157	108	1197	282	1104	273	11980	13	473	10	8	19
21 PUNJAB#	2858	2852	6	476	484	(8)	119	105	14	1469	5503	629	220	14921	17	956	23	64	19
22 RAJASTHAN	7484	9926	(2442)	1247	1674	(427)	312	263	49	268	134	3689	219	21387	102	1631	61	90	35

STATE WISE/SYSTEM WISE NUMBER OF HOSPITALS AND DISPENSARIES UNDER MODERN SYSTEM AND ISM & H

STATES/UTs	RURAL HEALTH CARE INFRASTRUCTURE						DISPENSARIES				HOSPITALS										
	Sub centres	Reqd. 1991	In Position 1991	Goal for the 10th Plan	Primary Health Centres	Reqd. 1991	In Position 1991	Goal For the 10th Plan	Community Health Centre	Reqd. 1991	In Position 1991	Goal For the 10th Plan	Modern System of Medicine @	ISM&H @	Modern System of Medicine @	ISM&H@@	Urban Family Welfare Centres	PostPartum Centres			
23 SIKKIM	85	147	(62)	14	24	(10)	4	2	2	2	2	147	0	2	1	300	0	0	1	1	2
24 TAMILNADU	7424	8682	(1258)	1237	1436	(199)	309	72	237	237	512	278	396	408	48780	229	2187	65	100	32	87
25 TRIPURA	579	539	40	96	58	38	24	11	13	13	612	0	96	29	1866	2	30	9	-	1	3
26 UTARANCHAL	1764	1609	155	265	257	8	66	30	36												
27 UTTAR PRADESH	20573	18576	1997	3458	3551	*	865	280	585	585	1750	5729	2239	735	47278	1843	11496	81	150	72	147
28 WEST BENGAL#	10356	8126	2230	1726	1262	464	431	99	332	332	571	0	1153	399	53732	19	1007	111	-	27	55
29 ANDAMAN & NICOBAR ISLANDS	45	100	(55)	7	18	(11)	2	4	(2)	(2)	138	0	7	10	901	0	0	-	-	1	-
30 CHANDIGARH#	13	13	0	2	0	2	1	1	0	0	33	0	9	1	500	3	185	3	10	2	-
31 DADRA & NAGAR HAVELI	40	36	4	7	6	1	2	1	1	1	3	6	2	3	115	2	0	-	-	-	-
32 DAMAN & DIU	12	21	(9)	2	3	(1)	1	1	0	0	28	0	1	3	150	1	5	-	-	-	-
33 DELHI	190	42	148	32	8	24	8	8	8	8	490	0	236	77	19345	17	1322	69	28	9	5
34 LAKSHADWEEP	7	14	(7)	1	4	(3)	3	3	(3)	(3)	0	0	6	2	70	0	0	-	-	-	-
35 PONDICHERRY	58	80	(22)	10	39	(29)	3	4	(1)	(1)	12	0	21	29	3136	0	0	-	-	3	-
36 CGHS	-	-	-	-	-	-	-	-	-	-	241	-	79	-	-	1	25	-	-	-	-
37 CENTRAL RESEARCH COUNCILS	-	-	-	-	-	-	-	-	-	-	-	-	85	-	-	39	930	-	-	-	-
38 M/o RAILWAY	-	-	-	-	-	-	-	-	-	-	-	-	162	-	-	0	0	-	-	-	-
36 M/o LABOUR	-	-	-	-	-	-	-	-	-	-	-	-	157	-	-	0	0	-	-	-	-
40 M/o COAL	-	-	-	-	-	-	-	-	-	-	-	-	28	-	-	0	0	-	-	-	-
TOTAL	134108	138044	8181	22349	22928	1714	5587	3077	2562	25911	24803	23028	14926	663163	3005	60631	1083	871	538	1012	

FIGURES IN BRACKET INDICATE THE SURPLUS INFRASTRUCTURE, SHORTFALL AS ON 31.3.2001;

@ FOR THE PERIOD 1.1.1998: @@ FOR 1.4.1999

NOTE:- = NIL INFORMATION, THE TOTAL NUMBER OF HOMOEOPATHIC HOSPITALS HAVE REDUCED AS UTTAR PRADESH HAS REPORTED REDUCED FIGURES.

= INFORMATION FOR THE CURRENT YEAR HAS NOT BEEN RECEIVED, HENCE REPEATED FOR THE LATEST AVAILABLE YEAR.

SOURCE: HEALTH INFORMATION OF INDIA, ISM&H IN INDIA AND D/O FAMILY WELFARE; FIGURES ARE PROVISIONAL

Manpower Requirement in Rural Primary Health Care Institutions

Category of manpower	Requirement for Census 1991	In position as on 30.06.2000	Number sanctioned	Gap (2-3)
1	2	3	4	5
Specialists (4/CHC)	22348	3741	6579	18607
Doctors at PHCs (1/PHC)	22349	25506	29702	3157*
Block Extension Educator/ Health Educator (1/PHC)	22349	5508	6534	16841
Pharmacist (1/CHC+1/PHC)	27936	21077	22871	6859
Lab. Technician (1/CHC+1/PHC)	27936	12709	15865	15227
X-ray Technician/ Radiographer (1/CHC)	5587	1768	2137	3819
Nurse Midwife (7/CHC+1/PHC)	61458	17673	22672	43785
Health Assistant (M) (1/PHC)	22349	22265	26427	84
Health Assistant (F) (1/PHC)	22349	19426	22479	2923
Health Worker (M) (1/SC)	134108	73327	87504	60781
Health Worker (F) (1/SC+1/PHC)	156457	134086	144012	22371
TOTAL	525226	337086	386782	191297

* indicates surplus and has not been added to Gap

Source :- RHS Bulletin, June, 2000 (Ministry of Health & FW)

Outlay for Health in the States & Union Territories

Rs. Lakhs

STATES	9th Plan	1997-98		1998-99		1999-2000	2000-01	2001-02
	OUTLAY HEALTH	OUTLAY HEALTH	Act. Expd. HEALTH	OUTLAY HEALTH	Act. Expd. HEALTH	OUTLAY HEALTH	OUTLAY HEALTH	OUTLAY HEALTH
1	2	3	4	5	6	7	8	9
ANDHRA PRADESH	63052.00	13937.00	12366.00	20046.00	19865.00	28033.00	27749.95	33223.02
ARUNACHAL PRADESH	33502.00	3149.00	1782.00	3520.00	1814.00	2947.00	2068.93	2476.01
ASSAM	38410.00	6561.00	6223.00	7191.00	6887.00	7741.00	7439.00	12580.00
BIHAR	83200.00	7245.00	4950.00	12177.00	6902.00	12768.00	9891.01	10078.21
GOA	8122.00	1082.00	1032.00	772.00	1069.00	1646.00	1423.00	1649.00
GUJARAT	83225.00	22093.00	17180.00	23550.00	17179.00	25100.00	26000.00	21000.00
HARYANA	35134.00	3882.00	4493.00	5946.00	4126.00	5327.00	5648.00	6595.00
HIMACHAL PRADESH	31765.00	5544.00	6535.00	8965.70	8164.00	10555.00	9685.09	12014.86
J & K	110029.00	7450.00	6989.00	11385.51	8244.00	11974.00	10595.17	11628.32
KARNATAKA	110000.00	18359.00	21914.00	19544.30	22909.00	22774.00	22558.11	26879.60
KERALA	30940.00	6096.00	5828.00	6200.00	7343.00	6400.00	6335.00	5553.00
MADHYAPRADESH	56787.00	9331.00	7031.00	17351.47	14524.00	13524.00	11217.62	13462.62
MAHARASHTRA	91823.00	17391.00	13811.00	22993.00	16224.00	27798.00	30485.85	39128.91
MANIPUR	3600.00	630.00	540.00	809.35	809.00	1080.00	1250.00	1486.00
MEGHALAYA	14000.00	2430.00	1790.00	2430.00	2360.00	3079.00	3300.00	3200.00
MIZORAM	11201.00	1651.00	1651.00	1816.00	1785.00	2286.00	2562.00	2542.00
NAGALAND	10631.00	2506.00	2480.00	2128.00	2022.00	2128.00	1577.00	1283.00
ORISSA	41606.00	4104.00	5198.00	7526.21	7042.00	13208.00	8405.05	14915.16
PUNJAB	51159.00	9938.00	3187.00	16352.00	8374.00	18319.00	19187.00	17465.57
RAJASTHAN	77060.00	13919.00	12339.00	15289.00	10991.00	17262.00	9914.94	12366.30
SIKKIM	8000.00	857.00	757.00	814.00	1914.00	1559.00	1200.00	1373.50
TAMILNADU	78052.00	8909.00	11005.00	11650.93	12843.00	12426.00	12724.42	18084.16
TRIPURA	8559.00	1371.00	1091.00	1407.92	1448.00	1355.00	1442.46	1879.18
UTTAR PRADESH	118500.00	17312.00	15609.00	40551.00	10862.00	42816.00	30200.00	37278.00
WEST BENGAL	97864.00	20633.00	3322.00	19286.00	7811.00	23502.00	32176.00	42931.24
TOTAL STATES	1296221.00	206380.00	169103.00	279702.39	203511.00	315607.00	295035.60	351072.66
U T s								
A & N ISLANDS	7741.00	1559.00	1831.59	1895.00	2055.29	2000.00	1900.00	1900.00
CHANDIGARH	17065.00	3617.00	3748.90	3548.30	3297.61	3483.00	3717.00	3947.25
D & N HAVELI	514.00	219.00	148.87	252.70	189.82	280.00	217.80	234.80
DAMAN & DIU	887.00	133.00	165.96	173.00	186.91	136.00	150.10	165.00
DELHI	110140.00	15240.50	12684.15	19700.00	13994.62	27345.00	26642.00	34121.00
LAKSHADWEEP	817.46	233.85	267.78	333.00	323.61	229.03	281.45	211.46
PONDICHERRY	10000.00	1630.00	1546.97	2370.00	1921.30	2720.00	2720.00	3160.54
TOTAL UTs	147164.46	22632.35	20394.22	28272.00	21969.16	36193.03	35628.35	43740.05
GRAND TOTAL (STATES & UTs)	1443385.46	229012.35	189497.22	307974.39	225480.16	351800.03	330663.95	394812.71
CHHATISGARH								6024.66
JHARKHAND								NA
UTTARANCHAL								5972.00
GRAND TOTAL (STATES & UTs) Incl 2 states								406809.37

Outlays for Department of Health

Rs crores

IX Plan	X Plan	Name of the Schemes / Institution	9th Plan Allocation	9th Plan Anticipated Expenditure	10th Plan Allocation Agreed by PC	2002-03 Outlay
CENTRALLY SPONSORED SCHEMES						
Control of communicable Diseases:						
1&2	1	National Vector Borne Diseases Control Programme (Malaria, Kala-Azar, Filaria, Dengue and J.E.)	1000.00	954.95	1370.00	235.00
	3	National Leprosy Eradication Programme.	301.00	388.48	255.00	75.00
	4	National Tuberculosis Control Programme.	450.00	462.73	680.00	115.00
	5	National AIDS Control Programme including Blood Safety Measures and National S.T.D. Control Programme	760.00	745.26	1270.00	225.00
	6	National Guinea Worm Eradication Prog.	2.00	1.29		
	7	Disease Surveillance Programme	25.00	20.32	190.00	10.00
	8	Hospital Waste Management	2.00	1.79	10.00	5.00
Strengthening of Drug & Food Administration & Control Capacity Building						
	9	Assistance to States for Capacity Building (drug Quality)	20.00	29.00	60.00	20.00
10	8	Capacity Building for drug & PFA	20.00	1.00	97.00	1.30
	11	Strengthening of State Drug Analytical Laboratories	5.00	5.10		
	12	Strengthening of State Drug Control organisations including improvement of their information system and strengthening of enforcement and supporting staff	5.00			
	13	Financial Assistance to the States for Strengthening their food testing laboratories	5.00	0.80		
	14	Setting up of District Food Inspection Units in the States/ UTs including Management Information System	3.16			
Control/Containment of Non-communicable Diseases:						
	15	9 National Programme for Control of Blindness	448.00	464.79	445.00	86.00
16&17	10	National Cancer Control Programme and Anti-Tobacco Initiative	190.00	198.14	285.00	61.00
18&19	11	National Iodine Deficiency Disorders Control Programme and Pilot Project on Micronutrients	18.00	14.75	35.00	7.00
	20	12 National Mental Health Programme	28.00	20.39	190.00	30.00
	21	13 Drug De-addiction Programme including assistance to States	20.00	26.51	33.00	7.00
Other Programmes						
	22	14 UNDP Pilot Initiatives for Community Health		2.50	4.80	4.80
					4924.80	882.10
Central Sector Schemes:						
Control of Communicable Diseases:						
	1	1 National Institute of Communicable Diseases, Delhi (ongoing activities including Guineaworm & Yaws Eradication)	23.00	22.40	65.00	12.00
	2	Strengthening of Institute	3.70	3.69		
	3	2 National Institute of Tuberculosis, Bangalore	1.50	3.78	10.30	2.00
	4	3 Lala Ram Sarup Institute of T.B. and allied diseases, Mehrauli, Delhi	30.00	27.60	54.50	10.00
	5	4 Central Leprosy Training & Research Institute Chengalpattu (Tamil Nadu) Regional Institute of Training, Research & Treatment under Leprosy Control Programme:	5.00	3.57	5.50	1.00

Annexure 2.8.6 Contd.

Rs crores

IX Plan	X Plan	Name of the Schemes / Institution	9th Plan Allocation	9th Plan Anticipated Expenditure	10th Plan Allocation Agreed by PC	2002-03 Outlay
6	5	(a) R.L.T.R.I., Aska (Orissa)	2.00	0.56	2.00	0.40
7	6	(b) R.L.T.R.I., Raipur (M.P.)	2.50	0.71	1.00	0.20
8	7	(c) R.L.T.R.I., Gauripur (W.B.)	5.00	4.65	7.00	1.50
9	8	B.C.G. Vaccine Laboratory, Guindy, Chennai	5.00	5.80	19.50	5.00
10	9	Pasteur Institute of India, Coonoor	5.00	13.10	35.00	7.00
11	10	Central Research Institute, Kasauli	20.00	21.83	50.00	5.00
					249.80	44.10
Hospitals and Dispansaries:						
12	11	Central Government Health Scheme	40.00	47.66	80.00	20.00
13	12	Central Institute of Psychiatry, Ranchi	16.00	17.00	50.00	8.00
14&15	13	All India Institute of Speech & Hearing Mysore and Pilot Project	8.00	15.21	30.00	7.00
16&17	14	All India Institute of Physical Medicine & Rehabilitation, Mumbai and Pilot Project	15.00	6.71	20.00	2.70
18	15	Health Sector Disaster preparedness and Management	3.00	3.00	30.00	6.00
19	16	Safdarjung Hospital, New Delhi	103.00	96.36	230.00	65.00
20	17	Dr. R.M.L. Hospital, New Delhi	45.00	70.07	150.00	25.00
21	18	Institute for Human Behaviour & Allied Sciences, Shahdara, Delhi	10.00	3.00	7.00	1.00
					597.00	134.70
Medical Education, Training & Research:						
(a) Medical Education:						
22-25	19	All India Institute of Medical Sciences & Its Allied Departments, New Delhi and 3 Pilot Projects	340.00	382.47	675.00	105.00
26	20	P.G.I.M.E.R., Chandigarh	175.00	162.00	200.00	25.00
27	21	J.I.P.M.E.R., Pondicherry	70.00	52.05	150.00	15.00
28	22	Lady Harding Medical College & Smt. S.K. Hospital, New Delhi	65.00	30.59	200.00	10.00
29	23	Kalawati Saran Childrens Hospital, New Delhi	56.00	49.92	140.00	6.00
30	24	Indira Gandhi Institute of Health & Medical Sciences for North East Region at Shilong.	85.00	59.50	380.00	60.00
31	25	Kasturba Health Society, Wardha	25.00	38.28	50.00	10.00
32	26	V.P. Chest Institute, Delhi	5.00	11.28	23.00	8.00
33&34	27	All India Institute of Hygiene & Public Health, Calcutta and Pilot Project	15.00	6.82	20.00	3.00
35	28	Serologist & Chemical Examiner to the Government of India, Calcutta	1.25	1.23	2.50	0.50
36	29	National Medical Library, New Delhi	15.00	25.12	35.00	8.00
37	30	National Academy of Medical Sciences, New Delhi	1.60	1.55	2.50	0.50
38	31	National Board of Examinations, New Delhi	0.50	0.77	1.00	0.20
39	32	Medical Council of India, New Delhi	3.90	2.78	5.00	1.00
40	33	Education Commission of Health Sciences	2.00	0.00	10.00	5.00
41	34	N.I.M.H.A.N.S., Bangalore	60.00	80.40	120.00	24.00

IX Plan	X Plan	Name of the Schemes / Institution	9th Plan Allocation	9th Plan Anticipated Expenditure	10th Plan Allocation Agreed by PC	2002-03 Outlay
(b) Nursing Education:						
42	35	Indian Nursing Councils		0.50	2.10	0.40
43-47	36	Strengthening/adding seats to existing schools of Nursing	4.50	8.05	100.00	20.00
48	37	R.A.K. College of Nursing, New Delhi	3.50	1.53	11.00	3.00
49	38	Lady Reading Health School, New Delhi		0.25	2.00	0.30
(c) Research:						
50-55	39	Indian Council of Medical Research, New Delhi and 5 Pilot Projects	263.00	333.37	870.00	110.00
					2999.10	414.90
Other Programmes:						
56	40	National Institute of Biological, NOIDA (U.P.)	70.00	63.54	170.90	20.00
57	41	Health Education	6.00	3.97	12.60	2.20
58	42	Health Intelligence (& Health Accounts)	1.25	1.44	8.80	1.90
59	43	Port Health Authority (Including setting up of offices at 8 newly created international airport)	2.00	2.12	9.00	1.60
60	44	Strengthening of D.G.H.S.	3.99	7.87	8.00	2.00
61	45	Strengthening of (Deptt. under) Ministry			12.00	3.00
62	46	Prevention of Food Adulteration	20.00	12.63	83.00	8.00
63&64	47	Central Drug Standard & Control Orgn. and Medical Store Organisation	40.00	23.68	57.00	15.00
					361.30	53.70
NEW INITIATIVES DURING 10TH PLAN						
48	Centrally Sponsored Schemes				110.00	20.00
49	Central Sector Schemes:				11.00	0.50
					121.00	20.50
					9253.00	1550.00
SCHEMES THAT ARE EITHER TRANSFERRED OR DROPPED						
65	Rural Health Training Centre, Najafgarh		4.00	1.78		
66	Tejpur Mental Hospital					
67	Assistance to Voluntary Organisations					
	(a)	Improvement of Medical Services	10.00	1.08		
	(b)	Special Health Scheme for rural areas				
68	Continuing Education of Model Teachers		1.00	0.93		
69	Training of Medical Officers of C.H.S. Cadre		0.50	0.42		
Total			5118.19	5280.49		

CHAPTER 2.9

INDIAN SYSTEMS OF MEDICINE AND HOMOEOPATHY

INTRODUCTION

2.9.1 The umbrella term, Indian systems of medicine and homoeopathy (ISM&H), includes Ayurveda, Siddha, Unani, Homoeopathy and therapies such as Yoga and Naturopathy. Practitioners of ISM&H catered to all the health care needs of the people before modern medicine came to India in the twentieth century. Currently, there are over 680,000 registered ISM&H practitioners in the country; most of them work in the private sector. A major strength of ISM&H system is that it is accessible, acceptable and affordable.

2.9.2 India also has a vast network of governmental ISM&H healthcare institutions. There are 3,000 hospitals with over 60 beds and over 23,000 dispensaries providing primary healthcare. Over 16,000 ISM&H practitioners qualify every year from 405 ISM&H colleges. The Department of ISM&H supports four research councils and provides research grants to a number of scientific institutions and universities for conducting clinical research, ethno-botanical surveys and pharmacopoeial and pharmacognostic studies on herbal drugs and medicinal plants. Pharmacopoeial Committees constituted by the Department are finalising standards for single simple formulations and will shortly take up the task of formulating standards for compound ISM formulations.

2.9.3 Despite all these efforts, the ISM&H have not realised their full potential because:

- ☒ existing ISM&H primary, secondary and tertiary healthcare institutions lack essential staff, infrastructure, diagnostic facilities and drugs;
- ☒ the potential of ISM&H drugs and therapeutic modalities has not been fully exploited;

- ☒ lack of quality control and good manufacturing practices have resulted in the use of spurious and substandard drugs;
- ☒ the quality of training of ISM&H practitioners has been below par; many ISM&H colleges lack essential facilities, qualified teachers and hospitals for practical training; there is no system of Continuing Medical Education (CME) for periodic updating of knowledge and skills;
- ☒ the ISM&H practitioners are not involved in national disease control programmes or family welfare programme; and
- ☒ medicinal plants have been overexploited and, as a result, the cost of ISM&H drugs has increased and spurious products are getting into the market.

2.9.4 The National Health Policy (1983) visualised an important role for the ISM&H practitioners in the delivery of health services. In order to give focused attention to the development and optimal utilisation of this branch of medicine, a separate Department for ISM&H was set up in 1995. The Department is making efforts to ensure that ISM&H practitioners are brought into the mainstream so that they provide a complementary system of care along with practitioners of modern systems of medicine.

2.9.5 Globally, there has been a revival of interest in a complementary system of healthcare especially in the prevention and management of chronic lifestyle-related non-communicable diseases and diseases for which there are no effective drugs in the modern system of medicine. India is currently undergoing demographic and lifestyle transition which will result in the increasing prevalence of non-communicable diseases and lifestyle related disorders. ISM&H, especially ayurveda, yoga and naturopathy, can play an important role in the prevention and management of these disorders.

ISM&H practitioners can undertake the task of counselling and improving the coverage and continued use of drugs in national diseases control programmes and the family welfare programme. If ISM&H practitioners take up these tasks, they can enable the country to achieve the health and demographic goals set for the Tenth Plan.

Approach during the Tenth Plan

2.9.6 The approach during the Tenth Plan will be to ensure that the ISM&H system achieves its full potential in providing healthcare by:

- ☒ improving the quality of primary, secondary and tertiary care;
- ☒ mainstreaming ISM&H institutions and practitioners with modern systems of medicine so that people have access to complementary systems of care;
- ☒ strengthening ISM&H educational institutions so that students get adequate training, giving them confidence to practise their system and participate in national programmes;
- ☒ investing in continuing medical education;
- ☒ ensuring the conservation, preservation, promotion, cultivation, collection and processing of medicinal plants and herbs required to meet growing domestic demand for ISM&H drugs and the export potential;
- ☒ completing Pharmacopoeia of all the systems of ISM&H and drawing up a list of essential drugs and ensuring their availability;
- ☒ ensuring quality control of drugs and improving their availability at an affordable cost;
- ☒ investing in research and development (R&D) for the development of new drugs and formulations, and patenting them; and
- ☒ undertaking clinical trials of promising drugs by appropriately strengthening Central Research Councils and coordinating their research with other research agencies such as Indian Council of Medical Research (ICMR), Delhi.

HEALTH CARE SERVICES

2.9.7 The Ninth Plan aimed at improving the quality of primary, secondary and tertiary care in ISM&H, with the Departments of ISM&H in the centre and the states taking up several initiatives to improve the quality and coverage of these services at each level.

Primary Health Care

2.9.8 ISM&H practitioners provide primary healthcare to vulnerable sections of the population especially those living in urban slums and remote areas. Details of the number of ISM&H hospitals and dispensaries (as on 1 April 1999) is given in Annexure 2.9.1. In some states like West Bengal and Gujarat, ISM&H practitioners alone are posted in primary health centres (PHCs) in some remote rural and tribal areas. In Kerala, ISM&H practitioners provide a complementary system of care in the PHCs. It is important to ensure that the ISM&H dispensaries and hospitals are linked with PHC/urban health care centres so that they can have ready access to diagnostic and other facilities available in these institutions and, at the same time, patients can choose the system for treatment.

Secondary Health Care

2.9.9 A majority of existing ISM&H secondary hospitals function as separate institutions and do

Infrastructure

Vast infrastructure has been created:

☒ Hospitals	3005
☒ Beds	60,681
☒ Dispensaries	23,028

Problems

- ☒ No organised referral system.
- ☒ They provide healthcare only to those who come to them.
- ☒ Each centre is isolated; they are not linked with other institutions in the area.
- ☒ No linkage with existing modern system hospitals – hence they are unable to function optimally as a complementary system or utilise the diagnostic facilities available.

not have linkages with either primary ISM&H healthcare institutions or with secondary healthcare institutions in the modern system of medicine. Very often these institutions lack adequate diagnostic facilities, infrastructure and manpower. The Ninth Plan had envisaged initiation of a pilot project to test the feasibility and usefulness of posting ISM&H practitioners in district hospitals. Some states did attempt to provide ISM&H clinics in district hospitals but the experience in this area has been limited.

Tertiary Health Care

2.9.10 All ISM&H colleges, private as well as public, have attached tertiary care hospitals. In addition, there are tertiary care and/or speciality centres attached to national institutes. Private/voluntary sector institutions also provide tertiary care in ISM&H. During the Ninth Plan, the Department of ISM&H provided funds to strengthen many of these institutions. One Unani speciality clinic was established in the Ram Manohar Lohia Hospital, Delhi and one Ayurvedic and one Homoeopathic unit was established in the Safdarjung Hospital, Delhi. The Department has also provided funds for establishing speciality clinics in the National Institute of Mental Health and Allied Sciences (NIMHANS), Bangalore. These clinics are reported to have very good attendance.

2.9.11 During the Tenth Plan, a major thrust will be given to mainstream the ISM&H system and utilise ISM&H practitioners by:

- ☒ ensuring that ISM&H clinics are located in the primary, secondary and tertiary care institutions in modern medicine and financing ISM&H care through funds provided for these institutions;
- ☒ focusing on the use of ISM&H therapeutic modalities for diseases for which the modern system does not have effective drugs free of serious side effects and prevention and management of lifestyle-related chronic diseases;
- ☒ increasing the utilisation of ISM&H practitioners working in government, voluntary and private sectors to improve information, education and communication (IEC) and counselling to improve utilisation of services under national

disease control and family welfare programmes;

- ☒ strengthening tertiary care institutions, especially those attached to ISM&H colleges and national institutions, in order to improve patient care, teaching, training, R&D;
- ☒ establishing effective referral linkages between primary, secondary and tertiary care institutions;
- ☒ monitoring how patients are responding to the efforts in providing complementary system of healthcare in these hospitals; and
- ☒ assessing the pros and cons of providing complementary system of healthcare and effecting mid-course corrections.

Development of Human Resources for ISM&H

Table 2.9.1 - Medical Education in ISM&H

System	Colleges	
	Undergraduate	Postgraduate
Ayurveda	198	53
Unani	39	5
Siddha	2	2
Homoeopathy	166	17
Total	405	77
Admission capacity	16,845	821

Source: Department of ISM & H, 2001

2.9.12 There has been a progressive increase in the number of practitioners graduating from ISM&H educational institutions during the last five decades. Currently there are 405 under graduate and 77 post graduate colleges in ISM&H (Table 2.9.1). But the quality of training these colleges impart is poor. A recent inspection of 160 colleges showed that:

- ☒ 44 per cent of them lack the required number of departments;
- ☒ 89 per cent do not have the requisite number of teachers;
- ☒ 52 per cent lack required hospital beds;
- ☒ 79 per cent have less than 60 per cent bed occupancy;

Current Problems in Medical Education

- ☒ Students join ISM&H institutions through a common entrance examination; those who do not get admission in modern system of medicine opt for ISM&H colleges.
- ☒ The quality of teachers is poor and teaching aids are in short supply.
- ☒ Morale of ISM&H teachers and students is low.
- ☒ Present ISM&H syllabus and curriculum are inadequate. As a result, graduates do not have the knowledge, skills and confidence to practice ISM&H therapy.

- ☒ 91 per cent do not have adequate diagnostic equipment; and
- ☒ 52 per cent of all colleges have a student/bed ratio, which is higher than the prescribed ratio of 1:3.

2.9.13 While a lot of time is spent on teaching anatomy, physiology and bio-chemistry, not enough attention is paid to train the students to use ISM&H diagnostic and therapeutic modalities. As a result, these students lack confidence, knowledge and skills in using ISM&H therapeutic modalities and tend to practise the modern system of medicine in which they are not trained. Patients, therefore, do not get the benefit of ISM&H therapy in spite of accessing ISM&H practitioners.

2.9.14 During the Tenth Plan, states would be encouraged to:

- ☒ introduce an entrance examination for ISM&H undergraduate courses with appropriate eligibility criteria to identify the potential and interest of students;
- ☒ ensure uniformity in the admission system in undergraduate and postgraduate courses;
- ☒ reorient the syllabus keeping in mind the potential for employment in industry and ISM&H services being offered through speciality clinics;
- ☒ strengthen existing national centres of excellence in collaboration with the Department of ISM&H;
- ☒ strengthen and mainstream at least one college for each system as a model of undergraduate/

postgraduate college in each of the major states; and

- ☒ operationalise an appropriate and transparent accreditation system for educational institutes through Councils of ISM&H.

Quality Assurance in Education in ISM&H

2.9.15 The Indian Medicines Central Council Act, 1970 was enacted for the constitution of a Central Council of Indian Medicines, maintenance of a central register of Ayurveda, Siddha and Unani and related matters. The Central Council of Indian Medicine (CCIM) and the Central Council of Homoeopathy (CCH), constituted in 1970 and 1973 respectively, are responsible for :

- ☒ laying down and maintaining uniform standards of education for ISM&H courses, prescribing standards of professional conduct, etiquette and code of ethics for practitioners and
- ☒ advising the central government on matters relating to the recognition of appropriate qualifications of ISM&H.

They also work in coordination with state-level board/council to maintain standards in ISM&H medical institutions. In addition, they maintain central registers for Indian systems of medicine and homoeopathy respectively.

2.9.16 A review of the functioning of the Councils by the Department of ISM&H showed that the monitoring procedures and schedules are not adequate. The recommendations of the CCIM and CCH are often not acted upon. There is no legal framework and, consequently, no institutional mechanism available to lay down and enforce standards relating to yoga and naturopathy. The standards of education in these two disciplines are, therefore, poor.

2.9.17 A large number of colleges are being opened predominantly in the private sector, after obtaining permission from state governments and getting affiliated to universities. Between 1995 and 2000, the CCIM permitted setting up of 73 ayurveda colleges, 11 homoeopathy colleges and three siddha colleges. This mushrooming of colleges has adversely affected the quality of ISM&H education. The problem was discussed in the Central Council

for Health and Family Welfare 1997 and at the first conference of State Health Ministers in ISM&H in 1997. It was recommended that suitable amendments be made to the Indian Medicines Central Council Act, 1970 and the Homoeopathy Central Council Act, 1973 to ensure that new colleges comply with the prescribed guidelines.

2.9.18 During the Tenth Plan, every effort will be made to reduce the proliferation of substandard medical colleges and check the deterioration in standards of teaching. Simultaneously, the Department of ISM&H will take steps to ensure that the statutory councils perform the role assigned to them. Periodic inspection of all established ISM&H colleges is necessary to ensure that only those colleges which have the necessary infrastructure, manpower and facilities are allowed to continue operating. This is, undoubtedly, a difficult task but is necessary to improve the standards of ISM&H education.

Paraprofessionals in ISM&H

2.9.19 Currently there are no arrangements for providing a degree or diploma in IS&M pharmacy nor is it included as one of the options in the general pharmacist course. Similarly, there is no training for nursing in ISM&H. During the Tenth Plan these two matters will be taken up, so that ISM&H practitioners have the necessary support staff.

National Institutes in ISM&H

2.9.20 The Department of ISM&H has set up national institutes in each of the major disciplines which are meant to act as centres of

National Institutes Funded by the Central Government	
<input checked="" type="checkbox"/>	National Institute of Ayurveda, Jaipur
<input checked="" type="checkbox"/>	National Institute of Unani Medicine, Bangalore*
<input checked="" type="checkbox"/>	National Institute of Homoeopathy, Calcutta
<input checked="" type="checkbox"/>	National Institute of Naturopathy, Pune
<input checked="" type="checkbox"/>	Morarji Desai National Institute of Yoga, New Delhi
<input checked="" type="checkbox"/>	National Institute of Siddha, Chennai*
<input checked="" type="checkbox"/>	Rashtriya Ayurveda Vidyapeeth, New Delhi

* being established

excellence providing high quality patient care, teaching and research. While some of these institutes are well established and are functioning effectively, many are in the initial stages of operationalisation. During the Tenth Plan, these centres will play a pivotal role in improving teaching, training, patient care and research standards.

Continuing Medical Education (CME) in ISM&H

2.9.21 Most of the Registered Practitioners of ISM&H (Table 2.9.2), are in the private sector; there is a need to periodically update their knowledge and

Table 2.9.2 - Registered Medical Practitioners in ISM&H

Ayurveda	4,27,504
Unani	42,445
Siddha	16,599
Naturopathy	429
Homoeopathy	1,94,147
TOTAL	6,81,124

Source: Department of ISM&H, 2001

skills through continuing medical education. During the Ninth Plan period, the Department of ISM&H started a scheme for re-orientation and in-service training. The scheme offered one month's course for teachers and physicians and a two months' course for ISM&H practitioners in specialised fields like *ksharasutra*, *panchakarma therapy*, dental practices and in yoga. The response to this course has been poor because most practitioners felt that they cannot leave their practice for an extended period.

2.9.22 During the Tenth Plan, a major effort will be made to provide all registered ISM&H practitioners with updated information about advances in their respective systems. Government-employed ISM&H practitioners will be the first to get the benefit of this in-service training. The training material will be produced by the national institutes and the state ISM&H colleges with the help of experts. Optimal use will be made of advances in information technology to improve the outreach of the CME programme so that it does not disrupt their

practice. Attempts will also be made to increase the involvement of ISM&H practitioners in counselling and improving the utilisation of services under the national health and family welfare programmes during the Plan period. The ISM&H practitioners will play an important role in:

- ☒ health education;
- ☒ drug distribution for national programmes;
- ☒ motivation and counselling in family welfare programmes;
- ☒ acting as depot holders for selected items such as condoms and oral rehydration therapy (ORT) packages;
- ☒ motivation for immunisation; and
- ☒ improvement in environmental sanitation through community efforts.

Preservation, Promotion and Cultivation of Medicinal Plants and Herbs

2.9.23 Over the last two decades there has been a steady increase in the demand for drugs used in ISM&H. However, the demand for good quality medicinal plants and herbs have not been met. The prices of several plants have increased sharply, making them unaffordable and some species of medicinal plants are also reported to be endangered because of increasing pressure on forests.

2.9.24 The Planning Commission had constituted a Task Force on the Conservation, Cultivation,

Medicinal Plants

Current Problems

- ☒ The demand for medicinal plants is growing; the trade in medicinal plants is secretive and exploitative.
- ☒ The profit motive is leading to unsustainable practices being employed. As a result, plant species are in danger of extinction.
- ☒ Quality of ingredients is poor, leading to poor quality of drugs.
- ☒ Cultivation has not been encouraged and most plants are uprooted from the wild.

Sustainable Use and Legal Protection of Medicinal Plants. The Task Force recommended:

- ☒ establishment of medicinal plants conservation areas (MPCA), covering all ecosystems, forest types and sub types;
- ☒ ex-situ conservation of rare, endangered medicinal plants may be tried out in established gardens managed by the Departments of Agriculture, Horticulture or Forests;
- ☒ gene banks created by the Department of Biotechnology should store the germplasm of all medicinal plants;
- ☒ establishment of 'Vanaspati vans' in degraded forest areas;
- ☒ forest areas rich in medicinal plants should be identified, management plans formulated and sustainable harvesting encouraged under the Joint Forest Management System;
- ☒ technically qualified NGOs must be encouraged to take up the task of improving awareness and increasing availability of plant stock and involved in the promotion of agro-techniques for cultivation of medicinal plants;
- ☒ screening/testing/clinical evaluation of herbal products to be taken up and completed;
- ☒ drug testing laboratories for ISM&H products should be established with qualified staff;
- ☒ establishment of a Traditional Knowledge Digital Library so that information on medicinal plants and their use in the country could be accessed readily; and
- ☒ establishment of a Medicinal Plant Board for integrated development of the medicinal plants.

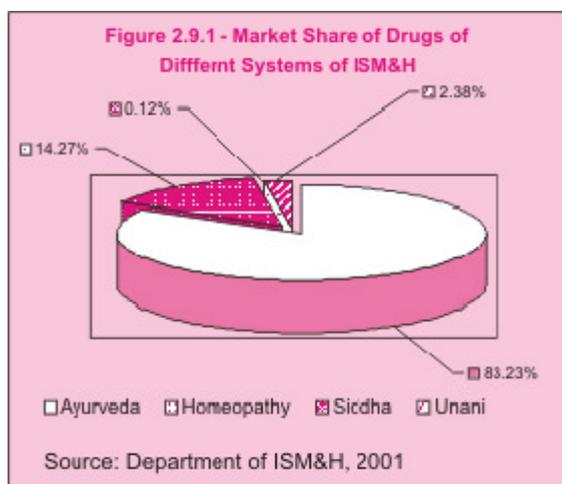
2.9.25 Many of the recommendations of the Task Force have been implemented. The Medicinal Plant Board has been established in the Department of ISM&H to look after all multi-sectoral issues relating to the development of medicinal plants. The Board is expected to formalise and organise the marketing of and trade in medicinal plants, coordinate efforts of all stakeholders in the sector and improve their awareness and availability of herbal products. Twelve state governments have established State Medicinal Plant Boards. The Ministries of Health and Family Welfare, Environment and Forest, Rural Development and Agriculture are promoting the

cultivation of medicinal plants. Agro-techniques are being standardised for 28 plants identified for fast track cultivation. States have been requested to introduce measures to register cultivators and traders dealing with medicinal plants and to make the Forest Development Corporation the conduit for supply of medicinal plants to industry. The proposals to encourage R&D, support gene banks and support industry for the identification of export markets and market segmentation are under consideration.

2.9.26 The Department of ISM&H has initiated a scheme on a Traditional Knowledge Digital Library. Around 35,000 formulations described in 14 ancient texts relating to ayurveda have been entered in this library and can be accessed by all. This step will help ready access to traditional practices and prevent outsiders taking patents on them. The Department has established a Patent Cell to keep track of patents concerning ayurveda, siddha and unani drugs being filed in India and abroad. The cell will also provide professional and financial assistance to government and private ISM&H scientists for filing of patents. An Expert Group has been constituted for advising the Department with regard to patenting issues.

ISM&H Industry

2.9.27 The global market in herbal products in alternative systems of medicine is estimated to be \$62 billion. India's share in this is very meagre. Even within the country the share of ISM&H products is only a modest Rs. 4,200 crore ; Ayurvedic drugs and formulations account for over 80% of the products (Figure 2.9.1).



2.9.28 A survey of the current status of the ISM&H industry undertaken by the Department of ISM&H showed that it is divided into the large, medium, small and very small-scale sectors (Table 2.9.3).

Table 2.9.3 - ISM&H Industry in India

☒	Rs.4, 200 crore industry (ayurveda accounts for Rs. 3,500 crore)	
☒	7,000 manufacturers of ayurvedic products	
↔	Large (> Rs. 50 crore)	10
↔	Medium (Rs. 5-10 crore)	25
↔	Small (Rs. 1-5 crore)	965
↔	Very Small (<Rs. 1 crore)	6,000

Source : Deptt of ISM&H 2001

The small-scale sector is not pursuing good manufacturing practices. Patent proprietary medicines are being introduced through wide-scale licensing without checking their efficacy or quality. These medicines have become expensive. A number of products claiming to be ayurvedic medicines use large quantities of synthetic ingredients as excipients. Classical and *shastra* preparations are not getting due importance.

2.9.29 The Department has taken several steps to ensure good manufacturing practices and quality control of drugs so that there is increasing confidence in ISM&H drugs and formulations, as a result of which their market will expand both within the country and abroad.

Quality Control of Drugs

2.9.30 There are a large number of ISM&H pharmacies in the country (Table 2.9.4) and many of them, especially smaller ones, do not adopt good

Table 2.9.4 - Licensed Pharmacies in India

☒	Ayurveda	8,533
☒	Unani	462
☒	Siddha	385
☒	Homoeopathy	613
☒	Total	9,992

Source : Department of ISM&H, 2001

manufacturing practices. The Department of ISM&H has finalised and notified good manufacturing practices for ayurveda, siddha and unani drugs over the last two years.

2.9.31 Setting up pharmacopoeial standards and strengthening of the drug control laboratories has been identified as a priority in the Ninth Plan. The Pharmacopoeial Laboratory of Indian System of Medicine (PLIM) and Homoeopathic Pharmacopoeial Laboratory (HPL) at Ghaziabad are the major ISM&H drug testing laboratories. However,

Central Government's efforts to strengthen drug quality control

- ☒ Pharmacopoeial Laboratory for Indian Medicines, Ghaziabad and Homoeopathy Pharmacopoeial Laboratory, Ghaziabad are being strengthened.
- ☒ Appellate laboratories for drug testing and quality control are being identified.
- ☒ Preparation of drug formularies and Pharmacopoeias for ayurveda, siddha, unani and homoeopathy drugs are proceeding rapidly.
- ☒ The Department of ISM&H is assessing and training ISM&H drug industry personnel and drug inspecting staff in standardisation and quality control.

ensuring quality control is still a major problem because of lack of adequate number of ISM&H testing laboratories. In order to address this problem, the Department has initiated a centrally-sponsored programme for strengthening of state drug testing laboratories and for improving good manufacturing practices in ISM&H pharmacies. However, complaints of poor quality of ingredients or adulteration and substitution of components used for preparation of ISM&H drugs and lack of confidence in the safety, efficacy and quality of the drugs persists. Testing of complex ISM&H drugs is difficult. Drug testing laboratories at the state level are either inadequate or non-existent. state governments are not enforcing the standards laid down by appropriate licensing and quality control measures.

2.9.32 During the Tenth Plan every effort will be made to improve the quality control of drugs used in ISM&H by:

- ☒ completing all pharmacopoeial work by 2004;
- ☒ modernising state ISM&H pharmacies;
- ☒ motivating these pharmacies and the ISM&H industry to adopt good manufacturing practices;
- ☒ strengthening the central and state quality control laboratories, and exploring the feasibility of utilising laboratories of the Central Council for Research in Ayurveda and Siddha (CCRAS), and chemistry and biochemistry laboratories of universities/college departments, as well as existing drug testing laboratories in the modern system of medicine, for testing and quality control of ISM&H drugs;
- ☒ implementing stringent drug quality control and strictly enforcing the provisions of the Drugs and Cosmetics Act (1940) and the Magic Remedies Prevention Act, 1954; and
- ☒ monitoring work relating to testing of survey samples and statutory samples of ISM&H drugs.

Neutraceuticals and Food Supplementation Products

2.9.33 Food supplements, cosmetics and toiletries and neutraceuticals are flooding the Indian market. It has been reported that they have export potential. These products contain not only plant-based materials, exotic plant ingredients but also synthetic chemicals. As these products do not come under the category of either modern system or ISM&H drugs, they are not governed either by the Drugs and Cosmetic Act or the Prevention of Food Adulteration Act (1986), they enter the market without any quality control. It is important that these products are brought under the purview of Drugs and Cosmetic Act or the Prevention of Food Adulteration Act through suitable amendments of these acts and compliance with the Act is monitored carefully.

Medical Tourism

2.9.34 There has been a resurgence of interest in traditional medicine in India and abroad, leading to an increased demand for specialised treatment available in ISM&H. A number of tourists are visiting Kerala for *panchakarma* treatment for rejuvenation, and for treatment of neuro-muscular and orthopaedic disorders. Himachal Pradesh has initiated a scheme on health tourism by offering *panchakarma* in good hotels. During the Tenth Plan, opportunities in this area will be explored and catered to. At the same time appropriate transparent quality and cost of care norms will be set up and monitored to prevent exploitation of the clients.

Research and Development

2.9.35 There are four research councils in ISM&H: the CCRAS, the Central Council for Research in Unani Medicines (CCRUM), the Central Council for Research in Yoga and Naturopathy (CCRYN) and the Central Council for Research in Homoeopathy (CCRH). These councils are the apex bodies for research in the various systems of medicine and are fully financed by the Government of India. They initiate, guide, develop and coordinate, basic and applied research, medico-botanical surveys, research on cultivation of medicinal plants and

pharmacognostical studies. These councils also conduct research programmes aimed at drug standardisation and clinical trials of new ISM&H drugs.

2.9.36 During the Tenth Plan the following measures will be taken to improve R&D:

- ☒ priority will be accorded for bio-medical research pertaining to drug development in specific areas where strength of ISM has already been established;
- ☒ importance will be given to research on the fundamental principles of ISM&H;
- ☒ emphasis will be laid on research in the preventive and promotive aspects of ISM especially lifestyle-related disorders;
- ☒ medico-historical investigations of ISM&H will be continued; and
- ☒ promising and widely accepted practices and skills of traditional healers in rural and tribal areas will be identified and evaluated.

Zero Based Budgeting

2.9.37 The Planning Commission had directed all central ministries/departments to review the ongoing schemes using the zero-based budgeting methodology and to ascertain which of the ongoing schemes require continuation in the Tenth Plan. The Department of ISM&H also went through this exercise.

2.9.38 Since the Department started functioning only in 1995, most of the schemes had been initiated during the Ninth Plan. A majority of them relate to strengthening essential central institutions in medical education, healthcare, drug quality and research. All these schemes will therefore, continue. It was found that there were a large number of small schemes and these were merged into broad programmes. Some of the centrally sponsored schemes had been misclassified as central sector schemes and this error was corrected (Table 2.9.5). The outlays and expenditure under each of these during the Ninth Plan is summarised in Annexure 2.9.2.

Some of the major problems in R&D in ISM&H include:

- ☒ ISM&H practitioners and researchers need training in research methodology.
- ☒ in spite of growing interest in Indian health systems, alternate and complementary medicine, none of the research done by research councils, industry and academic institutions has been published in scientific journals of national and international repute.
- ☒ research has not concentrated on areas where ISM&H has unique advantages such as prevention and management of lifestyle-related diseases, and diseases for which drugs are not available in the modern system;
- ☒ research work is not carried out in collaboration with modern hospitals where abundant clinical material is available.

Table 2.9.5 – Summary of Zero Based Budgeting Exercise – 2001

Scheme	Centrally Sponsored Schemes		Ninth Plan – Sum of yearly outlays (Rs. Lakh)
	No. of schemes	Ninth Plan outlay (Rs. Lakh)	
Schemes to be retained	1	51	51
Schemes to be merged	3/8	5,992	8,047
Schemes to be weeded out	1	0	410
Total	4/10	6,043	8,508
Central Sector Schemes			
Schemes to be retained	1	480	680
Schemes to be merged	8/34	20,112	27,465
Total	9/35	20,592	28,145

PATH AHEAD AND GOALS SET

2.9.39 During the Tenth Plan the following areas will receive a major thrust :

- ☒ mainstreaming the ISM&H system;
- ☒ utilisation of the services of the ISM&H practitioners for improving access to health care and coverage under national programmes;
- ☒ improvement in quality of under graduate, postgraduate education and continuing medical education of all practitioners, so that there is improvement in the quality of care provided by ISM&H practitioners;
- ☒ monitoring the quality and cost of care at all levels of health care;
- ☒ promotion of health tourism especially for prevention and management of lifestyle related disorders;

- ☒ implementation of the recommendations of the Planning Commission's Task Force on the Preservation, Promotion and Cultivation of Medicinal Plants and Herbs;
- ☒ enforcement of stringent drug quality control measures and good manufacturing practices for ISM&H drugs and formulations;
- ☒ improving the availability of good quality ISM&H drugs at affordable prices within the country;
- ☒ realising fully the export potential for ISM&H drugs and formulations.

Successful implementation of the above initiatives will enable ISM&H system to get its due share in providing health care for the population, improve quality and access to health care and enable the country to achieve the goals set in the National Population Policy (2000) and National Health Policy (2002). The schemewise outlays for the Department of ISM&H is indicated in Annexure 2.9.2 and Appendix.

HOSPITALS AND DISPENSARIES UNDER INDIAN SYSTEMS OF MEDICINE AND HOMOEOPATHY

Sl. No.	Name of States/UTs	AYURVEDA			UNANI			HOMOEOPATHY			OTHERS		
		Dispensaries	Hospitals	Beds	Dispensaries	Hospitals	Beds	Dispensaries	Hospitals	Beds	Dispensaries	Hospitals	Beds
1.	ANDHRA PRADESH	1437	8	444	207	7	390	286	6	280	0	1	135
2.	ARUNCHAL PRADESH	4	1	15	1	-	-	41	-	-	0	0	0
3.	ASSAM#	329	2	130	1	-	-	75	3	105	4	1	25
4.	BIHAR#	522	9	871	128	4	414	181	1	100	0	0	0
5.	DELHI#	122	9	771	19	4	311	95	3	190	0	1*	50
6.	GOA	59	6	245	-	-	-	56	-	-	0	0	0
7.	GUJARAT	539	45	1745	-	-	-	34	9	730	10	1	1
8.	HARYANA	414	6	840	20	1	10	20	-	-	0	0	0
9.	HIMACHAL PRADESH	1064	16	330	3	-	-	14	-	-	0	2	25
10.	J & K#	247	1	25	171	2	200	2	-	-	25	1	10
11.	KARNA TAKA	561	124	6132	45	11	202	25	25	1480	11	18	586
12.	KERALA	759#	109	2561#	1#	-	-	2754	72	1440	9#	1#	30
13.	MADHYA PRADESH	2105	34	1160	56	1	60	202	12	590	0	0	0
14.	MAHARA -SHTRA#	463	73	11713	23	10	1400	-	77	5505	0	0	0
15.	MANIPUR	-	-	-	-	-	-	9	1	10	1	2	65
16.	MEGHALAYA	-	-	-	-	-	-	5	-	-	0	0	0
17.	MIZORAM	1	-	-	-	-	-	1	-	-	0	0	0
18.	NAGALAND	-	-	-	-	-	-	2	-	-	0	0	0
19.	ORISSA	527	8	323	9	-	-	503	5	150	65	0	0
20.	PUNJAB#	489	11	771	35	-	-	105	6	185	0	0	0
21.	RAJASTHAN	3486	90	1179	79	5	270	121	5	160	3	2	22
22.	SIKKIM	-	-	-	-	-	-	1	-	-	1	0	0
23.	TAMILNADU	10	4	267	6	1	54	41	3	150	339	221	1716
24.	TRIPURA	30	1	10	-	-	-	66	1	20	0	0	0
25.	UTTAR PRADESH#	713#	1671	9911	148#	136	1186	1378	36	399\$	0	0	0
26.	WEST BENGAL#	254	3	215	-	2	110	899	14	682	0	0	0
27.	A & N ISLANDS	-	-	-	-	-	-	7	-	-	0	0	0
28.	CHANDIGARH#	5	1	150	-	-	-	4	1	25	0	1	10
29.	D & N HAVELI	1	1	-@	-	-	-	1	1	-@	0	0	0
30.	DAMAN & DIU	1	1	5	-	-	-	-	-	-	0	0	0
31.	LAKSHADWEEP	4	-	-	-	-	-	2	-	-	0	0	0
32.	PONDICHERRY	12	-	-	-	-	-	1	-	-	8	0	0
33.	CGHS	31	1	25	9	-	-	34	-	-	5	0	0
34.	CENTRAL RESEARCH COUNCILS	32	20	475	8	12	265	41	5	105	4	2	85
35.	M/O RAILWAY	38	-	-	-	-	-	124	-	-	0	0	0
36.	M/O LABOUR	129	-	-	1	-	-	25	-	-	2	0	0
37.	M/O COAL	28	-	-	-	-	-	-	-	-	0	0	0
	TOTAL	14416	2258	40313	970	196	4872	7155	297	12836	487	254	2660

Source : Department of ISM&H, 1999

Note : Institutions Functional as on 1.4.1999; - = Nil Information

= Information for the current year has not been received. Hence repeated for the latest available year. * = Information regarding Yoga Hospitals in Delhi is under clarification. \$ = Figures as on 1.4.98 @ = No. of beds reported nil is under clarification.

Figures are provisional

TENTH PLAN OUTLAYS - DEPARTMENT OF ISM&H

(Rs. In Lakhs)

		9th Plan			10th Plan	2002-03
		Ninth Plan Outlay	Sum of Year- wise Outlay	Anticipated Expenditure	Outlay	Outlay
Centrally sponsored schemes						
1	Development of Institutions	2920.00	4020.00	4279.48	11750.00	1950.00
2	Hospitals and dispensaries	490.00	402.00	73.72	4900.00	750.00
3	Information, Education and Communication (IEC)	51.00	51.00	0.00	1200.00	300.00
4	Drugs Quality Control	2582.00	3700.00	3146.55	4540.00	875.00
Central Sector						
1	Strengthening of Deptt. of ISM&H	1650.00	2129.00	1964.61	2250.00	515.00
2	Educational Institutions	5282.00	6693.00	4990.65	11650.00	2615.00
3	Statutory Institutions	176.00	169.00	147.00	265.00	15.00
4	Research Councils (intra and extra mural research)	8391.00	10777.00	10661.94	13600.00	2520.00
5	Hospitals and dispensaries	71.00	292.00	314.80	2244.00	276.00
6	Medicinal Plants	1765.00	3420.00	2215.56	10700.00	2516.00
7	Strengthening of Pharmacopoeial Laboratories	1082.00	1150.00	365.50	2650.00	567.00
8	Information, Education and Communication (IEC)	480.00	680.00	839.28	1700.00	300.00
9	Other Programmes and Schemes	1595.00	2960.00	226.52	8550.00	1801.00
10	New Initiatives during the 10th plan				1501.00	
Grand Total		26635.00	36443.00	29225.61	77500.00	15000.00

CHAPTER 2.10

FAMILY WELFARE

Introduction

2.10.1 India is the second most populous country in the world, sustaining 16.7 per cent of the world population on 2.4 per cent of the world's surface area. Realising that high population growth is inevitable during the initial phases of demographic transition and the urgent need to accelerate the pace of the transition, India became the first country to formulate a National Family Planning Programme in 1952. The objective of the policy was "reducing birth rate to the extent necessary to stabilise the population at a level consistent with requirement of national economy". The First Five-Year Plan stated that "the main appeal for family planning is based on considerations of health and welfare of the family. Family limitation or spacing of children is necessary and desirable in order to secure better health for the mother and better care and upbringing of children. Measures directed to this end should, therefore, form part of the public health programme". This statement preceded the International Conference on Population and Development (ICPD) 1994 by four decades.

2.10.2 The focus of India's health services right from the early 1950s has been health care for women and children and provision of contraceptive services. Successive Five- Year Plans have been providing the policy framework and funding for the planned development of nation wide health care infrastructure and manpower. The centrally sponsored and 100 per cent centrally funded Family Welfare Programme provides the states the additional infrastructure, manpower and consumables needed for improving the health status of women and children and to meet all the felt needs for fertility regulation.

2.10.3 Technological advances and the improved quality and coverage of health care resulted in a rapid fall in the crude death rate (CDR) from 25.1 in 1951 to 9.8 in 1991. In contrast, the reduction in crude birth rate (CBR) has been less steep, declining from 40.8 in 1951 to 29.5 in 1991. As a result, the annual exponential population growth rate has been over 2 per cent in the 1971-1991 period. The pace of demographic transition in India has been relatively slow but steady. The 1991 Census

The NDC Sub-Committee on Population recommended that there should be a paradigm shift in the Family Welfare Programme and the focus should be on:

- ☒ Decentralised area-specific planning based on need assessment.
- ☒ Emphasis on improved access and quality of services to women and children.
- ☒ Providing special assistance to poorly performing states/districts to minimise the differences in performance.
- ☒ Creation of district-level databases on quality, coverage and impact indicators for monitoring the programme.

The International Conference on Population and Development (ICPD) at Cairo in 1994 advocated a similar approach.

A convergence between national (NDC Sub-Committee) and international (ICPD) efforts improved funding of Family Welfare Programme during the Ninth Plan period.

showed that the population growth rate fell below 2 per cent after three decades. In order to give a new thrust to efforts to achieve a more rapid decline in birth rate, death rate and population growth rate, the National Development Council (NDC) set up a Sub-Committee on Population (1992) and endorsed its recommendations in 1993.

2.10.4 During the Ninth Plan period, the Department of Family Welfare implemented the recommendations of the NDC Sub Committee. Centrally-defined method specific targets for family planning were abolished. The emphasis shifted to decentralised planning at the district level, based on assessment of community needs and implementation of programmes aimed at fulfilment of these needs. State specific goals for process and impact parameters for maternal and child health and contraceptive care were worked out and used for monitoring progress. Efforts were made to improve the quality and content of services through training to upgrade skills for all personnel and building up a referral network. A massive pulse polio campaign was taken up to eliminate polio. The Department of Family Welfare set up a consultative committee to suggest appropriate restructuring of infrastructure funded by the states and the centre and revise norms for re-imburement by the centre and has started implementing the recommendations of the Committee. Monitoring and evaluation has become a part of the programme and the data is used for mid-course corrections. The Department has drawn up the National Population Policy 2000(NPP 2000), which aims at achieving replacement level of fertility by 2010. A National Commission on Population was constituted in May 2000, in line with the recommendations of the NPP 2000.

2.10.5 Currently some of the major areas of concern include:

- ☒ the massive inter-state differences in fertility and mortality; fertility and mortality rates are high in the most populous states, where nearly half the country's population lives;
- ☒ gaps in infrastructure, manpower and equipment and mismatch between infrastructure and manpower in primary health centres (PHCs)/

community health centres (CHCs); lack of referral services;

- ☒ slow decline in mortality during the 1990s; the goals set for mortality and fertility in the Ninth Plan will not be achieved;
- ☒ there has been no decline in the maternal mortality ratios over the last three decades, while neonatal and infant mortality rates have plateaued during the 1990s;
- ☒ the routine service coverage has declined, perhaps because of the emphasis on campaign mode operations for individual components of the programme;
- ☒ in spite of the emphasis on training to improve skills for the delivery of integrated reproductive and child health (RCH) services, the progress in in-service training has been very slow and the anticipated improvement in the content and quality of care has not taken place;
- ☒ evaluation studies have shown that the coverage under immunisation is not universal even in the best performing states while coverage rates are very low in states like Bihar; elimination of polio is yet to be achieved;
- ☒ the logistics of drug supply has improved in some states but remains poor in populous states;
- ☒ decentralised district-based planning, monitoring and mid-course correction utilising the locally generated service data and Civil Registration has not yet been operationalised.

Approach during the Tenth Plan

3.10.6 During the Tenth Plan, the paradigm shift, which began in the Ninth Plan, will be fully operationalised. The shift was from:

- ☒ demographic targets to *focussing on enabling couples to achieve their reproductive goals*;
- ☒ method specific contraceptive targets to *meeting all the unmet needs for contraception to reduce unwanted pregnancies*;
- ☒ numerous vertical programmes for family planning and maternal and child health to *integrated health care for women and children*;

- ☒ centrally defined targets to *community need assessment and decentralised area specific microplanning* and implementation of program for health care for women and children, to reduce infant mortality and reduce high desired fertility;
- ☒ quantitative coverage to *emphasis on quality and content of care*;
- ☒ predominantly women centred programmes to *meeting the health care needs of the family with emphasis on involvement of men in planned parenthood*;
- ☒ supply driven service delivery to *need and demand driven service; improved logistics for ensuring adequate and timely supplies to meet the needs*;
- ☒ service provision based on providers' perception to *addressing choices and conveniences of the couples*.

2.10.7 The population growth rate continues to be high due to:

- ☒ the large size of the population in the reproductive age-group (accounting for an estimated 60 per cent of the total population growth);
- ☒ higher fertility due to the unmet need for contraception (contributing to around 20 per cent of population growth); and
- ☒ high wanted fertility due to the prevailing high Infant Mortality Rate (IMR) and other socio-economic reasons (estimated contribution of about 20 per cent to population growth).

2.10.8 The Tenth Plan will fully operationalise efforts to:

- ☒ assess and meet the unmet needs for contraception;
- ☒ achieve reduction in the high desired level of fertility through programmes for reduction in IMR and maternal mortality ratio (MMR); and
- ☒ enable families to achieve their reproductive goals.

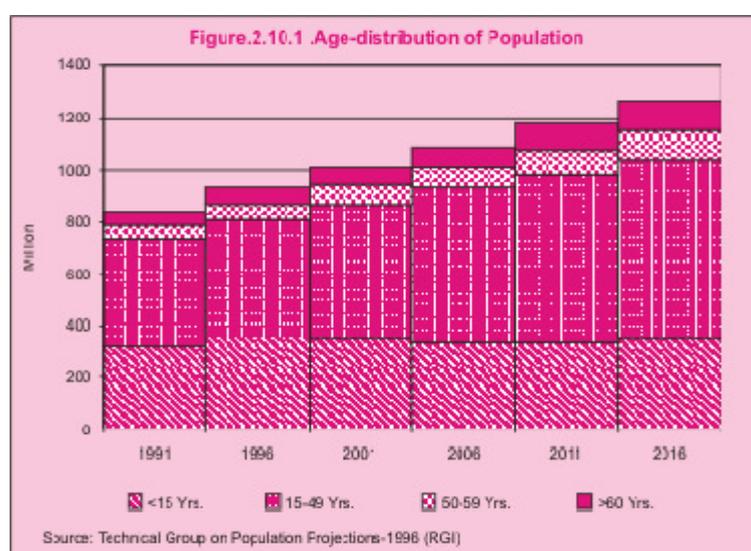
2.10.9 If the reproductive goals of families are fully met the country will be able to achieve the National Population Policy goal of replacement level of fertility by 2010. The medium and long term goals will be to continue this process to accelerate the pace of demographic transition and achieve population stabilisation by 2045. Early population stabilisation will enable the country to achieve its developmental goal of improving the economic status and quality of life of the citizens.

2.10.10 Reductions in fertility, mortality and population growth rate will be major objectives during the Tenth Plan. Three of the 11 monitorable targets for the Tenth Plan and beyond are:

- ☒ reduction in IMR to 45 per 1,000 live births by 2007 and 28 per 1,000 live births by 2012;
- ☒ reduction in maternal mortality ratio to 2 per 1,000 live births by 2007 and 1 per 1,000 live births by 2012; and
- ☒ reduction in decadal growth rate of the population between 2001-2011 to 16.2.

Population Projections

2.10.11 The Technical Group on Population Projections under the Chairmanship of the Registrar General, India (RGI) constituted by the Planning Commission in 1996 had made population projections up to the year 2016 based on the results



of 1991 Census. The projections for different age groups are shown in Figure 2.10.1. It then estimated the probable year by which the replacement level (Total Fertility Rate) of 2.1 will be achieved by different states if the recent pace of decline in TFR observed during 1981-93 continues. The Group estimated that the country would achieve the replacement level of fertility by 2026. The most populous states of Bihar, Madhya Pradesh, Rajasthan and Uttar Pradesh will achieve the replacement level of fertility by 2039, 2060, 2048 and after 2100 respectively.

Census 2001

2.10.12 The 2001 Census showed that India's population was 1.02 billion in 2001, 15 million more than the projections made by the Technical Group on Population Projections. Comparison of the projections with the Sample Registration System (SRS) data indicates that projections regarding both the birth and death rates were substantially lower. The decadal growth rate has declined from 23.86 per cent for 1981-91 to 21.34 per cent for 1991-2001. (Figure 2.10.2). Tamil Nadu and Karnataka have attained replacement level of fertility and Andhra Pradesh has shown a remarkable fall in fertility and decadal growth rate during the 1990s. The decadal growth rate in a majority of the states has shown a decline. Only Bihar has shown a

substantial increase in the decadal growth rate. The National Population Policy has set the goal that the country will achieve the replacement level of fertility by 2010. If this is achieved, the decade 2001-2011 will witness a very steep decline in decadal growth rate.

Population Projections for the Tenth Plan

2.10.13 Prior to the formulation of the Tenth Plan it is not possible to make full scale projections taking into account the trends during the 1990s as the data on age and sex distribution of the population from 2001 Census is not yet available. The Department of Family Welfare made the necessary adjustment for higher actual population in the base year of 1997 in the projections made by the Technical Group on Population Projection for the period 1997-2012 (Table 2.10.1).

Interstate Differences

2.10.14 The projected values for the total population in different regions is shown in the Figure 2.10.3. There are marked differences between states in size of the population, projected population growth rates and the time by which TFR of 2.1 is likely to be achieved. If the present trend continues, most of the southern and the western states are likely to achieve TFR of 2.1 by 2010.

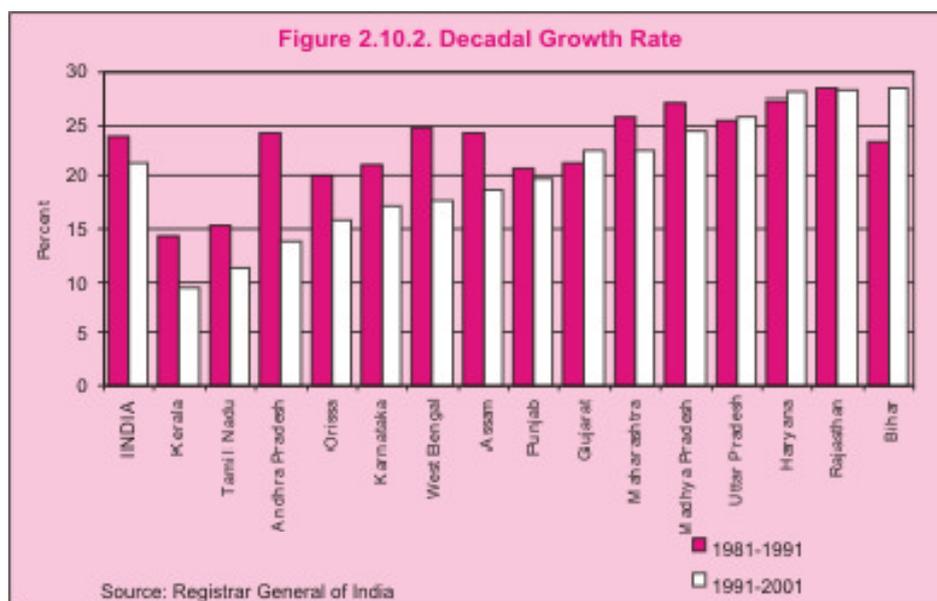


Table 2.10.1
Population Projections Adjusted For The 2001 Census Totals

Year	1997	2002	2007	2012
Population (millions)*	951.18	1028.93	1112.86	1196.41
Population (millions)**	965.28	1044.18	1129.35	1214.14

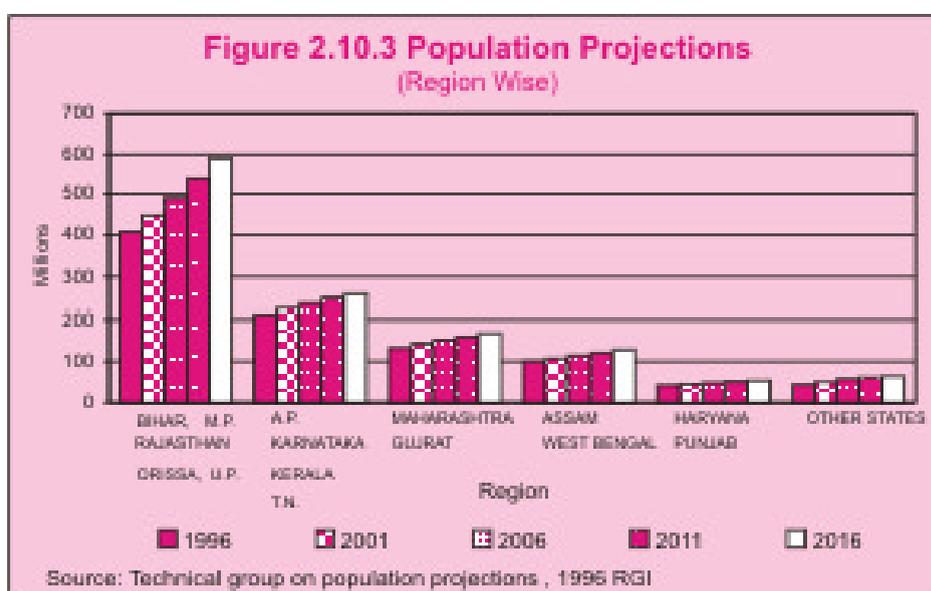
*Technical Group on Population Projections–1996;

**Adjusted for the 2001 census totals

Source: Deptt of F.W.

Urgent energetic steps to assess and fully meet the unmet needs for maternal and child health (MCH) care and contraception through improvement

in availability and access to service are needed in Rajasthan, Orissa, Uttar Pradesh, Madhya Pradesh and Bihar (before division) in order to achieve a



Inter state differences

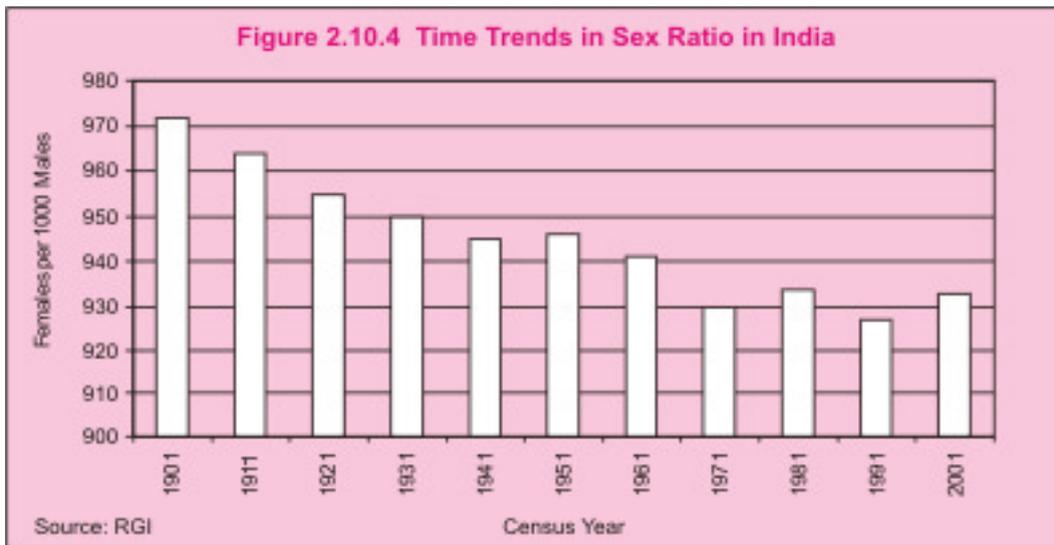
There are massive inter state differences in population, population growth rates, time by which TFR of 2.1 and population stabilisation will be achieved.

These differences will have a major impact on :

- ☒ health and nutritional status.
- ☒ education and skill development.
- ☒ appropriate employment with adequate emoluments.
- ☒ rural – urban and inter state migrations.
- ☒ social and economic development.

The effort is to provide adequate inputs to improve performance so that the disparities between states are narrowed.

faster decline in their mortality and fertility rates. The performance of these states would determine the year and size of the population at which the country achieves replacement level of fertility. It is imperative that special efforts are made during the next two decades to break the vicious self-perpetuating cycle of poor performance, poor per capita income, poverty, low literacy and high birth rate in the populous states so that further widening of disparities between states in terms of per capita income and quality of life is prevented. An Empowered Action Group has been set up to provide special assistance to these states. The benefits accrued from such assistance will depend to a large extent on the states' ability to utilize the available funds and improve services and facilities.



Gender Bias

2.10.15 The reported decline in the sex ratio during the current century has been a cause for concern (Figure 2.10.4). The factors responsible for this continued decline are as yet not clearly identified. However, it is well recognised that the adverse sex ratio is a reflection of gender disparities. There is an urgent need to ensure that all sectors collect and report sex disaggregated data. This will help in monitoring for evidence of gender disparity. Continued collection, collation, analysis and reporting of sex disaggregated data from all social sectors will also provide a mechanism to monitor whether girls and women have equal access to these services.

2.10.16 The census based estimates of sex ratio in the 0-6 age group show massive inter-state differences (Figure 2.10.5). In addition, data indicate that over the last three decades there has been a decline in the 0-6 sex ratio. (Table 2.10.2) There had been speculation as to whether female infanticide, sex determination tests and selective female foeticide are, at least in part responsible for this. The Government of India has enacted a legislation banning the prenatal sex determination and selective abortion while female infanticide is a cognizable offence. However, unless there is a change in social attitudes, these legislations cannot achieve the desired change. Intensive community education efforts to combat these practices, especially in



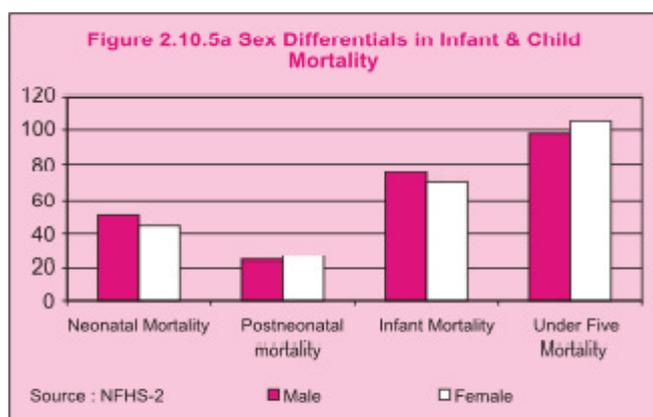
Table 2.10.2
Child sex ratio (Females/1000 Males)

Year	Urban	Rural	Total
1981	931	963	962
1991	935	947	945
2001	903	934	927

Source : RGI

pockets from where female infanticide and foeticide have been reported, are urgently required.

2.10.17 The National Family Health Survey clearly brought out the sex differentials in the neonatal, post neonatal, infant and under five mortality rates. As there is no biological reason for the higher mortality among the girl children these differences are an indication of existing gender bias in caring for the girl child (Figure 2.10.5a).

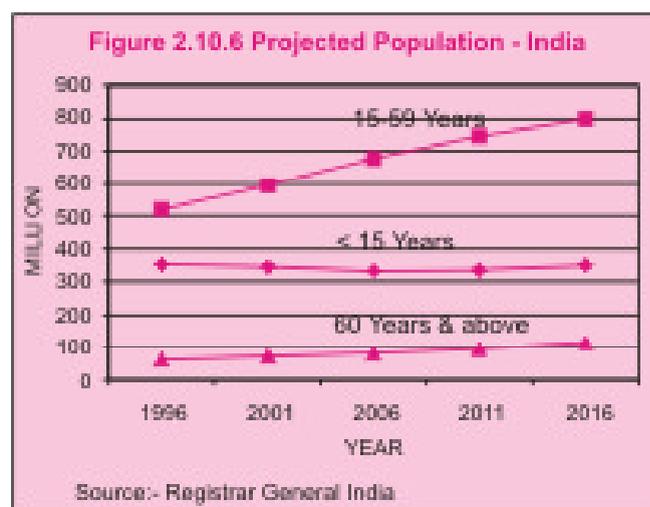


2.10.18 In the reproductive age-groups, the mortality rates among women are higher than those among men. The continued high maternal mortality is one of the major factors responsible for this. Effective implementation of the RCH programme is expected to result in a substantial reduction in maternal mortality. Currently, the longevity at birth among women is only marginally higher than that among men. However, the difference in life expectancy between men and women will progressively increase over the next decade. Once the reproductive age group is crossed, the mortality rates among women are lower. Women will outnumber men in the over-60 age- group. Departments of Health, Family Welfare and Women

and Child Development are initiating steps to ensure that these women get the care they need.

Population Projections and their Implications for the Family Welfare Programme

2.10.19 The projected population of India in the three major age groups (less than 15, 15-59, 60 years or above) between 1996 and 2016 are shown in Figure 2.10.6. In the country as a whole, there will be a



Age group < 15 years

There will be no increase in numbers. Focus will be to improve:

- ☒ quality and coverage of health and nutrition services and achieve improvement in health and nutritional status
- ☒ improve access to education & skill development

marginal decline in less than 15 years of age population (352.7 million to 350.4 million), even though in poorly performing states there will be continued increase in the number of children requiring care. The health care infrastructure will, therefore, not be under pressure to provide care to an ever increasing number of children. They will be able to concentrate on:

- ☒ improving quality of care;
- ☒ improving on antenatal, intra natal and neonatal care aimed at reducing neonatal morbidity and mortality;

- ☒ improving coverage for immunisation against vaccine preventable diseases;
- ☒ promoting inter sectoral coordination especially with the ICDS programme so that there is an improvement in health and nutritional status; and
- ☒ improving coverage and quality of health care to vulnerable and underserved adolescents.

2.10.20 The economic challenge is to provide needed funds so that these children have access to nutrition, education and skill development. The challenge faced by the health sector is to achieve reduction in morbidity and mortality rates in infancy and childhood, to improve nutritional status and eliminate ill effects of the gender bias.

Age group 15-59 years

The challenge is the massive increase in the number of people in this age group. They will:

- ☒ need wider spectrum of services :
 - ↳ maternal and child health services
 - ↳ contraceptive care
 - ↳ gynaecological problems
 - ↳ RTI /STD management
- ☒ expect better quality of services
- ☒ expect fulfillment of their felt needs for MCH/family planning care.

Opportunity is that if their felt needs are met through effective implementation of RCH programme, it is possible to accelerate demographic transition and achieve rapid population stabilisation.

2.10.21 There will be a massive increase of population in the 15-59 age group (from 519 million to 800 million). The RCH care has to provide the needed services for this rapidly growing clientele. The population in this age group is more literate and has greater access to information. These people will, therefore, have greater awareness and expectation regarding both access to a wide spectrum of health care related services and the

quality of these services. The Family Welfare Programme has to cater to a wider spectrum of health care needs of this population– including maternal and child health (MCH) care, contraceptive care, management of gynaecological problems; the quality of services also needs to be improved.

2.10.22 There will be a substantial increase in the population more than 60 years (62.3 million to 112.9 million) in the next two decades. Increasing numbers of the population beyond 60 years would necessitate provisions for the management of some of the major health problems in this age group, including early detection and management of cancers.

Evolution of India's Family Welfare Programme

Basic premises of the Family Welfare Programme are:

- ☒ acceptance of Family Welfare services is voluntary;
- ☒ Family Welfare programme will provide:
 - ↳ integrated MCH and family planning services;
 - ↳ effective IEC to improve awareness;
 - ↳ easy and convenient access to Family Welfare services free of cost.

The 1950s

2.10.23 At the time of Independence, health care services were predominantly urban, hospital-based and curative. General practitioners well versed in maternal and child health and paediatricians and obstetricians provided health care to women and children. While they did provide comprehensive, integrated, good quality services, technology for detection and management of health problems was limited and out reach of services was poor. The majority of the population, especially those belonging to the poorer sections and those residing in rural areas, did not have access to health care, as a result of

which morbidity and mortality rates among them were quite high. Many women died while seeking illegal induced abortion to get rid of unwanted pregnancy because they did not have access to contraceptive care. Conceptions that were too early, too close, too many and too late and lack of antenatal care to detect and treat problems in pregnancy resulted in high maternal and infant mortality rates. Antenatal, intrapartum, postnatal and contraceptive care was not readily available to women who required these services desperately.

2.10.24 Obstetricians, who were daily witnessing maternal morbidity and mortality associated with high parity, were willing to persuade their patients who had completed their families to undergo surgical sterilisation. The fact that the technique was simple, safe and effective and could be done soon after delivery under local anaesthesia accounted for the popularity of postpartum tubal sterilisation. The safety, simplicity and efficacy of vasectomy was also well recognised. For couples who had completed their family, sterilisation of one partner resulted in the reduction of maternal morbidity and mortality associated with high parity. To some extent, this was responsible for the decline in maternal mortality rates in urban areas during the 1950s. However, these measures had no impact on the mortality or fertility or the population growth rate of the country as a whole because of poor outreach, especially in rural areas. Thus, in the 1950s, good quality integrated maternal and child health care, and family planning services were available to those who were aware, had access and could afford the services of physicians. There were efforts to improve coverage and extend the services to rural areas as a part of the block development programme. However, resource and manpower constraints were responsible for the slow progress on this front.

The 1960s

2.10.25 In the 1960s, safe, effective vaccines for the prevention of six childhood diseases and effective contraceptives for birth spacing such as Lippe's loop became available. In order to make

these available to people, effective programmes for delivery of identified priority services were drawn up by professionals and implemented through the limited health care infrastructure available in rural areas and supplemented by camps. The family planning and the immunisation programmes were among the earliest of such programmes. Subsequently, several other vertical programmes were added to the Family Welfare Programme. In an attempt to improve outreach, the camp approach was adopted for providing care to pregnant women and children and improving access to immunisation. However, these efforts did not result in any marked improvement in the health status of these vulnerable groups because the care was not available when needed and there were no referral services.

2.10.26 The 1961 census showed a rising decadal population growth rate due to declining death rates and unchanged birth rates. The health infrastructure is still predominantly urban-based. During the 1960s, sterilisation remained the focus of the National Family Planning Programme. Efforts were made to popularise vasectomy and to provide services in rural areas through camps. Tubectomy services, however, remained predominantly in urban hospitals. Moving health education out of hospitals into the community through the extension education approach was attempted to improve awareness and increase acceptance of family planning methods. Lippe's loop provided the first reliable birth spacing method for women in India. Following encouraging response in urban clinics, attempts were made to provide this spacing method to the rural population through camps. However, without the infrastructure to provide follow up services, the device fell into disrepute. It became obvious that it will not be possible to achieve any improvement in maternal and child health indices or reduce birth rates without substantial investment into infrastructure and manpower to provide the needed follow up services.

1970s

2.10.27 The 1970s witnessed many initiatives to improve the health and nutritional status of women and children. The Massive Dose Vitamin A programme, the National Anaemia Prophylaxis

Programme and food supplementation to pregnant and lactating women and pre-school children through the Integrated Child Development Services (ICDS) programme were major initiatives to tackle micronutrient deficiencies and under-nutrition and its adverse consequences in women and children. With the improvement in primary health care infrastructure, access to health care improved.

2.10.28 The 1971 Census showed that population explosion was no longer a potential threat but a major problem that needed to be tackled energetically. The Government gave top priority to the family planning programme and provided substantial funds for several new initiatives. Sterilisation, especially vasectomy services were made widely available. Intra-uterine devices (IUD) and condoms were made available through the PHCs. The hospital-based postpartum programme provided contraceptive care to women coming for delivery. The Medical Termination of Pregnancy (MTP) Act, 1972, enabled women with unwanted pregnancy to seek and obtain safe abortion services.

2.10.29 Increasing concern about the rapidly growing population led to the National Family Planning Programme being included as a priority sector programme during the Fifth Plan. The massive sterilisation drive of 1976 did result in eight million persons undergoing sterilisation, but this did not have any perceptible impact on the birth rate, as the cases were not appropriately chosen. There was a steep fall in acceptance in the very next year. In 1978, the Expanded Programme of Immunisation was initiated to improve coverage for the six vaccine preventable diseases. In 1979, the Programme was renamed as the National Family Welfare Programme and increasing integration of family planning services with those of maternal and child health and nutrition was attempted.

The 1980s

2.10.30 The major thrust during the 1980s was to operationalise the WHO's Alma Ata declaration of health for all by 2000 A.D. (1978) by establishing a net-work of centres in urban and rural areas to provide essential primary health care. The network

of post partum centres was expanded to improve access to family welfare services. In 1983 the National Health Policy was formulated and provided comprehensive framework for planning, implementation and monitoring of health care services. The Universal Immunisation Programme (UIP), started in 30 districts in 1986, was extended to cover 448 districts by the end of the Seventh Plan.

The 1990s

2.10.31 The 1991 Census showed that India was entering the opportunity window in demographic transition, when larger proportion of the population is in the age group of 20-40 years, when it will be possible to achieve a rapid decline in fertility and mortality. The report of the NDC Sub Committee on Population gave a new thrust and dynamism to the family welfare programme. During the Eighth Plan, efforts were made under the Child Survival and Safe Motherhood initiative and the Social Safety Net programme to improve the access to maternal and child health services. In view of the massive inter-state and intra-state differences in access to services and health indices, the Department of Family Welfare abolished the practice of setting centrally defined, method-specific targets for contraception. It was replaced by decentralised area-specific need assessment (community needs assessment approach), planning and implementing programmes aimed at fulfilling these needs.

2.10.32 In 1997, the Department of Family Welfare initiated the Reproductive and Child Health (RCH) programme aimed at providing integrated health and family welfare services to meet health care needs of women and children. The components of the comprehensive RCH care is indicated in the Text Box. The essential components recommended for nationwide implementation at all levels include:

- ☒ prevention and management of unwanted pregnancy;
- ☒ services to promote safe motherhood;
- ☒ services to promote child survival; and
- ☒ prevention and treatment of RTI and sexually transmitted infection (STI).

Components of comprehensive RCH Care:

- ☒ Effective maternal and child health care.
- ☒ Increased access to contraceptive care.
- ☒ Safe management of unwanted pregnancies.
- ☒ Nutritional services to vulnerable groups.
- ☒ Prevention and treatment of RTI/ STD.
- ☒ Reproductive health services for adolescents.
- ☒ Prevention and treatment of gynaecological problems.
- ☒ Screening and treatment of cancers, especially uterine, cervical and breast cancer.

These services are available in secondary and tertiary care centres in the country.

Efforts are being made to improve the content, quality and coverage of care

- ☒ universal registration of births and deaths, marriages and pregnancies;
- ☒ universal access to information/counselling and services for fertility regulation and contraception with a wide basket of choices;
- ☒ to reduce the IMR to below 30 per 1,000 live births and a sharp reduction in the incidence of low birth weight (below 2.5 kg.);
- ☒ universal immunisation of children against vaccine preventable diseases;
- ☒ promote delayed marriage for girls, not earlier than the age of 18 and preferably after 20 years;
- ☒ achieve 80 per cent institutional deliveries and increase the percentage of deliveries conducted by trained persons to 100 per cent;
- ☒ containing of STD;
- ☒ reduction in MMR to less than 100 per 100,000 live births;
- ☒ universalisation of primary education and reduction in the drop-out rates at the primary and secondary levels to below 20 per cent for both boys and girls.

2.10.33 Efforts were made to provide adequate inputs to improve the availability and access to RCH services and to improve the programme's performance especially in states/districts with poor health indices. Attempts to reduce disparities between states/districts and achieve incremental improvement in the indices by replication of the strategies adopted by better performing districts were encouraged.

National Population Policy

2.10.34 The immediate objective of the National Population Policy is to meet all the unmet needs for contraception and health care for women and children. The medium-term objective is to bring the TFR to replacement level (TFR of 2.1) by 2010 and, the long-term objective is to achieve population stabilisation by 2045.

2.10.35 The Policy has set the following goals for 2010:

- ☒ universal access to quality contraceptive services in order to lower the TFR to 2.1 by adopting the small family norm;

2.10.36 Several states/districts have demonstrated that the steep reduction in mortality and fertility envisaged in the National Population Policy are technically feasible within the existing infrastructure and manpower. All efforts are being made to provide essential supplies, improve efficiency and ensure accountability - especially in the states where performance is currently sub-optimal - so that there is incremental improvement in performance. An Empowered Action Group attached to the Ministry of Health and Family Welfare has been constituted in 2001 to facilitate capacity building in poorly performing states/districts so that they attain the goals set in the Policy. If all these efforts are vigorously pursued it is possible that the ambitious goals set for 2007/2010 may be achieved.

National Commission on Population

2.10.37 The National Commission on Population was constituted on 11 May 2000 under the

chairmanship of the Prime Minister. The Deputy Chairman of the Planning Commission is the vice chairman. The Commission has the mandate to:

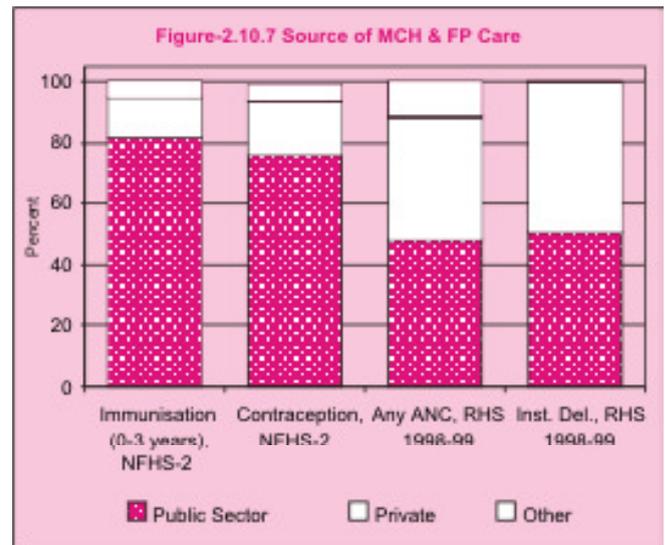
- ☒ review, monitor and give direction for the implementation of the National Population Policy with the view of achieving the goals it has set;
- ☒ promote synergy between health, educational, environmental and developmental programmes so as to hasten population stabilization;
- ☒ promote inter-sectoral coordination in planning and implementation of the programmes through different agencies at the Centre and in the states; and
- ☒ develop a vigorous people's programme to support this national effort.

A Strategic Support Group consisting of secretaries of concerned sectoral ministries has been constituted as a standing advisory group to the Commission. Nine working groups were constituted to look into specific aspects of implementation of the programmes aimed at achieving the targets set in the National Population Policy. NCP has allocated funds for action plans drawn up by district magistrates in poorly performing districts to implement programmes aimed at accelerating the pace decline in fertility.

Lessons Learnt in Five Decades

2.10.38 The lessons learnt from the implementation of family welfare programmes in the last five decades are:

- ☒ The governmental network provides most of the maternal and child health and contraceptive care services; (Figure 2.10.7)
- ☒ adequate financial inputs and health infrastructure are essential prerequisites for the success of the programme;
- ☒ providing efficient and effective integrated maternal and child health and contraceptive care helps in building up rapport with the families;



- ☒ IEC and motivation activities are powerful tools for promoting the small family norm;
- ☒ the people are conservative but responsible and mature and though their response may be slow, it is rational and sustained.

REVIEW OF PERFORMANCE OF THE FAMILY WELFARE PROGRAMME DURING NINTH PLAN

2.10.39 The decentralised planning and initiatives taken up under the RCH programme during the Ninth Plan were expected to lead to substantial improvement in the coverage and quality of services. In order to achieve this, the Department of Family Welfare was given additional outlay to enable it to provide adequate financial inputs to the states. Goals for the Ninth Plan were projected on the basis of these newer initiatives and additional inputs provided. Goals set for the Ninth Plan, current status regarding these are in Annexure 2.10.I

2.10.40 A review of the performance during the Ninth Plan suggests that the health systems in the states needed more time to adapt to decentralised planning and implementation of components of the RCH programme. In an attempt to improve coverage under specific components of the RCH programme, some states embarked on campaign mode operations which took their toll on routine services. Efforts to eliminate polio by the end of 2000 through the massive pulse polio campaign also

had some adverse effect on routine service delivery. As a result, it is unlikely that Ninth Plan goals for CBR, couple protection rate, MMR and IMR will be achieved.

2.10.41 Independent surveys have shown that several states have achieved goals set for some aspect of the RCH programme during the Ninth Plan, demonstrating that these can be achieved within the existing infrastructure, manpower and inputs.

- ☒ Andhra Pradesh, Punjab, West Bengal and Maharashtra have shown substantial decline in birth rates and the latter three states are likely to achieve replacement level of fertility, ahead of the projections.
- ☒ Punjab has achieved couple protection rate and use of spacing methods far ahead of all other states.
- ☒ Tamil Nadu and Andhra Pradesh have achieved significant reduction in home deliveries.
- ☒ Kerala, Maharashtra, Punjab and Tamil Nadu improved immunisation coverage.
- ☒ Tamil Nadu and Andhra Pradesh had achieved improvement in coverage and quality of antenatal care.

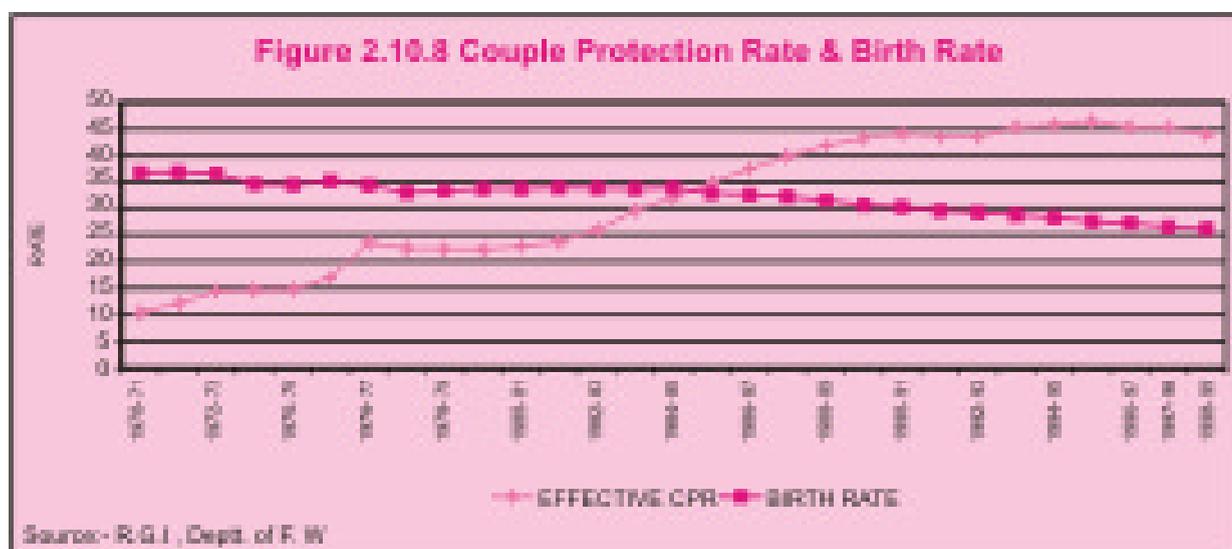
2.10.42 During the Tenth Plan, the pace of implementation of the programme will be accelerated through streamlining of infrastructure; focus will be

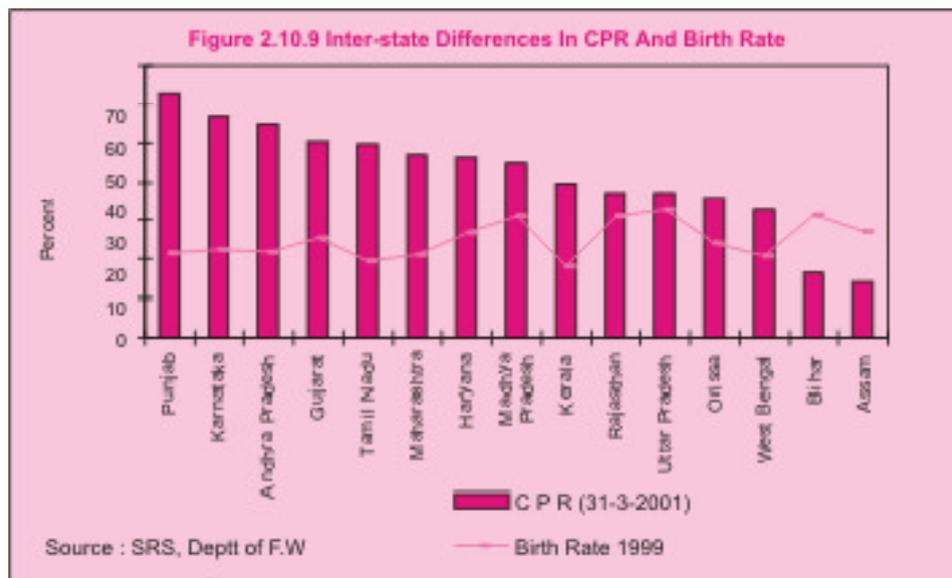
on improving quality, coverage and efficiency of services so that all the felt needs for family welfare services are fully met. Special attention will be paid to improving access to good quality services to the under-served population living in urban slums, remote rural and tribal areas.

PREVENTION OF UNWANTED PREGNANCY

2.10.43 Efforts to improve the availability of contraceptive care during the 1970s and 1980s resulted in a steep rise in couple protection rates. However, there was no commensurate fall in the birth rate. Service reports on couple protection rate and SRS estimates of CBR indicate that there has been a steady decline in the latter during the 1990s in spite of the fact that the rise in couple protection rate during the decade has been very slow (Figure 2.10.8). This may be because earlier there was over reporting of contraceptive acceptance or there has been an improvement in the quality of services during nineties and appropriate contraceptives are being provided at the appropriate time.

2.10.44 There are massive inter-state differences in couple protection rate and CBR. In states like Bihar, the couple protection rate is low and birth rate is high. In Punjab, couple protection rate is high. Kerala, Tamil Nadu and Andhra Pradesh have achieved substantially lower CBR even while couple protection rate was lower than that of Punjab. (Figure 2.10.9). Age and parity at the time of accepting contraception as well as continuation





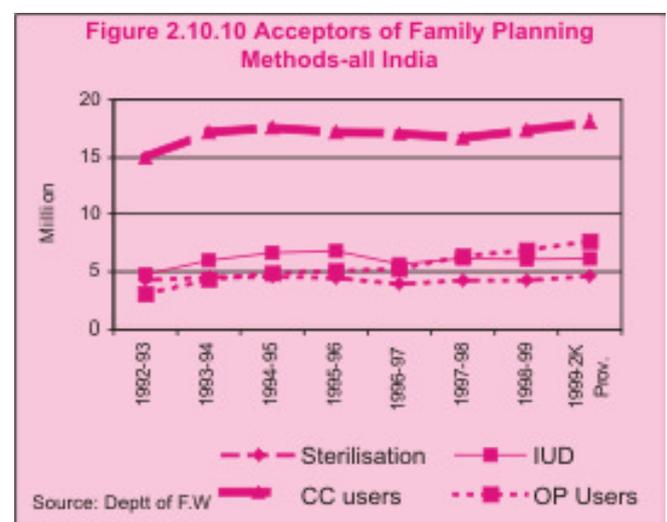
rates of spacing methods are critical factors that influence the relationship between couple protection rate and CBR. The high acceptance of tubectomy in younger women with two or three children in Tamil Nadu and Kerala and the higher use of spacing methods even among older women with three or more children in Punjab may account for the differences in the couple protection rate and CBR between these states.

2.10.45 Over the years there has been a fall in birth rate in all the states and among all segments of population, but the rate of reduction in the birth rate is higher in some states. Data from 2001 Census and SRS 2000 indicate that:

- ☒ eleven states/Union Territories with 11.3 per cent of the population have CBR of below 20;
- ☒ twelve states/Union Territories with 38.6 per cent of the population have CBR between 20 and 25;
- ☒ seven states with 14.4. per cent of the population have CBR between 25 and 30;
- ☒ five states with 35.7 per cent of the population have CBR of more than 30 per 1,000 population.

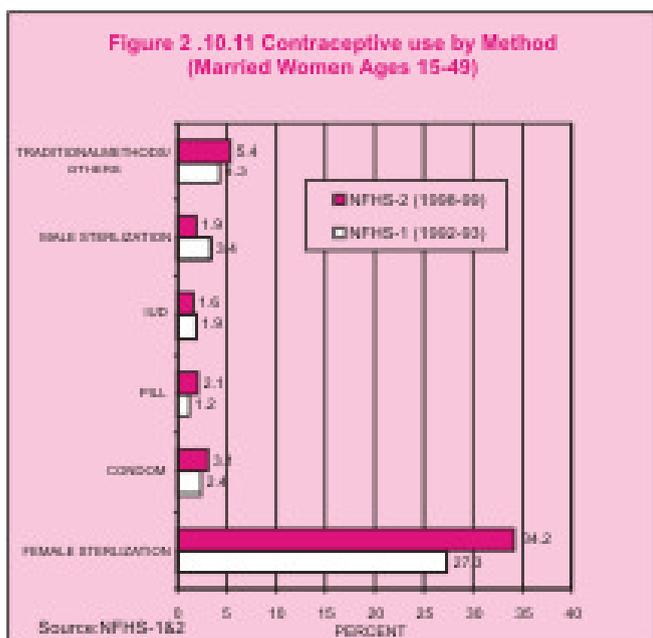
There is an urgent need to meet all the needs for contraception in the populous states with high birth rate.

2.10.46 Data from service reports during the Ninth Plan period indicate that there has been a decline in acceptors of all types of contraception in the initial years of the Plan, as compared to the level of acceptance in 1994-95. Subsequently, from 1998-99 the decline has been reversed except in the case of IUD (Figure 2.10.10).



2.10.47 The NFHS 1 and 2 provided nation-wide data on contraceptive prevalence in 1992-93 and 1998-99. Data from the survey (Figure 2.10.11) indicate that contrary to the performance figures available from the service reports of the Department of Family Welfare, there has been a substantial increase in the sterilisation and oral contraceptive acceptance in the country. Only

Figure 2.10.11 Contraceptive use by Method (Married Women Ages 15-49)



IUD and vasectomy use has shown a decline. The improvement in couple protection rate explains the steady decline in the CBR during the 1990s reported by the SRS. The differences in couple protection rate data from service reports of the Department of Family Welfare and NFHS may partly be due to:

- ☒ a reduction in the earlier over reporting which was done in an attempt to show that targets have been met; and
- ☒ incomplete reporting due to changes in service reporting formats during the current period.

2.10.48 The data from in-built independent surveys and coverage evaluations within the National Family Welfare Programme have been reassuring in that their findings show that there has been no deterioration in the contraceptive prevalence in the 1990s. However, the coverage figures under service reporting for spacing methods, antenatal care and immunisation are still substantially higher than the coverage reported by evaluations. This over reporting needs to be corrected so that service reporting provides a reliable indication of progress achieved in the programme. The narrowing of the gap in coverage figures between the service and evaluation reports can be used as a new indicator for the quality in programme monitoring.

Unmet Need for Contraception

2.10.49 NFHS 1 and 2 (Figure 2.10.12) clearly indicate that there is still substantial unmet need for both terminal methods and spacing methods in all states (Figure 2.10.13). There are inter-state differences in the magnitude of unmet need for contraception. It is imperative that all the unmet needs are fully met within the Tenth Plan period and a substantial reduction in unwanted pregnancy is achieved. Making a balanced presentation of advantages and disadvantages of methods, improving counselling, quality of services and follow up care will enable couples to make appropriate choices regarding contraception, increase couple protection rates and continuation rates and enable the country to achieve the goal of replacement level of fertility by 2010.

Figure 2.10.12 Unmet Need for Contraception

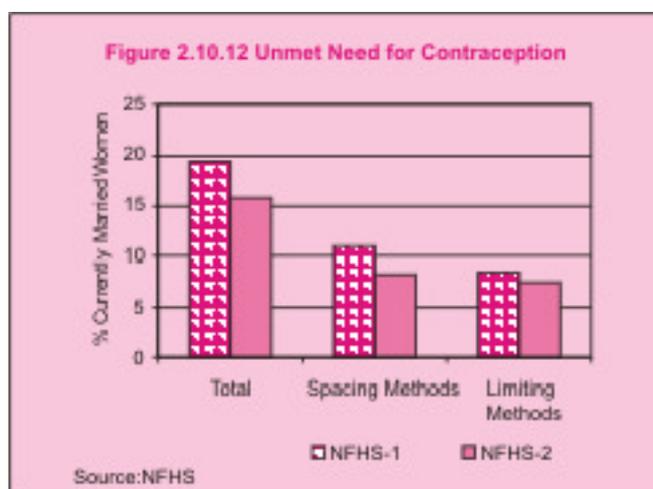
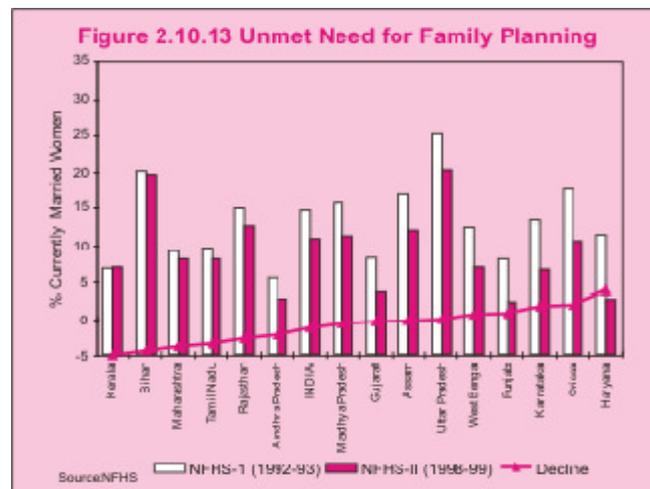
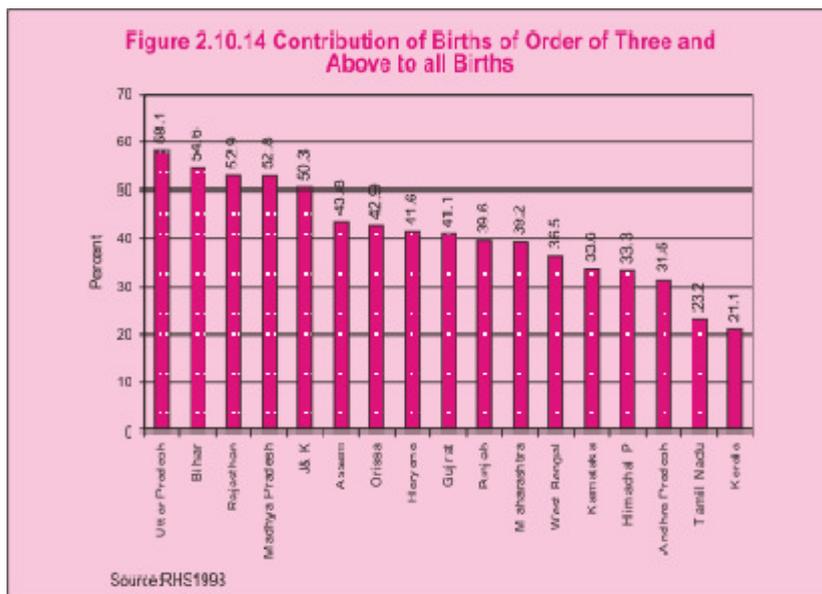


Figure 2.10.13 Unmet Need for Family Planning





Monitoring Birth Order

2.10.50 Monitoring reported birth order is an easy method of observing the progress towards achievement of replacement level of fertility. Currently, birth order of three or more account for nearly half of all births. There are massive inter-state and inter-district differences in the contribution of different birth orders (Table 2.10.3 and Figure 2.10.14). Based on this information, district-specific differential strategies can be evolved to improve contraceptive prevalence rates, increase inter-birth intervals and reduce higher order of births.

Table 2.10.3
Inter-district variations

(Birth order three or more as percentage of total births)

	No of districts
<20%	27
20-40%	165
>40%	313

Source: RHS (Rapid Household survey 1998)

Terminal Methods of Contraception

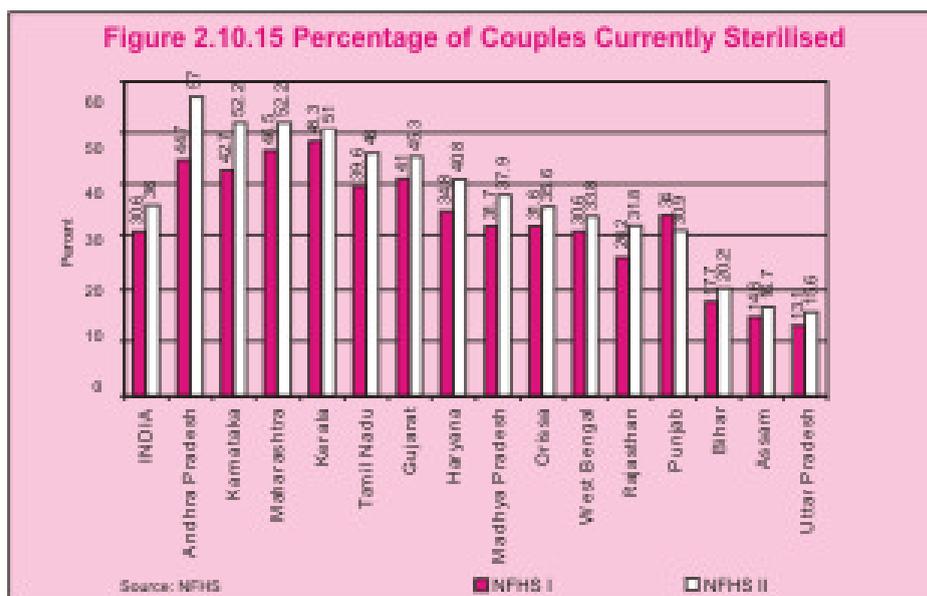
2.10.51 Sterilisation has been the most widely used method of contraception in all states. Currently, age at marriage is very low and a

majority of the women complete their families during their early 20s. In the current Indian milieu of stable marriages, sterilisation is the most appropriate method of contraception for such couples. There are substantial differences between states and between districts in proportion of eligible couples who have adopted terminal methods of contraception (Table 2.10.4). The 1990s saw some increase in the per centage of currently sterilised persons in all states except Punjab. However, the per centage of women undergoing sterilisation is very low in Assam, Bihar and Uttar Pradesh. (Figure 2.10.15). A majority of women in these states opt for sterilisation after bearing three or more children. Improving access to safe, good quality tubectomy/vasectomy services through RCH camps in CHCs/PHCs may be the most viable and sustainable strategy for meeting the unmet need for sterilisation in these states.

Table 2.10.4
Inter-district variations in the percentage of eligible couple sterilised

	No. of districts
>50	75
40-49	101
30-39	106
<30	223

Source: RHS 1998-99



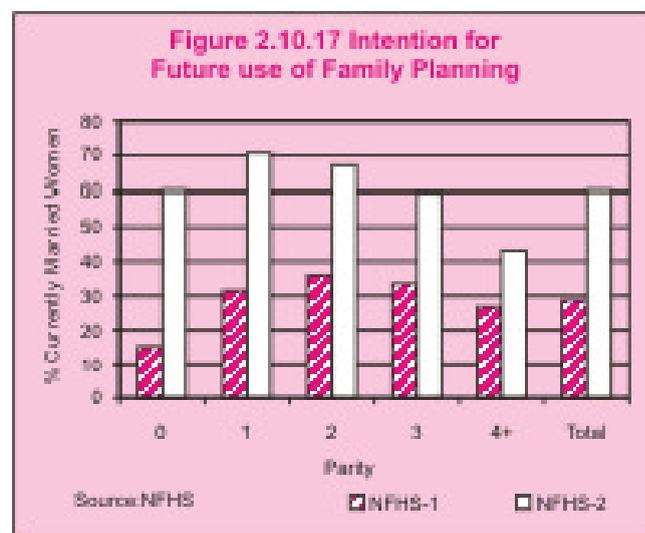
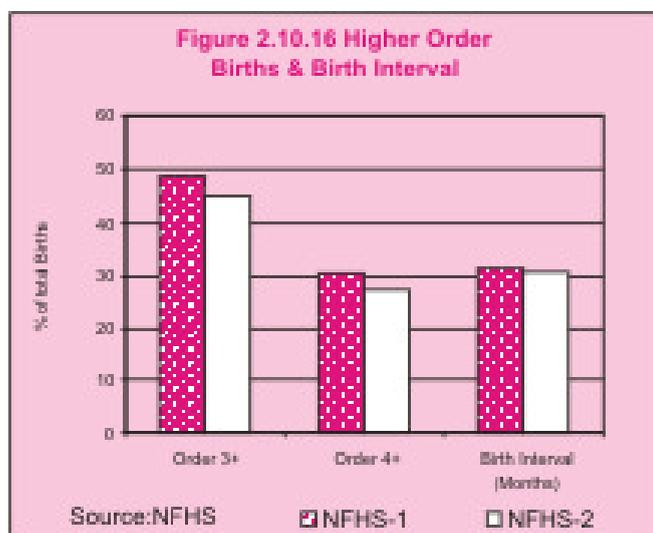
Emerging Needs for Spacing Methods

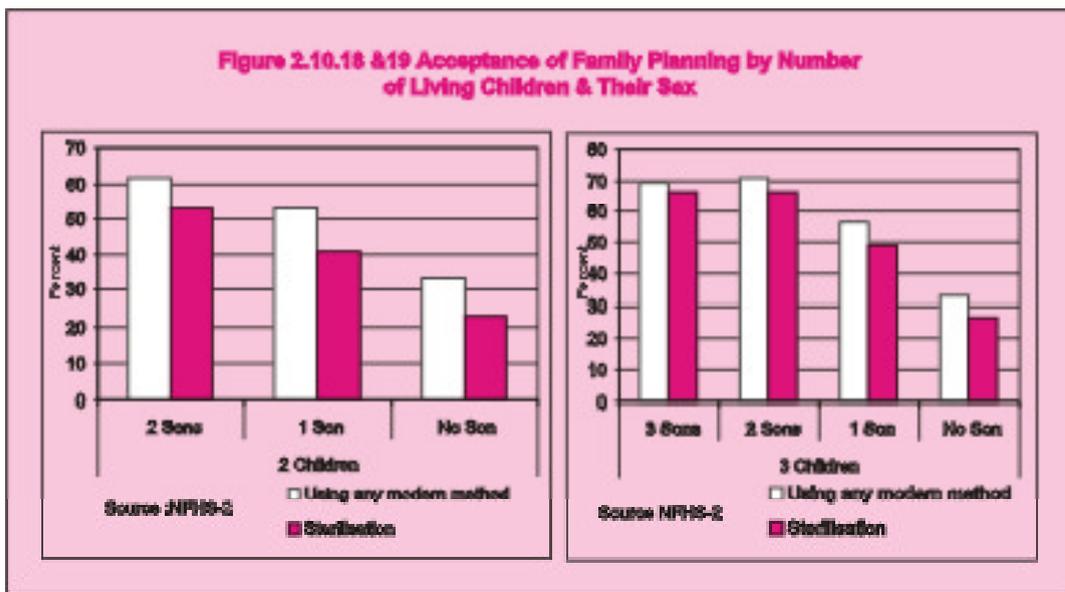
2.10.52 Data from NFHS clearly shows that in spite of the low use of spacing methods, the mean inter-birth interval is about 30 months. (Figure 2.10.16) This is because of universal prolonged breast-feeding. Exclusive breast feeding during the first six months offers substantial protection against pregnancy. However, once supplements are introduced to breast-fed infants, the contraceptive effect of lactation wanes. The introduction of appropriate contraception at this time will ensure adequate spacing between births and prevent deterioration in maternal and infant nutrition due to too early advent of the next pregnancy. Data from NFHS 2

has also shown that there is an emerging need for contraception before first birth. (Figure 2.10.17) This has to be fully met during the Tenth Plan.

Gender-Bias And Acceptance of Contraception

2.10.53 Data from NFHS showed that the preference for a son influenced the acceptance of permanent as well as temporary methods of contraception (Figures 2.10.18 - 19). It is important that appropriate steps are taken by all concerned sectors to minimise and eliminate gender-bias which reduces contraceptive acceptance among those with girl children.

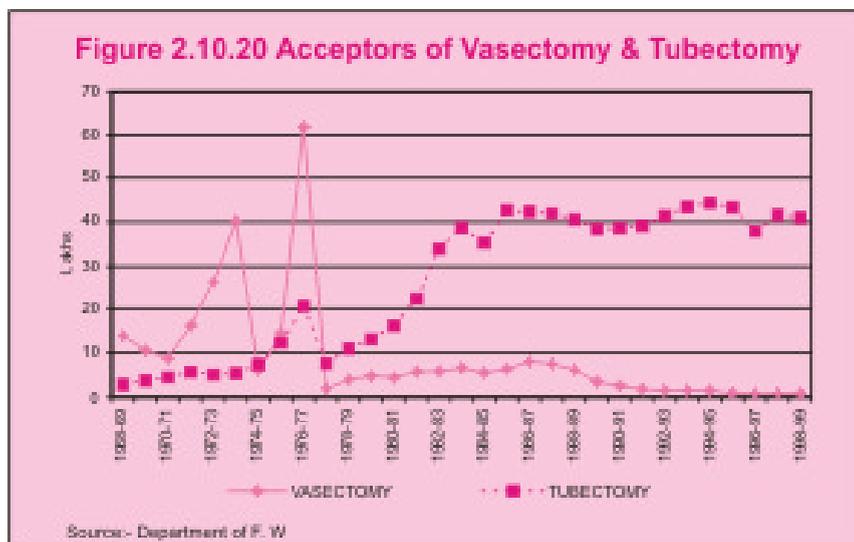




Men's Participation in Planned Parenthood

2.10.54 Men play an important role in determining education and employment status, age at marriage, family formation pattern, access to and utilisation of health and family welfare services for women and children. Their active co-operation is essential for the prevention and control of STI/RTI. In condom users, consistent and correct use is an essential pre-requisite for prevention of STI as well as pregnancy. Vasectomy was the most widely used terminal method of contraception in the 1960s and 1970s but since then there has been a steep decline in its use (Figure 2.10.20). It is essential that efforts to re-popularise vasectomy are intensified. Ample

data exists to show that vasectomy is safer than tubectomy. Every effort will be made to repopularise vasectomy by improving access to vasectomy services. These services (conventional or no-scalpel) will be made readily available to all at convenient times as an outpatient procedure in all primary, secondary and tertiary care institutions. Follow up care will be provided to all taking into account the existing time constraints and the conveniences of men. Efforts will be made to seek men's active participation in improving utilization of funds provided for emergency transport and ensuring that women and children reach appropriate centers where emergency services are available. Their cooperation will be sought in improving



antenatal, child health and immunization care as well as compliance with referrals. Over the next five years efforts will be made to ensure men's participation in every facet of planned parenthood activities.

Tenth Plan Strategy for Meeting the Felt Needs for Contraception

2.10.55 Tenth Plan strategy to meet all the felt needs for contraception would include:

In all districts

- ☒ counselling and balanced presentation of the advantages and disadvantages of all available methods of contraception to enable the family to make the right choice;
- ☒ improve access to good quality contraceptive care services in the vicinity of their residences;
- ☒ good follow up care.

In states/districts where birth order of three or more accounts for over 40 per cent of the births:

- ☒ ensure ready access to tubectomy/vasec-tomy by sending doctors, if necessary, from CHCs/district hospitals to PHCs/CHCs on fixed days.

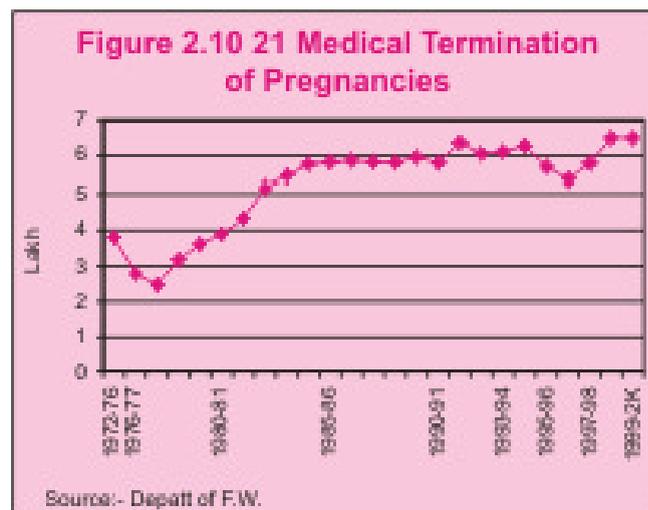
In states/districts where birth order of two or less accounts for over 60 per cent of the births

- ☒ meet the unmet needs for spacing methods on a priority basis and also continue to provide terminal methods.

MANAGEMENT OF UNWANTED PREGNANCY

2.10.56 It is estimated that in 1998, about 9 per cent of maternal deaths were due to unsafe abortions. Available service data on MTPs indicate that following an initial rise in early 1980s, the number of reported MTP's hovered around 0.5– 0.7 million in the 1990s(Figure-2.10.21). The estimated number of illegal induced abortions in the country is in the range of four to six million. There has not

been any substantial decline in the estimated number of illegal abortions, reported morbidity due to illegal abortions or share of illegal abortions as the cause of maternal mortality. The management of unwanted pregnancy through early and safe MTP services as envisaged under the MTP Act is an important component of the ongoing RCH programme.



2.10.57 During the Ninth Plan efforts were made to:

- ☒ improve access to family planning services and reduce the number of unwanted pregnancies;
- ☒ cater to the demand for MTP;
- ☒ improve access to safe abortion services by training physicians in MTP and recognising and strengthening institutions providing these safe abortion services; and
- ☒ decentralise registration of institutions to the district level.

2.10.58 In spite of these efforts, there has not been any increase in terms of coverage, number of MTPs reported and reduction in the number of women suffering adverse health consequences of illegal induced abortions.

2.10.59 Tenth Plan strategies for reducing morbidity due to induced abortion include:

- ☒ reducing the number of pregnancies by fully meeting the felt but unmet needs for contraception;
- ☒ improving access to safe MTP services through:
 - ↻ ensuring the availability of MTP services in all institutions where there is a qualified gynaecologist and adequate infrastructure;
 - ↻ decentralising registration of MTP clinics to district level;
 - ↻ simplifying the regulations for reporting of MTP;
 - ↻ training physicians working in well-equipped institutions in the government, private and voluntary sector in MTP so that they also can provide safe abortion services;
 - ↻ providing manual vacuum aspiration (MVA) syringes in recognised MTP centers where there is a trained physician but no vacuum aspiration machine;
 - ↻ using MVA for performing MTP in CHC/PHC, when a gynaecologist visits the CHCs/PHCs on a fixed day; and
 - ↻ exploring the feasibility and safety of introducing non-surgical methods of MTP in medical college hospitals and extending the service in a phased manner to district hospitals.
- ☒ Ensuring that women do accept appropriate contraception at the time of MTP to prevent unwanted pregnancy requiring a repeat MTP.

MATERNAL HEALTH

2.10.60 The prevailing high rates of maternal morbidity and mortality have always been a source of concern, and antenatal and intrapartum care aimed at reducing these have been

components of the National Family Welfare programme since its inception. Although data on state/district-specific maternal morbidity/mortality is not available, available figures from the SRS and the Survey of Causes of Death provide sufficient information on mortality rates and causes of death so that rational programmes

Table 2.10.5
Maternal Mortality Ratio

	1992-93	1997	1998
RGI (Sample Registration Scheme)	NA	408	407
National Family Health	424*	-	540*

*Differences are not statistically significant

Source : RGI and NFHS 1&2

could be evolved to combat major health problems in women. In the 1990s, the SRS and the NFHS 1&2 provided independent data to assess the impact of ongoing programmes on maternal mortality. During the 1990s, there has not been any decline in MMR and more than 100,000 women continue to die each year due to pregnancy-related causes. (Table 2.10.5)

2.10.61 Data from SRS indicate that the major causes of maternal mortality continue to be unsafe abortions, antepartum and post-partum haemorrhage, anaemia, obstructed labour, hypertensive disorders and post-partum sepsis. There has been no major change in the causes of maternal mortality over years (Table 2.10.6).

Table 2.10.6
Causes of maternal death (%)

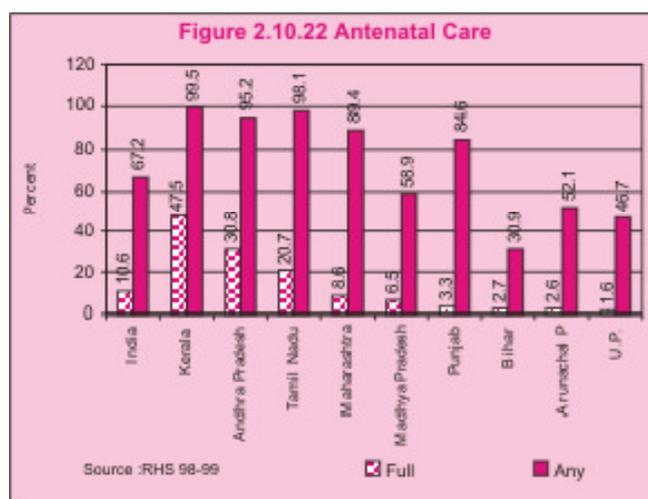
Haemorrhage	30
Anaemia	19
Sepsis	16
Obstructed labor	10
Abortion	8
Toxemia	8
Others	8

Source: Survey of Causes of Death 1998

Deaths due to abortion can be prevented by increasing access to safe abortion services. Deaths due to anaemia, obstructed labour, hypertensive disorders and sepsis can be prevented by improving the access of essential obstetric care, universal screening for detection of obstetric problems, referral and timely treatment of complications of pregnancy, promoting institutional delivery and postnatal care. Emergency obstetric services will help saving lives of women with haemorrhage during pregnancy or complications during deliveries. The Ninth Plan envisaged universal screening of all pregnant women, identification of women with health problems, problems during pregnancy and appropriate management including referral to centres where appropriate care is available. This, however, has not been operationalised; highest priority will be accorded to operationalise this during the Tenth Plan.

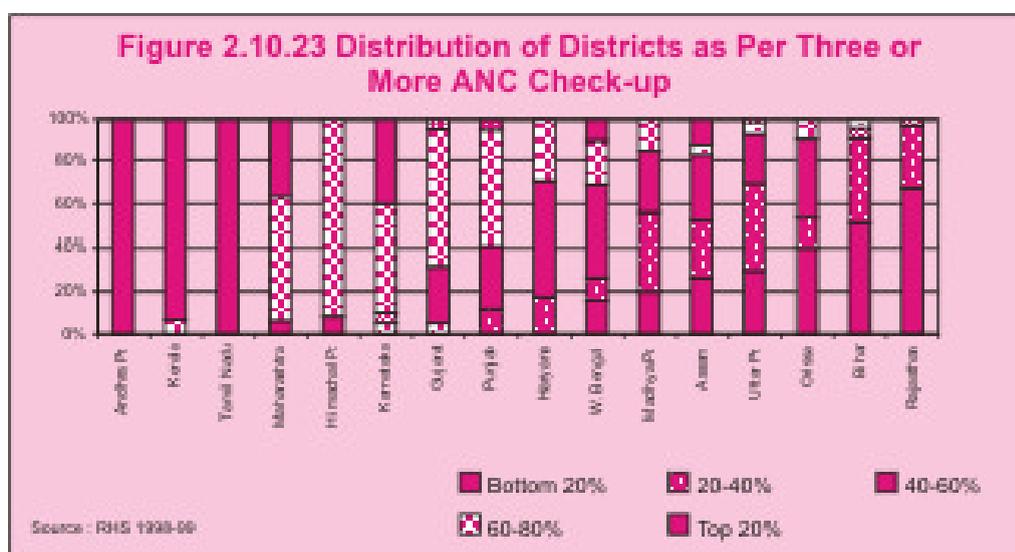
2.10.62 During the Tenth Plan, every effort will be made to:

- ☒ ensure 100 per cent registration of pregnancies, deaths and births so that reliable state/district-level estimates of MMR are available on a sustainable basis; and
- ☒ improve ascertainment of the cause of death through SRS and hospital records so that it becomes possible to assess time trends and changes in causes of maternal mortality.



Antenatal Care

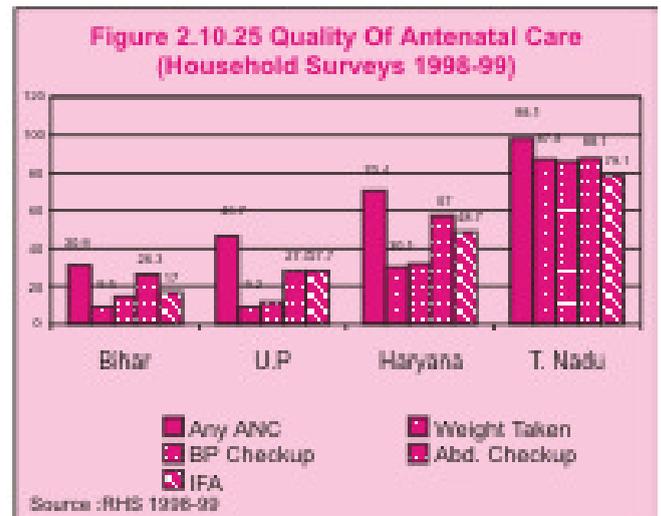
2.10.63 Under the RCH programmes, efforts were made to improve the coverage, content and quality of antenatal care in order to achieve substantial reduction in maternal and perinatal morbidity and mortality. Data from the rapid household Survey (RHS), 1998-1999 indicate that at the national level, 67.2 per cent pregnant women received at least one check-up but only 10.6 per cent had three antenatal checkups. Antenatal coverage in populous states with poor health indices such as Uttar Pradesh, Bihar and Madhya Pradesh are very low (Figure-2.10.22). Antenatal coverage was good in almost all districts of Andhra Pradesh, Tamil Nadu and Kerala. Surprisingly, most districts in Punjab reported very low coverage. (Figure 2.10.23)



Antenatal Care

- ☒ Early registration of pregnancy (12-16 weeks).
- ☒ Minimum three ante-natal check-ups.
- ☒ Screening all pregnant women for major health, nutritional and obstetric problems.
- ☒ Identification of women with health problems/complications, providing prompt and effective treatment including referral wherever required.
- ☒ Universal coverage of all pregnant women with TT immunisation.
- ☒ Screening for anaemia ; providing iron folic acid tablets for prevention of anemia; providing appropriate treatment for anemia.
- ☒ Advice on food, nutrition and rest.
- ☒ Promotion of institutional delivery/safe deliveries by trained personnel; advising institutional delivery for those with health/obstetric problems .

2.10.64 RHS data clearly indicates that only in 95 districts more than 75 per cent women had three antenatal visits during pregnancy. In as many as 265 districts, less than 40 per cent of the women had three antenatal visits (Figure-2.10.24). In Uttar Pradesh and Bihar, the content and quality of antenatal care was poor as compared to Haryana and Tamil Nadu. Universal screening of pregnant women using appropriate antenatal care is essential for the detection of problems and risk factors during



pregnancy and referral to appropriate facility for treatment. (Figure 2.10.25)

2.10.65 The problem of poor screening is aggravated by the fact that referral linkages for the management of problems are also poor in these states and, as a result, both maternal/perinatal morbidity and mortality continue to be high.

2.10.66 Anaemia is a major cause of maternal mortality in India. The Ninth Plan envisaged universal screening for anaemia in pregnant women and appropriate iron folate treatment. This is yet to be operationalised. In none of the states screening for anaemia was included as a component of antenatal care. RHS data indicated that less than 30 per cent pregnant women had taken iron folic acid tablets in 267 districts (Figure 2.10.26). During the Tenth Plan, every effort will be made to fully operationalise the Ninth Plan strategy for prevention and management of anaemia.

Figure 2.10.24 Three ANC's during pregnancy

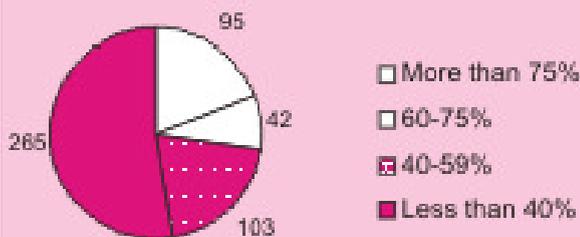
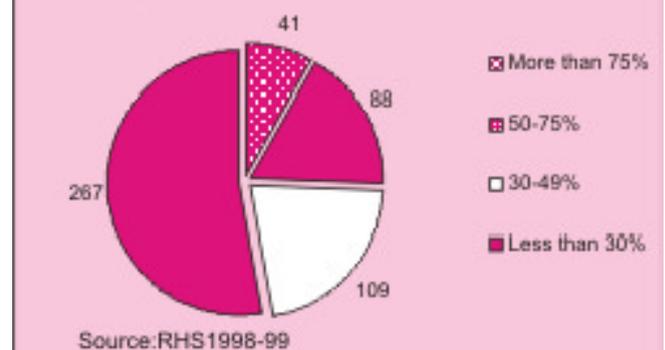


Figure 2.10.26 Consumption of IFA



Problems In Antenatal Care

- ☒ training of health personnel in antenatal screening, risk identification and referral had been very slow;
- ☒ inadequate coverage under essential obstetric care;
- ☒ poor content and quality of antenatal screening, lack of systematic recording of findings; poor referral system; referrals not honoured;
- ☒ lack of screening and gatekeeper function and reverse referrals leading to over crowding in hospitals;
- ☒ lack of emergency obstetric services – at CHCs/FRUs.

Tenth Plan Strategy for Improving Maternal Health

2.10.67 The initiatives taken under the RCH programmes to provide essential obstetric care to all women will be continued during the Tenth Plan. Training to upgrade the skills of health care providers and improve the content and quality of antenatal care, will be completed expeditiously so that they follow the protocol for screening all pregnant women to identify those with problems. The auxiliary nurse midwife (ANM) is the key person in the screening of pregnant women and she will be given the necessary skill up gradation training and equipment. In order to ensure screening and two way referrals becomes a standard practice, it is essential to ensure that findings are recorded in a standard format in an antenatal card which is retained by the woman who takes it with her wherever she gets referred to. For this purpose an antenatal card was designed and tested in some states during the Ninth Plan. It is essential that these cards, with suitable modifications, if necessary, are made available to all states. The ANM will work closely with the anganwadi worker and will conduct maternal and child health clinics in anganwadis on specified days according to her advance tour programme. She will be the gatekeeper whose referrals will be honoured at PHCs/CHCs. In states where there are inadequate

number of ANMs, there is need to strengthen the existing ANM schools. In states/districts with heavy work load/difficulty in transport or communication, additional ANMs may be recruited on a contractual basis, in order to meet all the unmet needs for maternal health.

2.10.68 The CHC/FRU is the critical institution which provides emergency obstetric care and plays a vital role in the referral system. The reported gaps in the number of CHCs/FRUs will be filled by appropriately reorganising the subdivisional hospitals, post-partum centres and block-level PHCs. The required number of core specialists will be posted through appropriate redeployment of the manpower; wherever adequate number of specialists are not available, hiring them on a contractual or part-time basis can also be considered. In order to strengthen the capability of CHCs/FRUs in antenatal and intrapartum care, states can take up training of one of the staff nurses in CHC so that there is someone who has specialised in midwifery available to provide care. Over the next five years, efforts will be made to improve the Emergency Obstetric Care in all CHCs in a phased manner, by ensuring that these CHCs have well equipped operation theatre, access to banked blood, qualified obstetricians, paediatricians and anaesthetists.

2.10.69 In view of the massive differences between districts in the availability and access to essential and emergency obstetric services, and in maternal health indices, the following differential strategies will be adopted for achieving incremental improvement in essential and emergency obstetric care during the Tenth Plan.

In all districts:

- ☒ awareness generation to ensure universal screening of pregnant women; identification of women with problems;
- ☒ manage/refer women with complications to appropriate institution for care;
- ☒ 100 per cent coverage for tetanus toxoid (TT) immunisation;

- ☒ screening for and treatment of anaemia;
- ☒ provide information on:
 - ↳ nearest PHC where women with problems can seek a doctor's advice;
 - ↳ nearest FRU with obstetricians and facilities where women with obstetric emergency can seek admission; and
 - ↳ how to access the emergency transport system.

In better performing districts focus on:

- ☒ improvement in universal coverage and content and quality of antenatal care to enable very early identification of women with any antenatal problems;
- ☒ referral of those with problems to CHC/FRU for care.

In poorly performing districts, the focus will be on:

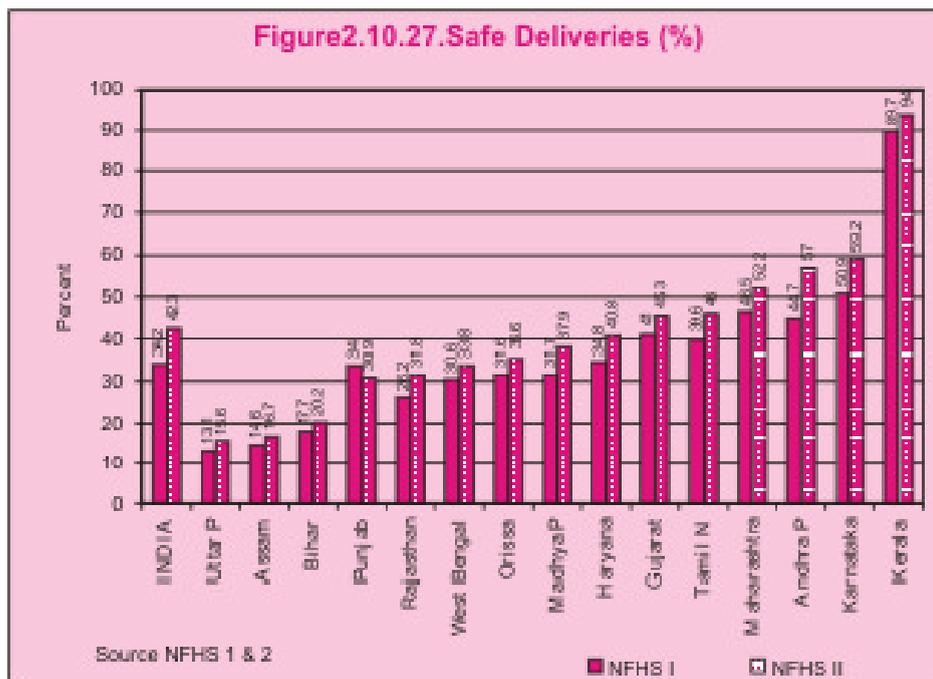
- ☒ improving coverage for antenatal screening by an ANM providing antenatal care at least thrice during pregnancy;
- ☒ building up a system of RCH camps in PHCs/CHCs on specific days throughout the year

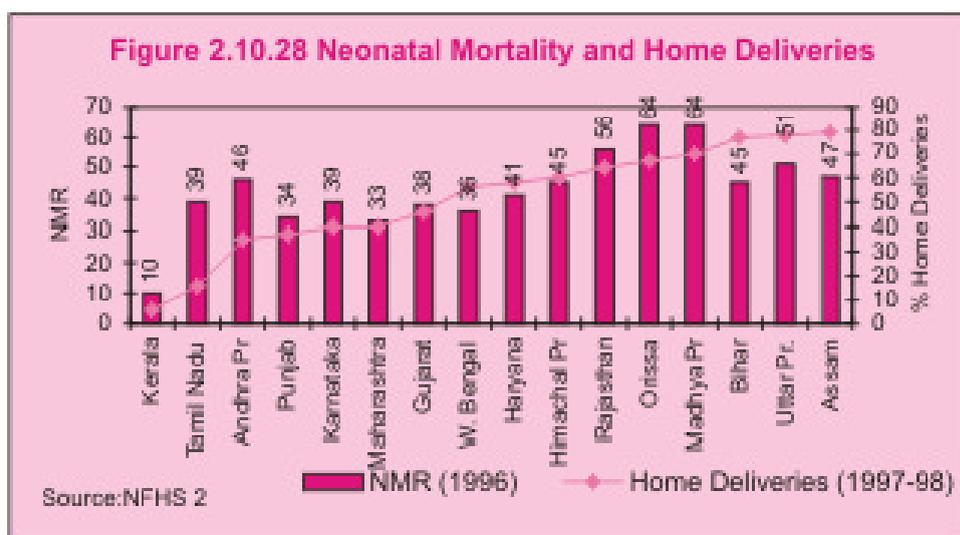
when doctors/specialists will be available to examine women with problems and provide treatment/referral.

Delivery Care

2.10.70 During the Ninth Plan, it was envisaged that efforts will be made to promote institutional deliveries both in the urban and rural areas. Simultaneously, in districts where a majority of the deliveries were taking place at home, efforts were made to train the traditional birth attendants (TBAs) through an intensive Dai Training Programme and to increase the availability of disposable delivery kits. The available data from the NFHS-1 and 2 and RHS-1998 suggest that there has been some improvement in institutional deliveries, especially in states like Tamil Nadu and Andhra Pradesh (Figure 2.10.27). However, there are a large number of districts in many states where the situation with regard to safe deliveries is far from satisfactory.

2.10.71 In states like Kerala, over 90 per cent of deliveries are in institutions and neonatal mortality rates are very low. However, neonatal mortality is high in states like Uttar Pradesh, where the majority of deliveries occur at home and are conducted by untrained persons. Efforts to train TBAs and provide





them with disposable delivery kits have not resulted in substantial decline in the maternal morbidity or neonatal mortality rates. (Figure 2.10.28). Data from NFHS-2 showed that even though there has been a steep increase in institutional deliveries in Tamil Nadu and Andhra Pradesh, there has been no commensurate decline in neonatal mortality, indicating the need to improve the quality of intrapartum and neonatal care for those coming for institutional deliveries.

2.10.72 Women with problems like anaemia, malpresentations, suspected cephalopelvic disproportion, hypertensive disorders of pregnancy and gestational diabetes mellitus should not deliver at home. Screening all women during pregnancy to detect those with such problems and referring them at the appropriate time to pre-designated institutions for management and safe delivery will substantially reduce maternal and perinatal morbidity and mortality. The mechanism for screening, as well as referral, will have to be streamlined during the Tenth Plan period. Easy-to-follow protocols for referral will have to be developed and made available to all health care providers. If home delivery is anticipated in low risk cases, provision has to be made for aseptic delivery by trained persons. The TBAs will be trained to recognise women with complications and those in labour longer than 12 hours and refer them to hospitals for delivery. This strategy is expected to result

in some reduction in maternal and neonatal deaths and pave the way for good antenatal care and safe institutional deliveries at a later date.

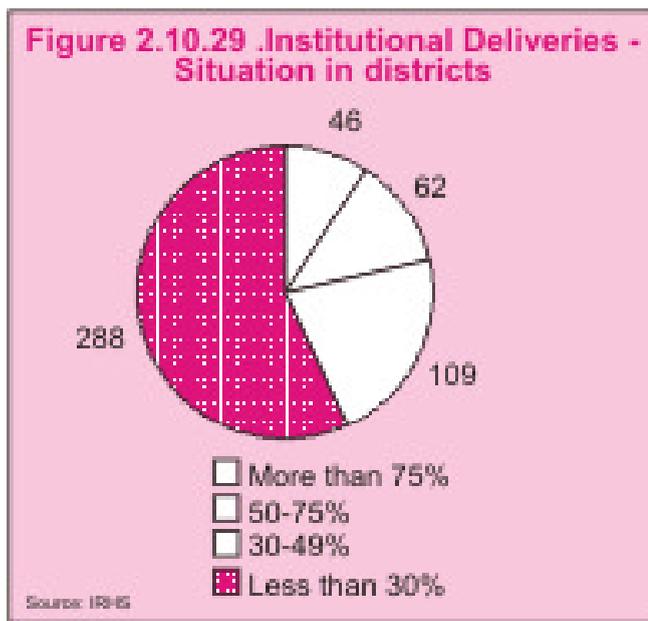
2.10.73 Unpredictable complications can arise even during apparently normal labour and rapid transportation of these women to hospital for emergency obstetric care is essential. In order to assist families in arranging transport to centres where emergency care is provided, the Department of Family Welfare provided funds which will be available at the village level. Panchayats, NGOs and women's organisations and men in villages will play an important role in ensuring that optimum use is made of this fund and timely transport saves life. In the postpartum period, early detection and management of infections, support for breast feeding and nutrition counseling will receive due attention.

Tenth Plan Strategy to Improve Delivery Care

2.10.74 In view of the massive differences between states/districts in the proportion of institutional deliveries (Figures 2.10.29) and neonatal mortality rates, a differential strategy to achieve incremental improvement in maternal and neonatal care will be taken up during Tenth Plan.

In all districts

- ☒ efforts will be made to identify women with complications during pregnancy through



antenatal check up and refer them to appropriate institution for safe delivery.

In districts with low institutional delivery, attempt will be made to:

- ☒ screen all women in the last four weeks of pregnancy and ensure that those with complications deliver in institutions;
- ☒ train TBAs in clean delivery;
- ☒ train TBAs to recognise problems that arise during labour and refer those women to hospitals;
- ☒ ensure that referrals are honoured; and
- ☒ build up community support for transport of women with problems to functional FRUs.

In districts with high institutional delivery, efforts will be made to:

- ☒ improve the quality of services available;
- ☒ address problems and needs of the women in labour seeking institutional deliveries;
- ☒ aim at universal institutional delivery by making institutions people friendly; and
- ☒ perform medical audit for monitoring progressive improvement in quality of care.

2.10.75 Specific efforts will be made to strengthen FRUs/CHCs/district hospitals to provide emergency obstetric care for all referred cases. The attempt will be to:

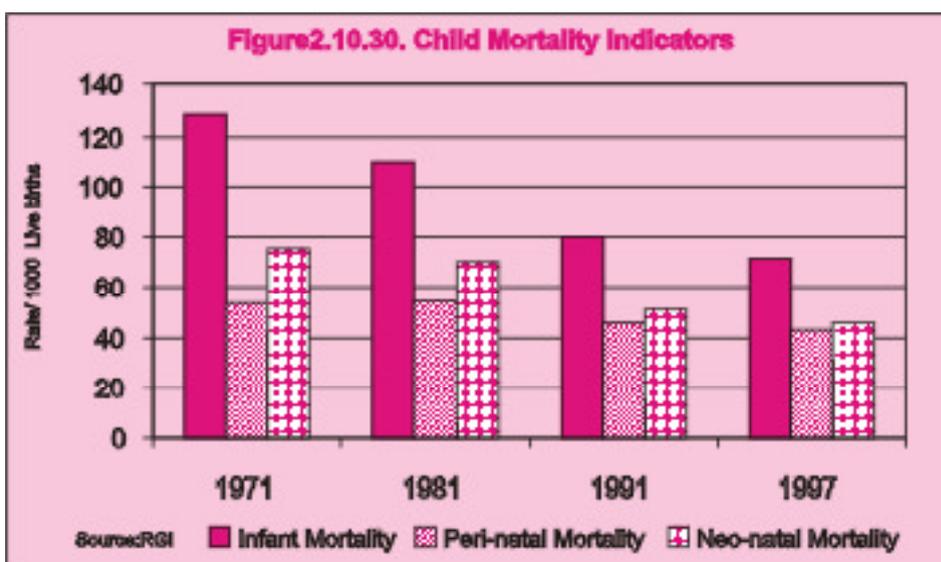
- ☒ operationalise adequate number of FRUs/CHCs by posting specialists in obstetrics, gynaecology/pediatrics in institutions where infrastructure is available;
- ☒ provide for funding specialists on contract/part-time basis, if necessary, so that care is available when needed; and
- ☒ improve access to anesthetists and banked blood.

CHILD HEALTH

2.10.76 Infant and under-five mortality rates are excellent indicators of the health status of children. In India there is no system for collection and analysis of data on morbidity during childhood. In the absence of this, available mortality data and analysis of causes of death have been utilised for drawing up priority interventions for improving child health. Ongoing major intervention programmes in child health include:

- ☒ essential newborn care;
- ☒ immunization to prevent morbidity and mortality due to vaccine preventable diseases;
- ☒ food and micro-nutrient supplementation programmes aimed at improving the nutritional status;
- ☒ programmes for reducing mortality due to acute respiratory infection (ARI) and diarrhoea.

2.10.77 Improved access to immunisation, health care and nutrition programmes have resulted in substantial decline in IMR between 1950-1990. However, it is a matter of concern that the decline in perinatal and neonatal mortality has been very slow (Figure-2.10.30). IMR has remained unaltered in the 1990s. There are substantial differences between states in neonatal, infant and under-five mortality

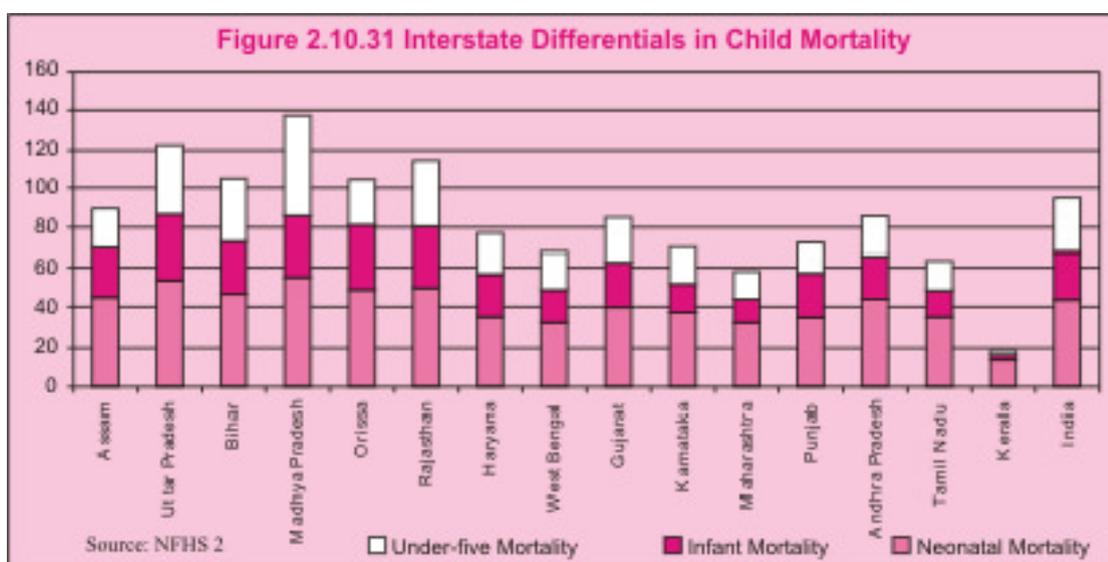


rates(Figure-2.10.31). Higher under-five mortality rates in girls persist, indicating gender bias in child rearing practices Over the last three decades there has not been any substantial change in the major causes of deaths during infancy and childhood.

Inter-Relationship between IMR and CBR

2.10.78 Access to family welfare services and contraceptive care is a critical determinant of infant mortality and birth rate. In spite of the fact that health and contraceptive care are provided by the same personnel, the decline in these indices do not always go hand in hand. There are massive inter-state and intra-state differences in birth rates and IMR. In spite

of a relatively high IMR, states like Tamil Nadu and Andhra Pradesh have achieved a steep decline in fertility. In states/districts where fertility has declined without a commensurate decline in IMR, there should be a focussed, area-specific situation analysis and intervention to reduce IMR. For this, reliable district-specific data on birth rates and IMR must be available on an annual basis. This can be achieved only through 100 per cent recording of birth and death and collation and analysis of this data at the district level. Such a system would also enable continuous monitoring of the impact of the intervention and mid-course corrections. In order to achieve this, strengthening of the CRS will be given priority during the Tenth Plan period.



Child Health Interventions During the Ninth Plan

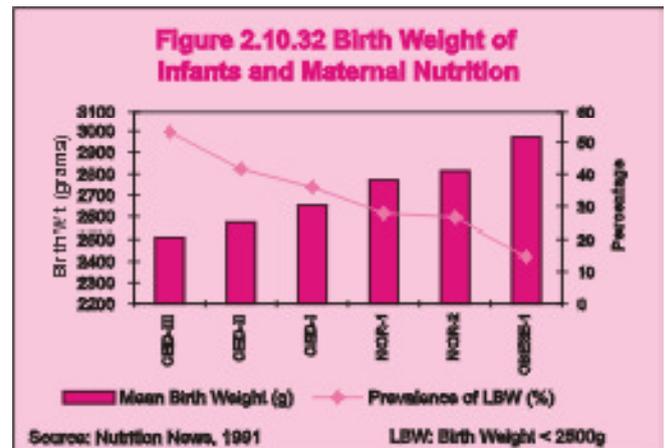
2.10.79 Under the RCH programme, comprehensive integrated interventions to improve child health were initiated to address each of the major factors contributing to high IMR and under five mortality.

Components of child health care include :

- ☒ Essential newborn care
- ☒ Immunisation
- ☒ Nutrition:
 - ↳ exclusive breast-feeding for six months
 - ↳ timely introduction of complementary feeding.
 - ↳ detection and management of growth faltering.
 - ↳ massive dose Vitamin-A supplementation.
 - ↳ iron supplementation, if needed.
- ☒ Early detection and appropriate management of:
 - ↳ acute respiratory infections;
 - ↳ diarrhoea.
 - ↳ other infections.

Essential New Born Care

2.10.80 India has the dubious distinction of having a very high prevalence of low birth weight. Currently nation-wide data on birth weight in different states and districts is not available because a majority of births occur at home and these infants are not weighed soon after birth. Estimates based on available data from institutional deliveries and smaller community-based studies suggest that nearly one-third of all Indian infants weigh less than 2.5 kg at birth. There are differences between states and between economic groups, with incidence of low birth rate being the highest among the low income groups. There has hardly been any change in birth weight trends in the past three decades. A gender difference has been noted in mean birth weights, with female infants tending to weigh lesser than male infants.



2.10.81 Birth weight is influenced by the nutritional and health status of the mother. There is a good correlation between birth weights and the body mass index (BMI) of the mother (Figure-2.10.32). A significant reduction in birth weight has been observed in anaemic women and the low birth weight rate doubles when Hb levels fall below 8 gms/dl. Some factors, which have significant influence on birth weight, such as the parent's build, are not amenable to short term corrective interventions. On the other hand, factors like anaemia, pregnancy induced hypertension and low maternal weight gain during pregnancy can be corrected and could result in substantial reduction both in pre-term births and birth of small for dates neonates. During the Tenth Plan, efforts will be made to identify women with these problems by ensuring universal antenatal screening; provision of appropriate management including referral services for those with problems may result in improvement in birth weight.

2.10.82 The experience of states like Kerala, Pondicherry and Goa have shown that it is possible to achieve substantial decline in IMR and child mortality rates without any significant improvement in birth weight and reduction in the number of infants born weighing below 2.5 kg.

2.10.83 Available data suggests that only 10 to 15 per cent of all births occur before 37 weeks (pre-term births), about 20 to 25 per cent infants weigh less than 2.5 kg but are mature and thrive under normal care even at home. If all the new born babies weighing below 2.5 kg are considered as being at risk and are sent to hospitals for care, hospitals will get over crowded. Studies conducted over the last three decades have shown that the neo-natal and

infant mortality rates steeply increase only when birth weight falls below 2.2 kg or infants are premature. During the Tenth Plan priority will be accorded to weighing all neonates at or soon after birth and ensuring referral of preterm/ <2.2 kg neonates to the centers where appropriate care could be provided.

2.10.84 During the last three decades efforts were made through antenatal care to reduce low birth weight because:

- ☒ it is closely linked to infant (especially neonatal) mortality;
- ☒ developing countries have the highest rates of low birth rate;
- ☒ developing countries cannot afford the technologies for intensive neonatal care needed to reduce mortality among infants with low birth rate.

- ☒ During the last three decades there has not been any major reduction in the proportion of low birth weight babies.
- ☒ In most states there has been substantial reduction in IMR even though there is no change in birth weight.
- ☒ Reduction in low birth weight is not an essential prerequisite for reduction in IMR.

2.10.85 During the Tenth Plan every effort will be made to:

- ☒ screen pregnant women for under-nutrition and anaemia and provide appropriate interventions;
- ☒ advise at-risk individuals to have delivery in institutions, which can provide optimal intrapartum and neonatal care and improve neonatal survival;
- ☒ have the anganwadi worker check the birth weight of babies as soon after delivery as possible in all home deliveries and refer those neonates with birth weight less than 2.2 kg to hospitals where there is a pediatrician available;
- ☒ if these interventions are fully operationalised it will be possible to achieve substantial

reduction in the neonatal mortality rate within a short period.

Operationalisation of New Born Care

2.10.86 Two-thirds of all the neonatal deaths occur in the first seven days after birth (Table 2.10.7). The major causes of neonatal deaths are premature birth, asphyxia and sepsis. (Table 2.10.8). If neonates requiring care are identified and referred to an appropriate facility where they can be effectively treated and it will be possible to achieve substantial decline in neonatal mortality.

Table 2.10.7
Components of IMR

	%
Early neonatal mortality	48
Late neonatal mortality	17
Post neonatal mortality	35

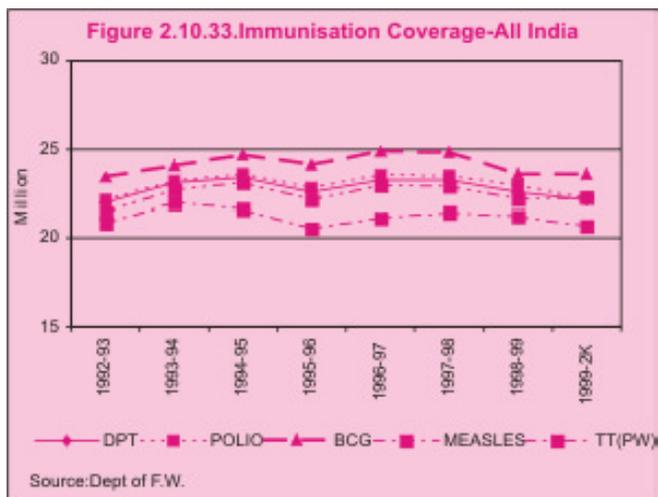
Source: SRS '1996

Table 2.10.8
Causes of neonatal deaths(%)

Sepsis	52
Asphyxia	20
Prematurity	15
Others	13

Source: RGI

2.10.87 In order to accelerate the decline of IMR, essential newborn care was included as an intervention under the RCH programme. Equipment for essential newborn care was supplied to districts; training was provided for medical officers and other staff at the district hospitals and medical colleges to improve content, quality and coverage of essential newborn care. Operationalisation of newborn care facilities at the primary health care level was initiated in collaboration with the National Neo-natology Forum (NNF). Department of Family Welfare and the ICMR are funding research studies on the feasibility and effectiveness of community-based newborn care in reducing neonatal mortality in settings where access to primary health care institutions are not adequate. The focus during

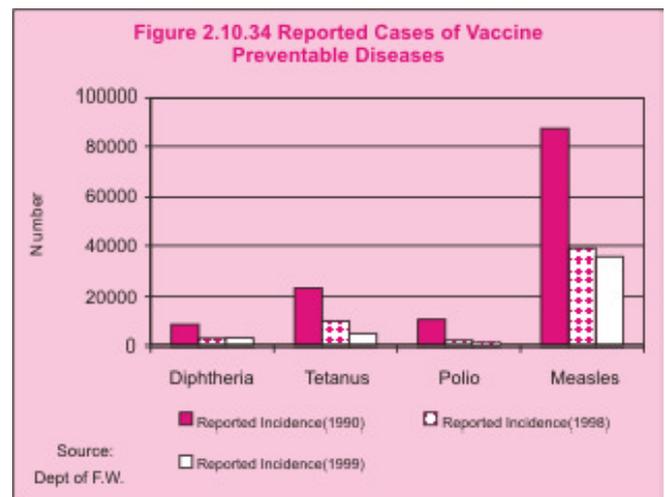


the Tenth Plan will be to operationalise the appropriate essential new born care in all settings so that there is substantial reduction in the early neonatal mortality both in institutional deliveries and home deliveries.

Immunisation

2.10.88 The Universal immunization program which was taken up in 1986 as a National Technology Mission, became a part of the Child Survival and Safe Motherhood (CSSM) programme in 1992 and the RCH programme in 1997. Under the programme, infants are immunised against tuberculosis, diphtheria, pertussis, poliomyelitis, measles and tetanus. Reported immunization Coverage during the nineties is shown in Figure 2.10.33. The National Health Policy, 1983, set the goal of universal immunisation against these six vaccine preventable diseases by 2000, this has not been achieved. However, reported cases of vaccine preventable diseases have declined over the same period (Figure 2.10.34).

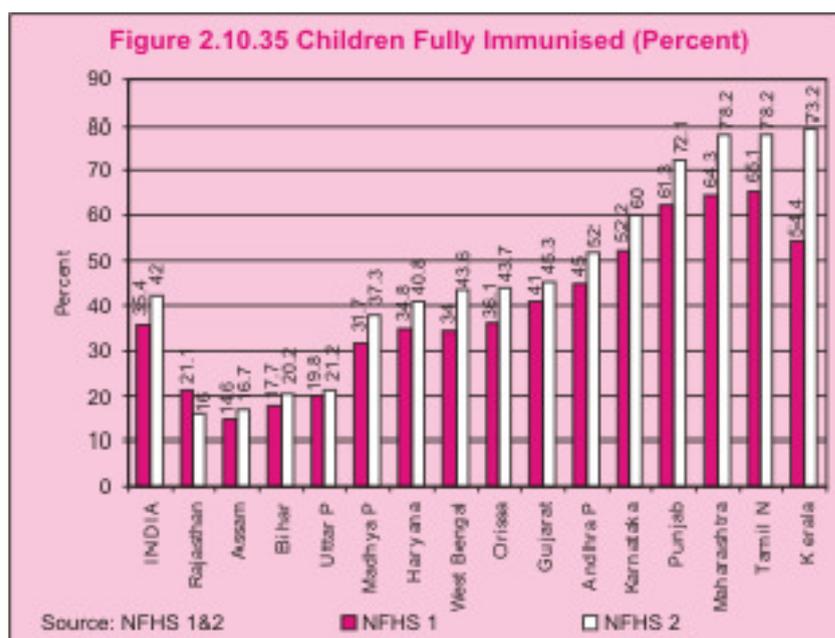
2.10.89 Data from NFHS indicate that there has not been any decline in the immunisation coverage in the 1990s. However, none of the states have achieved coverage levels of over 80 per cent; coverage level in states like Bihar, Uttar Pradesh and Rajasthan were very low (Figure 2.10.35). The drop-out rates between the first, second and third doses of oral polio vaccine and DPT have been very high in most states. Lower coverage of around 20 per cent is reported for measles as compared to



other vaccines. One of the main reasons for not achieving 100 per cent routine immunisation, is the focus on campaign mode programmes in health and family welfare. The Department of Family Welfare has now taken up a scheme for strengthening of routine immunisation. A pilot project on Hepatitis B immunisation has also been initiated.

2.10.90 The Tenth Plan will concentrate on :

- ☒ achieving hundred per cent coverage for the six vaccine preventable diseases;
- ☒ elimination of polio and neonatal tetanus;
- ☒ strengthening routine immunisation programmes and discouraging campaign mode operations which interfere with routine services;
- ☒ greater involvement of the private sector;
- ☒ improving awareness through all channels of communication;
- ☒ improving the quality of care, ensuring injection safety using appropriate, sustainable technology;
- ☒ correcting the over-reporting of coverage.
- ☒ evaluating on-going pilot projects on the introduction of Hepatitis B vaccine, including those where the vaccine costs are borne by the parents;
- ☒ exploring appropriate sustainable models of providing newer vaccines without over-burdening the system and programme including charging actual costs for the newer vaccines from people above the poverty line;



- ☒ expanding on-going polio surveillance to cover all vaccine preventable diseases in a phased manner.

Pulse Polio Immunisation

2.10.91 Under the Pulse Polio initiative, launched in 1995-96, all children under five years of age are to be administered two doses of oral polio vaccine in December and January every year until polio is eliminated. Coverage under the programme has been reported to be over 90 per cent in all states, with over 120 million children taking the vaccine every year. However, it is a matter of concern that over the last five years coverage under routine immunisation has not improved. There are sections of the population who escape both routine immunisation and the pulse polio immunisation. As a result, though there has been a substantial decline in the number of polio cases, this was not sufficient to enable the country to achieve zero polio incidence by 2000.

2.10.92 Confirmed polio cases reported in the last four years is shown in Table 2.10.9. Uttar Pradesh and Bihar account for most of the reported cases. Mop-up immunization is being undertaken following detection of wild poliovirus, including areas with clusters of polio compatible cases and in areas of continued poliovirus transmission. The sub-national immunisation

days (SNID) and national immunisation days (NIDs) are being conducted using the combined fixed posts and house-to-house approach in all states. Special efforts are being made to achieve high routine and campaign coverage in under-served communities and remind families about the need for routine immunisation during the pulse polio immunisation campaigns.

2.10.93 The medical goal of polio eradication is to prevent paralytic illness due to polioviruses by the elimination of wild poliovirus so that children need not be immunised perpetually. India will probably achieve zero incidence of polio by 2004. If there are no more cases over the next three years, the country will be declared polio free. When this is achieved, steps will have to be taken to ensure that the disease does not return, by continuing to ensure 100% coverage under routine immunisation for another decade.

Table 2.10.9
No of Polio Cases

Year	No. of cases of confirmed polio
1998	1931
1999	1126
2000	265
2001	268

Source : Dept. of FW

2.10.94 The oral polio vaccine contains live attenuated virus. Recent experiences in Egypt, the Dominican Republic and Haiti have shown that the vaccine-derived viruses can become neuro-virulent and transmissible. Such mutant viruses have caused outbreaks of polio in areas where there was a decline in immunisation coverage. Several countries that have eradicated polio have shifted to injectable killed polio vaccine after elimination of the disease. India, along with other South-Asian countries, may have to consider all these options and prepare appropriate strategies during the Tenth Plan.

Infections in Children

2.10.95 Data from NFHS-2 indicates that 30 per cent of children below three years of age had fever during the two weeks preceding the survey, 19 per cent had symptoms of ARI and another 19 per cent had diarrhoea. About two-thirds of the children who had symptoms of ARI or diarrhoea were taken to a health facility or health-care provider. Knowledge of the appropriate treatment of diarrhoea remains low.

Diarrheal Disease Control Programme

2.10.96 Diarrhoea is one of the leading causes of death among children. Most of these deaths are due to dehydration caused due to frequent passage of stools and can be prevented by the timely and adequate replacement of fluids. The Oral rehydration programme was started in 1986-87 in order to prevent such deaths. Health education aimed at the rapid recognition and appropriate management of diarrhoea has been a major component of the CSSM and RCH program.

2.10.97 The use of fluids available at home and oral rehydration solution (ORS) has resulted in a substantial decline in the mortality associated with diarrhoea, from an estimated one million to 1.5 million children every year prior to 1985 to 600,000 to 700,000 deaths in 1996. In order to further improve access to ORS, 150 packets of ORS are provided as part of the Drug Kit-A, two of which are supplied to all the sub-centres every year under the RCH programme. In addition, social marketing and

supply of ORS through the public distribution system are being taken up in some states. However RHS data indicate that ORS was used in more than 50 per cent of cases of diarrhoea in only nine districts (Table 2.10.10). Improving access to and utilisation of home available fluids/ORS for the effective management of diarrhoea will receive priority attention during the Tenth Plan as an inexpensive and effective tool to reduce IMR/under-five mortality.

Table 2.10.10
Children with Diarrhoea
(Percentage treated with ORS)

Percent	Districts
>50	9
25-49	82
<25	413

Source : RHS 1998-99

Control of Acute Respiratory Infections

2.10.98 Pneumonia accounts for around 30 per cent of under five deaths in the country. Under the RCH programme, co-trimoxazole tablets are supplied to each sub-centre in the country as part of Drug Kit-A. Mothers and community members are being informed about the symptoms of ARI, which would require antibiotic treatment or referral. Training of health care personnel in the early diagnosis of ARI and appropriate treatment, including referral, as envisaged under the RCH programme has not yet been completed. This will receive immediate attention during the Tenth Plan period.

Tenth Plan Strategy for Improving Child Health

2.10.99 In view of the substantial differences in the IMR and neonatal mortality rates between states and between districts, a differential strategy will be adopted during the Tenth Plan. Wherever district-specific data is available from CRS, district-specific strategy will be adopted. State-specific strategy will be evolved when such disaggregated data is not available. In states/districts with a high IMR and where early neonatal mortality is less than 50 per cent of the IMR, the focus will initially be on improving post-neonatal mortality. In districts/states

where the IMR is relatively low, and early neonatal mortality accounts for more than 50 per cent of the IMR, the focus will be on antenatal, intra partum and neonatal care.

2.10.100 The strategy adopted for all districts will have the following elements:

At Birth

- ☒ essential new born care.
- ☒ weighing at birth and referring pre-term babies and neonates weighing less than 2.2 kg to institutions where a paediatrician is available.

Nutrition Interventions

- ☒ promote exclusive breast-feeding upto six months.
- ☒ introduce semi-solid supplements in the sixth month.
- ☒ screen all children to identify those with severe grades of under-nutrition and treat them.
- ☒ administer massive dose of vitamin A supplements according to schedule.
- ☒ administer iron-folate supplements, if needed.

Health Interventions

- ☒ universal immunisation against the six vaccine preventable diseases.
- ☒ early detection and management of ARI/ diarrhoea.

Use of District-wise Data Generated by CRS for Planning and Monitoring the National Family Welfare Programme

2.10.101 There are huge inter-state and inter-district variations in the access to health care and health indices of women and children. During the Tenth Plan, efforts are being made to rapidly improve the health indices by increasing the availability and utilisation of health care facilities. In order to respond to the changing needs at district level the Department of Family Welfare has introduced decentralised district- based planning and programme implementation, based on district-wise indicators. The data base needed for this can be made available in a sustained fashion only through

100 per cent registration of births and deaths and building up the capacity for data analysis. This task will be taken up on a priority basis during the Tenth Plan.

2.10.102 The country is yet to ensure 100 per cent registration of births and deaths. Available information with the RGI's office indicates that till the mid 1990s, over 90 per cent of all births and deaths are registered in states like Kerala, Tamil Nadu, Delhi, Punjab and Gujarat. Steps have also been initiated in these states to collect, collate and report these data at the PHC/district level on a yearly basis. These data should be used at the district-level for PHC-based planning of RCH care as well as evaluation of the coverage and impact. In districts where vital registration is over 70 per cent, efforts are being stepped up to ensure that over 90 per cent of births and deaths are reported so that an independent data base is available for planning as well as impact evaluation of PHC-based RCH care. The goal of 100 per cent registration of births and deaths is expected to be achieved by the end of the Tenth Plan.

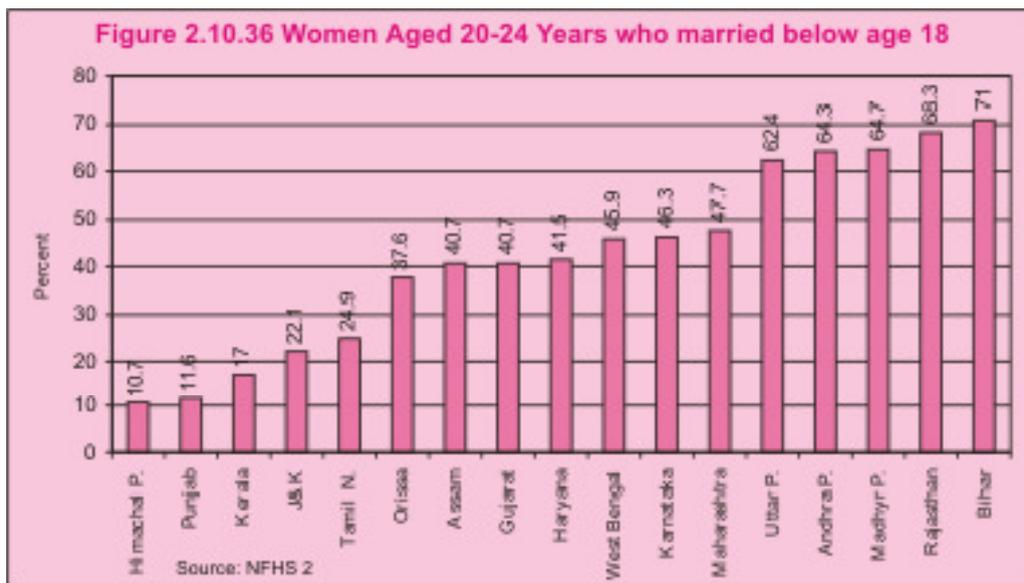
Health Care for Adolescents

2.10.103 The 1990s witnessed a rapid increase in the adolescent population, a trend that will continue over the next two decades. Under the RCH programme an effort was made to address

Ninth Plan strategy for adolescent health care

- ☒ Efforts to educate the girl, her parents and the community on the need to delay marriage.
- ☒ Programmes for the early detection and effective management of nutritional (under-nutrition, anaemia) and health (infections, menstrual disorders) problems in adolescent girls.
- ☒ Appropriate antenatal care to high risk adolescent pregnant girls.

Inter-sectoral coordination between RCH and KSY programmes is being strengthened in blocks where ICDS centres have an adolescent care programme.

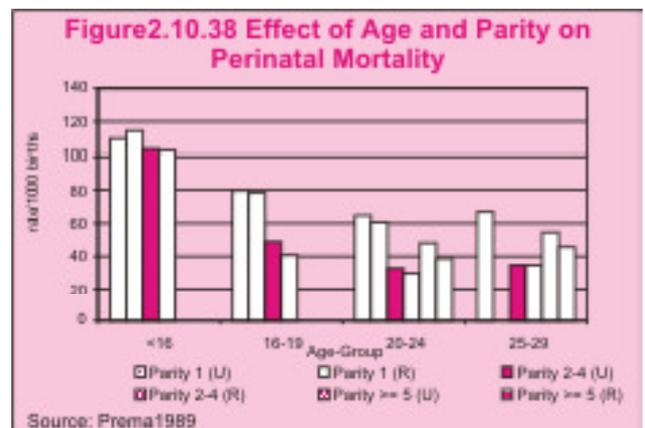
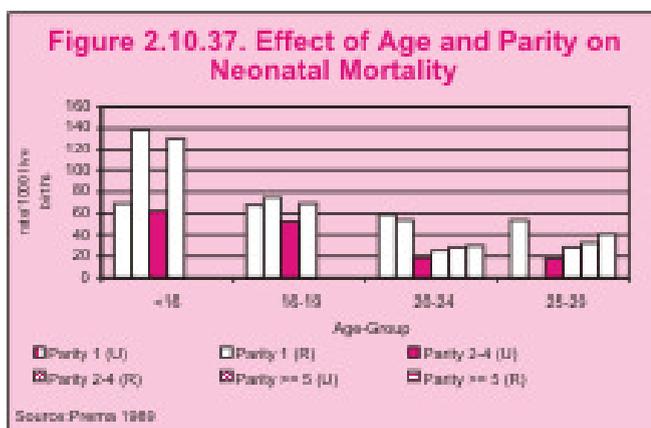


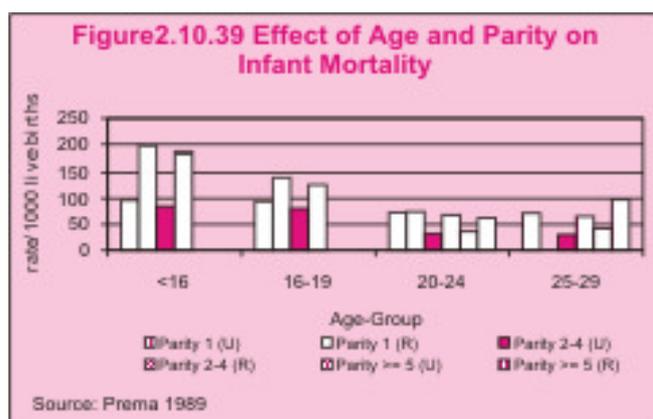
some of the the health care needs of adolescents. The Department of Women and Child Development has initiated the Kishori Shakti Yojana (KSY) in selected blocks. Specialized counselling and IEC material to be provided through NGOs, is being prepared. However, coverage under all these programmes has been very low.

2.10.104 Data from NFHS 2 indicate that median age at marriage of girls in India is 16 years and 61 per cent of all girls were married before they were 18 years. The mean age at first birth is 19.2 years. There are massive inter-state differences in proportion of girls who got married before 18 years (Figure 2.10.36). Under-nutrition, anaemia and poor antenatal care lead not only to increased morbidity in the mother but also to high incidence of low birth weight and perinatal mortality. Poor child-rearing practices add to the morbidity and under-nutrition in infants, thus perpetuating the inter-generational

cycle of under-nutrition an ill health. Appropriate nutrition and health education, for all adolescents, advocacy for delay in age at marriage, optimum health and nutrition interventions during pregnancy in adolescents are some of the inter-sectoral initiatives to break this vicious cycle.

2.10.105 In view of the high prevalence of teenage marriages, in depth investigations have been carried out to document the adverse consequences, of teenage conception in the Indian setting. Data from Indian studies indicate that pregnancy in the early teens before 16 years is associated with an adverse effect on maternal nutrition, birth weight and survival of the offspring. The extra nutritional requirements of pregnancy coming close after the nutritional requirements for adolescent growth spurt might be the major factor responsible for the observed poor nutritional status of girls who conceived before they are 16 years of age.





2.10.106 Lower maternal body weight, lower pregnancy weight gain, and higher prevalence of anemia and possibly pregnancy-induced hypertension among girls who conceived before they were 16 might account for the observed lower mean birth weight and higher perinatal, neonatal and infant mortality rate in these groups, both in urban and rural areas (Figures 2.10.37, 38 and 39). The higher low-birth weight rates, obvious deficiencies in child-rearing practices of these young girls, and poor availability and utilization of health care services, especially in rural areas, account for the high infant mortality rates.

2.10.107 Undoubtedly, there is a very urgent need to create awareness regarding adverse consequences of early teenage conception and to mobilize social support for strict implementation of laws regarding age at marriage. As and when pregnancies occur in early teenage, these girls should be considered as a very high-risk group and provided with adequate nutritional and health care; their infants should also receive appropriate health care. The health personnel should be sensitized to the needs of this very vulnerable group who are unlikely to seek or utilize available health care that they urgently require. In addition to appropriate education to delay age at marriage, the Tenth Plan will take up nutrition and health interventions to promote optimum health and nutrition in adolescent girls. While adolescent health care will have to be the focus in states where the age at marriage is increasing, effective antenatal and intra-partum care will remain the focus in a majority of the states where teenage pregnancies are common.

Nutrition

2.10.108 The importance of maternal nutrition in determining obstetric outcomes and child nutrition as a determinant of the survival and health of children is well known. The current status and proposed interventions for improving maternal and child nutrition are dealt with in the section under Nutrition.

RTI and STI

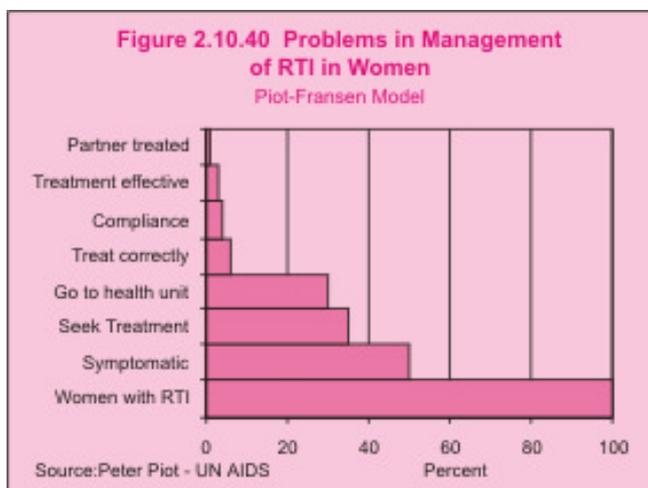
2.10.109 It has long been recognised that RTI and STI are common problems in women in the reproductive age group. During the last two decades, there has been resurgence of interest in the detection and management of RTI/STI. This is partly because clinicians have access to accurate tests for aetiological diagnosis and, are in a position to provide prompt, appropriate treatment for many RTIs/STIs and prevent the long-term health consequences of these infections. The other reasons for the increased focus on RTI/STI are:

- ☒ doctors are seeing a large number of patients belonging to a wider spectrum of age (adolescents, women in the reproductive age group and elderly women), and socio-economic strata seeking care for RTI;
- ☒ with the availability of antibiotics for treatment of RTI/STI and contraceptives for preventing pregnancy, there has been an increasing prevalence of multi-partner sex and an inevitable increase in RTI/STI;
- ☒ in spite of the increasing availability of specific tests for diagnosis and efforts to prescribe appropriate antibiotics, antibiotic resistance is increasing, leading to poor response to therapy and recurrence of infection; and
- ☒ available data from research studies suggest that the risk of transmission of HIV infection is increased by RTI.

2.10.110 The importance of prevention, early detection and treatment of RTI/STI is well-recognised. Reliable, easy-to-perform tests for accurate diagnosis are readily available. Most of the

infections still respond to commonly-used antibiotics and chemotherapeutic agents. The management of common lower reproductive tract infection has been included as a component of RCH care; these services are to be provided through the existing primary health care infrastructure. The Department of Family Welfare has provided the necessary drugs and funds to fill gaps in laboratory technician in PHCs/CHCs. However, the training of health care personnel in RTI diagnosis and management has been inadequate in most states. The Department of Family Welfare has coordinated its efforts with the National AIDS Control Organisation (NACO) so that the latter provides the input for diagnosis and management of RTI/STI at the district level and above.

2.10.111 It is important to recognise that there are problems in the current programmes for management of RTI. The Piot and Fransen model of RTI/STI management graphically sums up the problems in treatment of RTI. (Figure 2.10.40.) The model shows that about 40 per cent of women have RTI/STI at any given time but only 1 per cent complete full treatment of both partners even under optimal conditions. It is, therefore, hardly surprising that in spite of all the current efforts to improve treatment of RTI/STI patients, gynaecologists and public health professionals feel that there has not been any substantial improvement in the situation over the last decade. However, it is important to persist with health education, providing ready access to diagnostic facilities and appropriate treatment.



Infertility

2.10.112 It is estimated that between 5 and 10 per cent of couples are infertile. While provision of contraceptive advice and care to all couples in the reproductive age group is important, it is equally essential that couples who do not have children have access to essential clinical examination, investigation, management and counseling. The focus at the CHC level will be to identify infertile couples and undertake clinical examination to detect the obvious causes of infertility, carry out preliminary investigations such as sperm count, diagnostic curettage and tubal patency testing. Depending upon the findings, the couples may then be referred to centres with appropriate facilities for diagnosis and management. By carrying out simple diagnostic procedures at the primary health care institutions, it is possible to reduce the number of couples requiring referral. Initial screening at the primary health care level and subsequent referral is a cost-effective method for the management of infertility both for the health care system and for those requiring such services.

Gynaecological Disorders

2.10.113 Women suffer from a variety of common gynaecological problems including menstrual dysfunctions at peri-menarchal and peri-menopausal age. Prolapse uterus of varying degrees is yet another major problem in parous women. Facilities for diagnosis of these are available at district hospitals or tertiary care centres. During the Tenth Plan period, the CHCs with a gynaecologist will start providing requisite diagnostic and curative services. The PHCs and CHCs will refer women requiring surgery to district hospitals or tertiary care centres. Cervical cancer is one of the most common malignancies in India accounting for over one-third of all malignancies in women. It can readily be diagnosed at the PHCs and CHCs. Early diagnosis of Stage I and Stage II and referral to places where radiotherapy is available will result in rapid decline in the morbidity and mortality associated with cancer cervix in the near future.

Access to RCH Services

2.10.114 Data from research studies and clinical experience shows that social and economic deprivation lead to poor health outcomes. Poor health, in turn, results in deterioration of economic status partly due to loss of wages and partly due to cost of health care. Specific efforts have been made to focus on health and nutrition interventions so that the vulnerable segments of the population have better access to health and nutrition services and the vicious circle of poverty and ill health is broken. However, in spite of efforts over the last 50 years, better access to public health services continues to elude the poor, whose health care needs are the greatest. While this is true in all states, RHS data brings out some interesting inter-state comparisons. The poorest quintile in Tamil Nadu have better immunisation coverage rates than the richest quintile in Uttar Pradesh suggesting that socio-economic barriers can be overcome through improved awareness and access (Figures 2.10.41 and 2.10.42).

2.10.115 During the Tenth Plan, every effort will be made to improve access to essential primary health care, family welfare services and diseases control programmes totally free of cost. The Centre and the states are evolving and evaluating various options for reducing the financial burden of hospitalisation on the poor.

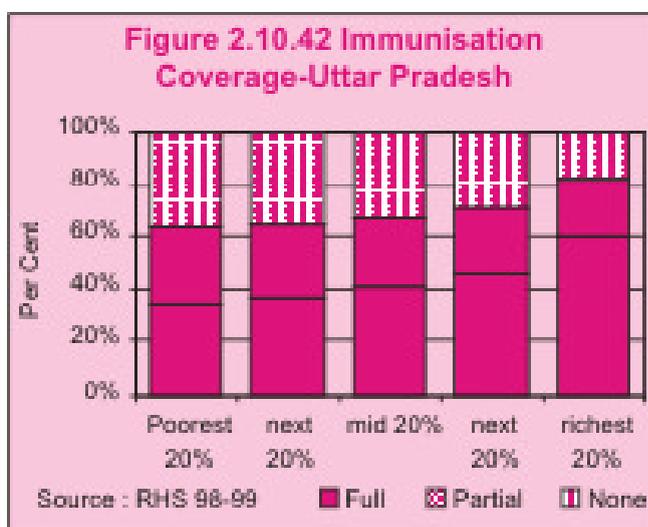
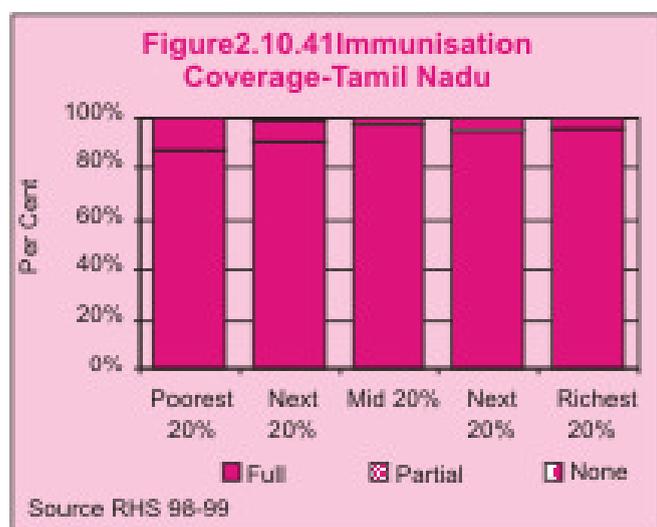
Logistic Support

Ninth Plan strategy

Improve uninterrupted supply of essential drugs, devices, vaccines and contraceptives, adequate in quantity and appropriate in quality.

2.10.116 Under the Family Welfare program the central government procures and supplies drugs, equipment kits, contraceptives and vaccines to the states. While the drug kits are supplied at district level, vaccines and contraceptives are supplied at the state or regional level. The states have, so far, not created any specialised or dedicated system for receiving such supplies, storing them in acceptable conditions and distributing them. As a result, there are delays, deterioration in the quality and wastage of drugs. Supplies under the family welfare programme are to the tune of Rs. 500 crore and it is estimated that the losses due to deterioration and inefficiencies may be to the extent of 20 to 30 per cent.

2.10.117 The Department of Family Welfare, in collaboration with different external funding agencies working in different states, has formulated logistic projects for each of the major states. It envisaged that a specialised agency will be created in each state which will manage warehouses at the regional level for each cluster of five to eight districts. These warehouses will receive an indent from each hospital in the area and will ensure delivery of



supplies within 15 days through a contracted transporter. To ensure efficiency, the state government agency will be paid only on the basis of a percentage of supplies it handles. The logistics project has already been initiated in some states.

2.10.118 During the Tenth Plan, efforts will be made to ensure that facilities which are being created, handle all the drugs/vaccine/devices provided by the central government and state governments for all health care institutions. The progress of this programme and the problem encountered will be monitored and appropriate mid-course corrections initiated.

Private Sector Participation in RCH

2.10.119 Over 80 per cent of the practitioners of modern medicine and a higher proportion of the ISM&H practitioners work in the private sector. It is estimated that while the private sector provides more than three-fourths of all curative health care services, its contribution to maternal and child health and family planning services is less than one-third. The major limitations in private sector participation include:

- ☒ the focus till now has been mainly on curative services;
- ☒ the quality of services is often variable; and
- ☒ the poorer sections of population cannot afford to pay for these services.

2.10.120 Under the RCH programme, several initiatives were taken to improve collaboration between the public and private sectors in providing family welfare services to the poorer sections, especially in the under-served areas. Efforts were made to increase the involvement of private medical practitioners in RCH care by providing them orientation training and ensuring that they have ready access to contraceptives, drugs and vaccines free of cost. These efforts will be augmented during the Tenth Plan. The private sector has immense potential for improving the coverage and quality of RCH services. The challenge is to find ways to optimally utilise this potential.

Role of NGOs/Voluntary Organisations in the Family Welfare Programme

2.10.121 The National Population Policy 2000 envisages increasing role of NGOs/voluntary organisations in building up awareness about and advocacy for RCH interventions and also in improving community participation. Until recently, only a small number of NGOs were getting funding from the Department of Family Welfare, because a majority of them did not have adequate technical knowledge and the skills required. In an attempt to increase NGOs participation, the Department involved several well-established NGOs such as the Family Planning Association of India and Voluntary Health Association of India in selecting, training, assisting and monitoring of smaller, field-level NGOs for carrying out the following functions:

- ☒ advocacy for maternal child health interventions;
- ☒ promotion of small healthy family;
- ☒ improving community participation;
- ☒ counselling and motivating adolescents to delay the age at marriage, young couples to delay first pregnancy and couples with two children to limit their families by the use of appropriate contraceptive methods;
- ☒ act as a link between the community and health care providers.

2.10.122 Currently, the Department of Family Welfare funds 97 mother NGOs (larger NGOs looking after smaller ones) covering 412 districts and over 800 NGOs. These NGOs cover all districts in ten states. However, states with high fertility and mortality rates still have a large number of districts without any NGO presence. The state governments have also been trying to involve NGOs in providing services, or by adopting a PHC. The results have been mixed; these experiments need to be carefully monitored.

2.10.123 During the Tenth Plan, NGOs will have a major role in promoting community participation in the following areas:

- ☒ gender sensitivity and advocacy regarding providing adequate care for the girl child;
- ☒ baby-friendly hospital initiatives and promotion of exclusive breast-feeding for six months; advocacy for the introduction of semi-solids at the right time;
- ☒ social marketing of contraceptives, ensuring easy availability of ORS/social marketing of ORS;
- ☒ sensitising the community regarding the adverse consequences of sex determination and sex selective abortions.

2.10.124 The Department of Family Welfare has also proposed that the NGOs who have adequate expertise and experience may participate in RCH service delivery. The interventions undertaken by the NGOs will be independently assessed at the end of the project period; funding will be dependent upon mid-term evaluation based on specific benchmarks. Efforts will be made to improve networking between the NGOs, state/district administration as well as PRIs.

Role of Industries and other Organisations

2.10.125 Governmental efforts alone will not be sufficient to achieve the desired goals of the family welfare programme. The organised industrial sector provides health/family welfare services to about 14 per cent of the country's population. Industry can improve acceptance of family welfare services by educating, motivating workers and improving access to services. Industries which provide health care to their personnel and their families can extend these facilities to the people living in the vicinity of factories, especially when they are located in under-served semi-urban and rural areas. They may take up an area-specific approach to improve services available in a block by adopting it. Smaller industries could form a cooperative group for providing health and family welfare services in collaboration with the government. Managerial and other skills available in industry can be made available to improve the efficiency of the government infrastructure. The marketing skills of industry may be useful in improving the IEC and motivation activities and in social marketing.

2.10.126 The labour force in the organised and unorganised sector and their families require coverage in order to achieve rapid improvement in health and demographic indices. Trade unions can expand their role to address the health care needs of workers and their families. During the Ninth Plan period, family welfare projects have been undertaken in the unorganised and semi-organised sectors in Tamil Nadu, plantation workers in West Bengal, beedi workers in Uttar Pradesh, and milk producers in Gujarat. The lessons learnt from these projects will be utilised to improve access to family welfare services.

2.10.127 During the Tenth Plan, attempts will be made to enhance the quality and coverage of family welfare services through the involvement and participation of the organised and unorganised sectors of industry, agriculture and labour representatives. The problem-solving approach of the corporate sector can be used to improve the operational efficiency of the health care services.

Initiatives to Address the Needs of Under-served Population

2.10.128 Access to health care is poorer in states like Uttar Pradesh, Madhya Pradesh, Bihar and Rajasthan. The Empowered Action Group (EAG) constituted by the Department of Family Welfare in 2001 reviews the available infrastructure, performance of the health system and health indices and suggests steps for improving access to health care so that there is a rapid decline in fertility and mortality. During the Tenth Plan, special efforts will be made to upgrade the capacity of the health system in these states/districts so that there is rapid decline in both fertility and mortality. This is an essential step if the ambitious goals for decline in fertility and mortality set in the National Population Policy are to be achieved because these states contribute to over 50 per cent of the country's mortality and fertility.

2.10.129 The tribal population (except in the north-eastern states) faces immense problems in accessing essential health care services and have poor health indices. The Department of Family Welfare has already initiated several programmes

focusing on meeting the health care needs of the tribal population. These will be continued during the Tenth Plan. Special efforts will be made to address the health needs through area-specific programmes and increasing the involvement of NGOs and the tribal community in all activities.

2.10.130 The urban slum population has been shown to have poor maternal and child health indices. In many slums, immunisation coverage is very low and children are undernourished. The Department of Family Welfare and the Department of Health have been investing in improving urban primary health care infrastructure and ensuring that they are linked to existing secondary and tertiary care institutions. The India Population Project (IPP) V, VIII and Urban RCH Pilot Projects have built up the capacities of the urban health system in several cities. Efforts to rationalise urban health care and improve efficiency so that reproductive care needs of urban population are fully met within the available infrastructure will be continued during the Tenth Plan period.

Strategies for Increasing Efficiency

2.10.131 A vast infrastructure for the delivery of health and family welfare services has been created over the last three decades based on uniform norms for the entire country. Evaluation studies have shown that they are functioning poorly because of :

- ☒ mismatch between structure and function;
- ☒ lack of training to health care personnel to update their knowledge, skills and programme orientation;
- ☒ absence of a proper medical hierarchy with well-defined functions;
- ☒ lack of first line supervision and mechanism to bring about accountability;
- ☒ absence of a referral system and lack of functional FRUs.

All the states have initiated health sector reforms aimed at improving the functional status of the health system, These are discussed in the chapter on Health.

2.10.132 Under the RCH programme, the Department of Family Welfare has invested heavily in training programme managers in managerial aspects for the effective implementation of the programme including decentralised district-based planning, implementation, monitoring and mid-course corrections. Skill upgradation of all categories of health care professionals and para-professionals is envisaged for improving the quality of screening and management of persons with complications, including referral as and when required. It is expected that the training programme will be completed soon and will promote effective functioning of the infrastructure and improve efficiency. These efforts will continue during the Tenth Plan period.

2.10.133 Though all states have shown some improvement in access to health care and in health and demographic indices, the rate of change has been very slow in some states. Efforts during the Ninth Plan to provide more funds to these states to upgrade infrastructure and manpower, and making schemes more flexible to enable private and voluntary sector participation has not been effective in improving access to services. During the Tenth Plan, efforts will be made to improve efficiency by undertaking task analysis, assigning appropriate duties/tasks to designated functionaries and training them to act as a multi-professional team. The first link in such a chain will be the village-based workers who will liaise between the people and health functionaries and ensure utilisation of available facilities. The PRIs will participate in the planning of programmes and assist in the implementation and monitoring. The ANM will administer vaccines, screen infants, children and pregnant women, identify and refer the at-risk persons to appropriate institutions. The medical officer at the PHC will undertake PHC-based planning and monitoring of the health and family welfare programmes and provide curative services, organise and supervise preventive and promotive health and family welfare-related activities and develop a viable, functional referral systems. The specialists in the CHCs will provide appropriate emergency care and care for referred patients,

participate in the development of the CHC-based RCH programmes, monitor the activities and initiate mid-course corrections. If this pattern of functioning is followed, the community, the link worker and the health functionaries will be performing the tasks that they are best suited for and the implementation of the programme will improve.

Involvement of PRI in Family Welfare Programme

2.10.134 There are immense differences between states in the involvement of PRIs in the Family Welfare Programme. States like Kerala have embarked on decentralised planning and monitoring programmes utilising PRIs and have devolved powers and finances to PRIs. Rajasthan, Andhra Pradesh and Haryana have implemented their own models for the involvement of the PRIs in the health sector. In other states, the involvement is mainly in planning and monitoring without devolution of power and finances. In some states, the PRIs have not yet started participating in the programme. There is a need to continuously review the situation and initiate appropriate interventions.

The Ninth Plan envisaged the involvement of PRIs for:

- ☒ Ensuring inter-sectoral coordination and community participation in planning, monitoring and management of the RCH programme.
- ☒ Assisting states in supervising the functioning of the health care related personnel including ANM, MMPW and AWW.
- ☒ Ensuring coordination of activities of workers of different departments such as health, family welfare, ICDS, social welfare and education etc. functioning at the village, block and district levels.
- ☒ Improving the acceptance of the Family Welfare Programme through increased community participation.

2.10.135 The real challenge of the Family Welfare Programme lies in effectively delivering the needed services in the remote and inaccessible areas where the services provided by the government machinery are the weakest and the private sector and NGOs are non-existent. During the Tenth Plan, it is envisaged that mature PRIs with intelligent, service-oriented members will play a key role in making the programme a people's programme and improving access to its services. The health committee of the gram panchayat can plan locally, identify area-specific unmet needs for reproductive health services and ensure that efforts are made to meet them. It can also be entrusted with the task of monitoring the attendance and performance of health care personnel. The PRIs can play a vital role in programme advocacy and monitoring the availability, accessibility and quality of services in government PHCs, NGOs and private practitioners and the cost of services provided by the latter. The PRIs will have the advance tour programmes of the ANM and male multipurpose worker and lists of nearest functioning PHCs with a doctor, nearest FRU/CHC with a paediatrician, obstetrician, surgeon or physician where persons with complications and those requiring emergency care could be referred. They will monitor the funding of emergency transport provision as well as dispersal of funds under the Balika Samridhi Yojana and the Maternity Benefit Scheme. The active role and supervision of the PRIs is also crucial for ensuring 100 per cent registration of births, deaths, marriages and pregnancies at the village level.

Intersectoral Coordination

2.10.136 Inter-sectoral coordination, especially between the Departments of Health, Department of ISM&H, Women and Child Development, Human Resource Development, Rural Development, Urban Development, Labour, Railways, Industry and Agriculture is critical for increasing the coverage of the Family Welfare Programme and improving implementation. Some of the areas where inter sectoral coordination is envisaged during the Tenth Plan include:

- ☒ involvement of the extension workers of these departments in propagating IEC messages pertaining to reproductive and child health care to the population with whom they work;
- ☒ efforts to improve the status of the girl child and women, improving female literacy and employment, raising the age at marriage, generating more income in rural areas, improving nutritional status of women and children;
- ☒ coordination among village-level functionaries - anganwadi workers, TBAs, Mahila Swasthaya Sangh, Krishi Vigyan Kendra volunteers and school teachers - to achieve optimal utilisation of available services.

2.10.137 Suggested areas of convergence of services with Department of Education include:

- ☒ inclusion of educational material relating to health, nutrition and population in the curriculum for formal and non-formal education;
- ☒ involvement of all zilla saksharata samitis in IEC activities pertaining to the RCH programme;
- ☒ involving school teachers and children in Class V and above in growth monitoring, immunisation and related activities in the village at least once a month as a part of socially useful productive work.

2.10.138 Convergence of services with the Department of Women and Child Development include :

- ☒ involvement of anganwadi workers in the compilation of births and deaths and the identification of pregnant women;
- ☒ involving anganwadi workers in weighing babies as soon as possible after delivery and referring neonates with weight below 2.2 kg to centres where a paediatrician is available;
- ☒ utilising the services of the anganwadi worker in improving the coverage of Massive Dose Vitamin A in children when they are 18 months, 24 months, 30 month and 36 months of age

and improving the compliance among pregnant women under iron-folic acid medication;

- ☒ identification of undernourished pregnant and lactating women and pre-school children to ensure that they get priority in food supplementation programmes under the ICDS and appropriate health care from ANMs and doctors;
- ☒ promoting the cultivation of adequate quantities of green leafy vegetables, herbs and condiments in coordination with the PRIs and agricultural extension workers and ensuring that these are supplied to anganwadis on a regular basis to improve micro-nutrient content of food supplements.

2.10.139 The anganwadi worker can assist the ANM in organising health check ups of women and children and immunisation in the anganwadi. She will act as depot holder for iron and folic acids tablets, ORS, condoms and disposable delivery kits. She will be provided with a list indicating the nearest facility to which women and children could be referred so that she can help in organising emergency referral. Intersectoral co-ordination with Department of Health and Department of ISM & H are discussed under respective chapters, co-ordination with Department of Women and Child Development for improving nutritional status are in the chapter of Food and Nutrition Security.

Research and Development

2.10.140 The ICMR is the nodal research agency for funding basic, clinical and operational research in contraception and maternal and child health. In addition, the Council for Scientific and Industrial Research (CSIR), Delhi, Department of Biotechnology (DBT) and the Department of Science and Technology (DST) fund research pertaining to the Family Welfare Programme. The National Committee for Research in Human Reproduction under the Chairmanship of the Secretary, Department of Family Welfare assists in drawing up priority areas of research and ensuring that there is no unnecessary duplication of research activities. Some of the

major institutions carrying out research in this area include the National Institute for Research in Reproductive Health, Mumbai, the National Institute of Nutrition, Hyderabad, the National Institute of Health and Family Welfare, New Delhi and the Central Drug Research Institute, Lucknow. The ICMR undertakes clinical and operational research studies through a network of Human Reproduction Research Centres (HRRCs) in medical colleges. The International Institute of Population Studies, Mumbai, and a network of 18 Population Research Centres conduct studies on different aspects of the Family Welfare Programme and undertake demographic surveys.

2.10.141 Under the RCH programme the Department of Family Welfare has constituted an expert committee for research in reproductive health and contraceptions under modern system of medicine and ISM&H to examine and recommend proposals that require funding. In addition, the Department is making efforts for the creation and support of an appropriate institutional mechanism to test and ensure the quality of products utilised in the programme.

2.10.142 Priority areas of research during the Tenth Plan are:

Basic and Clinical Research

- ☒ development of newer technology for contraceptive drugs and devices in modern system of medicines, including immunological methods for fertility regulation;
- ☒ examining the safety and efficacy of ISM&H products;
- ☒ identification and characterisation of genes/ gene products and detailing their functional role in reproduction and health of women and children;
- ☒ development and testing of new drug delivery systems for contraceptive steroids;
- ☒ safety and efficacy studies on newer vaso-occlusive methods, spermicides based on plant products such as neem oil and saponins and other plant-based substances;

- ☒ clinical studies on the use of emergency contraception and non-surgical methods of MTP;
- ☒ diagnosis and management of RTI/STI;
- ☒ innovative methods for improving neonatal care at the primary health care level, including assessment of simple methods for the diagnosis and management of sepsis, asphyxia and hypothermia in new born babies;
- ☒ studies on the prevention, detection and management of infections in children; and
- ☒ early detection and management of obstetric problems.

Demographic/Operational Research

- ☒ ongoing demographic transition and its consequences;
- ☒ continuation rates and effectiveness of contraceptives under actual programme conditions;
- ☒ operational research to provide integrated delivery of health, nutrition and family welfare services at the village level through the existing infrastructure and manpower;
- ☒ testing of the relationship between couple protection rate and CBR and between the reduction of IMR and reduction in birth rate in states in different levels of demographic transition;
- ☒ improving access to safe abortion services;
- ☒ research aimed at detection, prevention and management of RTI/STI in different levels of health care; and
- ☒ socio-behavioural research to improve community participation in increased utilisation of family welfare services;

Monitoring and Evaluation

2.10.143 The recommendation of NDC Sub-Committee on Population for the creation of district-

level databases on quality, coverage and impact indicators for monitoring the programme was implemented during the Ninth Plan period. The following systems are being used for monitoring and evaluation of programmes in the Family Welfare Programme:

- ☒ reports from state and implementation agencies;
- ☒ Sample Registration System and Population Census;
- ☒ Rapid Household Surveys;
- ☒ large-scale surveys - NFHS, sample surveys by the NSSO and area-specific surveys by the Population Research Centres;
- ☒ other specific surveys by national and international agencies.

2.10.144 The Department of Family Welfare has constituted regional evaluation teams which carry out regular verifications and validate the data on the acceptance of various contraceptives. These evaluation teams can be used to obtain vital data on failure rates, continuation rates and complications associated with different family planning methods. RHS data about the progress on programme interventions as well as its impact are being used to identify district-specific problems and rectify them. To assess the availability and the utilisation of facilities in various health institutions, facility surveys were conducted in 101 districts during 1998-99 and deficiencies found are being brought to the notice of the states and districts concerned. The format for monitoring the process and quality indicators under the RCH programme have been developed and sent to all the states. These may be operationalised during the Tenth Plan and the information generated used for mid-course corrections.

2.10.145 The substantial investments made in evaluation during the 1990s have increased awareness about the need for concurrent impact evaluation. During the Tenth Plan, efforts will be made to consolidate the gain by putting in place a sustainable system of evaluation at the district level

in the form of CRS and district surveys. Efforts will also be made to reduce duplication of efforts through appropriate intersectoral coordination .

Reorganisation of Family Welfare Infrastructure

2.10.146 When the Family Welfare Programme was initiated in the early 1970s the infrastructure for providing maternal and child health and family planning services was inadequate at the primary health care level, and sub-optimal in the secondary and tertiary care levels. In order to quickly improve the situation, the Department of Family Welfare created and funded post-partum centres, urban family welfare centres/ health posts and provided additional staff to the then existing PHCs (block level PHC's). In addition, the ANMs in the sub-centres, created after the initiation of the Family Welfare Programme, were also funded by the Department. The Department of Family Welfare also created state and district level infrastructure for carrying out the programmes and set up training institutions for pre/in-service training of personnel. All these activities were being funded through Plan funds.

2.10.147 Over the last three decades, there has been considerable expansion and strengthening of the health care infrastructure by the State. Family welfare services are now an integral part of services provided by primary, secondary and tertiary care institutions. The staff funded by the Department of Family Welfare under the scheme of rural family welfare centres and post partum centres are state health services personnel functioning as part of the state infrastructure. In view of this, the Ninth Plan recommended that their funding should be taken over by the state department of Health. States will take over the responsibility of funding staff of post partum centres and rural family welfare centres from 1st April 2002.

2.10.148 Since ANMs are crucial for increasing the outreach of the programme, it is important to ensure that the posts of ANMs are filled and steps taken to ensure that they are available and perform the duties they are assigned. One of the major problems with respect to the ANMs is that while the Department of Family Welfare funded over 97,000

posts, about 40,000 were funded by the state (from non-Plan). The Ninth Plan recommended that this dichotomy in funding should be removed and all the ANMs, as per the norms for the 1991 population should be funded by the Department of Family Welfare. This has been done from 1st April 2002. It is expected that this would ensure that the states do employ the required number of ANMs, streamline their functioning and improve the coverage, content and quality of maternal and child health care.

Zero Based Budgeting

2.10.149 In the past, the Family Welfare Programme has been considered as a single centrally sponsored scheme. As a result, the heads of funding were functional viz. Personnel, Services, Supplies, Transport, Area Development etc. All ongoing programmes including maternal and child health and immunisation, received inputs from these functional heads. In the Ninth Plan, major projects like RCH, pulse polio immunisation and strengthening of routine immunisation were added as schemes with large outlays. The Planning Commission and the Department of Family Welfare carried out an exercise to rationalize the schemes. A revised scheme-wise listing was evolved where, schemes for strengthening of infrastructure, area development project, training, research, programme related activities for contraception, immunisation,

maternal health, child health and nutrition were identified as specific schemes. After this, a zero based budgeting effort was taken up and schemes were identified for convergence, weeding out and transfer to the states. The summary of the zero based budgeting exercise is given in the Table-2.10.11. The scheme-wise outlays and anticipated expenditure during the Ninth Plan are given in Annexure-2.10.2. Yearwise outlay, R.E., and actual expenditure for the Ninth Plan is given in Table 2.10.12.

Path Ahead and Goals Set

2.10.150 Reduction in fertility, mortality and population growth rate are major objectives of the Tenth Plan. These will be achieved through meeting all the felt needs for health care of women and children. The focus will be on improving access to services to meet the health care needs of women and children by:

- ☒ a decentralised area-specific approach to planning, implementation and monitoring of the performance and effective mid-course corrections;
- ☒ differential strategy to achieve incremental improvement in performance in all states/districts;
- ☒ special efforts to improve access to and utilisation of the services in states/districts with high mortality and/or fertility rates;

Table-2.10.11

Zero Based Budgeting 2001

Category	No. of Schemes	Outlay for Ninth Plan (Rs. crore)	Anticipated expenditure during Ninth Plan (Rs. Crore)
Schemes to be transferred to the states	3	2,080.00	2,198.00
Schemes to be merged and retained	11/40	7,640.20	7,398.39
Schemes to be weeded out	8	185.85	31.25
Schemes to be retained	43	5,213.95	4,961.33
Total	94	15,120.00	14,588.97
Total No. of schemes to be continued in the Tenth Plan	54	12,854.15	12,359.72

Table 2.10.12
Outlays, RE and expenditure during the Ninth Plan

(Rs in Crores)

Year	B.E.	R.E.	Actual Expenditure
1997-98	1829.35	1829.35	1822.00
1998-99	2489.35	2253.00	2342.75
1999-2000	2920.00	3120.00	3099.76
2000-01	3520.00	3200.00	3090.11
2001-02	4210.00	3700.00	3596.63
Total	14968.70	14102.35	13951.25

- ☒ filling the critical gaps, especially in CHCs, in existing infrastructure through appropriate reorganisation and restructuring of the primary health care infrastructure;
- ☒ ensuring that post of specialists in CHCs do not remain vacant; upgrading skills and redeploying existing manpower to fill other critical gaps;
- ☒ streamlining the functioning of the primary health care system in urban and rural areas; providing good quality integrated RCH services at the primary, secondary and tertiary care levels and improving referral services;
- ☒ providing adequate supply of essential drugs, diagnostics and vaccines; improving the logistics of supply;
- ☒ well coordinated activities for delivery of services by public, private and voluntary sectors to improve coverage;
- ☒ involvement of PRIs in planning, monitoring and mid-course correction of the programme at the local level;
- ☒ involvement of industry in the organised and unorganised sectors, agriculture workers and labour representatives in improving access to RCH services;
- ☒ effective use of social marketing to improve access to simple over the counter (OTC) products such as ORT and condoms;
- ☒ effective IEC and motivation programmes; and
- ☒ effective inter-sectoral coordination.

2.10.151 Tenth Plan envisages reduction in IMR to 45 /1,000 by 2007 and 28/1,000 by 2012, reduction in MMR to 2/1000 live births by 2007 and 1/1,000 live births by 2012 and reduction in decadal growth rate of the population between 2001-2011 to 16.2. The steep reduction in mortality and fertility envisaged are technically feasible within the existing infrastructure and manpower as has been demonstrated in several states/districts. It is imperative that the goals set are achieved within the time frame as these goals are essential prerequisites for improving the quality of life and human development. In view of the massive differences in the availability and utilisation of health services and health indices of the population, a differential strategy is envisaged so that there is incremental improvement in all districts. This, in turn, is expected to result in substantial improvement in state and national indices and enable the country to achieve the goals set for the Tenth Plan. Annexure 2.10.1 provides information of present status (as indicated by NFHS-2 and SRS) of process and impact indicators, the goals set for these in the National Health Policy 1983 (for 2000), Ninth Plan (for 2002), Tenth Plan and National Population Policy 2000 (for 2010). Statewise goals have been shown in Annexure 2.10.3. Tenth Plan scheme wise outlays for Department of Family Welfare are in Annexure 2.10.2 and Appendix.

Annexure 2.10.1

Indicator	Present Status	Goals			
		NHP-1983	Ninth Plan	Tenth Plan	NPP 2000
Target Year		2000	2002	2007	2010
Crude Birth Rate	25.8 SRS (2000)	21	24	21	21
Total Fertility Rate	2.85*	2.3	2.9	2.3	2.1
Couple Protection Rate (%)	46.2 Dept. of F.W. (2000)	60	51	65	Meet all needs
Maternal Mortality Ratio	540*	Below 200	300	200	Below 100
Perinatal Mortality Rate	-	30-35	-	-	-
Neo Natal Mortality Rate	43.4*	-	35	26	-
Infant Mortality Rate	68 SRS (2000)	Below 60	56	45	below 30
Under five Mortality Rate	94.9*	-	-	-	-
% immunised against 6 VPD (%)	42*	85	65	100	100
- Measles	51*				
- DPT	55*				
- Polio	63*				
- BCG	72*				
Ante-natal care (ANC)					
- % at least 3 ANC	43.8*	100	90	90	100
- % received IFA for 3 or 4 months	47.5*			100	100
- % received two doses of TT	66.8*		95	100	100
Deliveries					
Institutional Deliveries (%)	33.6*	-	35	80	80
Deliveries by trained health personnel & TBA (%)	42.3*	100	45	-	100
Prevalence of low birth weight (%)	30 (Estimated)	10	-	-	-

* Source : NFHS-2

Outlays for Deptt. of Family Welfare

(Rs. in crore)

IX Plan	X Plan	Name of Scheme	Approved Outlay	Ninth Plan		Approved Outlay	
				Sum of Annual Outlay	Ant. Expdt.	Tenth Plan	Annual Plan 2002-03
	A	INFRASTRUCTURE MAINTENANCE	6231.90	6654.85	7506.17	12645.64	2303.00
1		Rural Family Welfare Centres	1500.00	1600.00	1600.36		
2	1	Sub-Centres	2200.00	2346.00	2344.60	9663.00	1809.00
3	2	Urban FW Services	250.00	307.00	305.69	580.00	122.00
4	3	Direction & Administration	671.90	541.00	465.25	1100.00	200.00
5		Post Partum Centres	530.00	560.00	557.94		
6		Village Health Guides Scheme	50.00	40.00	39.70		
7	4	Logistics Improvement	80.00	51.85	4.84	90.00	10.00
	5	Contractual Services/ Consultancies	Included in RCH		Included in RCH	1212.64	162.00
8		ANM (Part of Sub-Centres)					
9		Additional ANMs/PHNs/Lab. Technicians					
10		SM Consultant					
11		Aneasthetist					
12		Other Exp. (State/National level Consultants/ Contingency)					
13		Arrears	950.00	1209.00	2187.79		
	B	INFRASTRUCTURE DEVELOPMENT	1050.00	1202.35	915.76	2412.00	364.20
14	6	Area Projects (IPP Projects)	800.00	820.00	637.79	987.00	74.80
15	7	Social Marketing Area Projects		82.35	6.42	25.00	10.00
16	8	USAID Assisted Area Project	250.00	300.00	271.55	400.00	59.40
17	9	Other Externally Aided Infrastructure Development Projects	Included in RCH			Included in RCH	
18	10	EC Assisted SIP Project	Included in RCH		Included in RCH	1000.00	220.00
	C	TRANSPORT	150.0	250.50	250.65	378.00	113.00
19	11	Maintainence of vehicle already available				303.00	98.00
20	12	Supply of Mopeds to ANMs				75.00	15.00
	D	TRAINING	257.35	301.28	289.29	521.00	99.60
21	13	Basic Training for ANM/LHVs	150.00	181.40	182.07	350.00	67.00
22	14	Maintenance & Strengthening of HFWTCs	40.00	48.06	46.94	70.00	14.00
23	15	Basic Training for MPWs Worker (Male)	35.00	37.90	35.76	50.00	10.00
24	16	Strenthening of Basic Training schools				10.00	2.00
25	17	F.W. Training and Res. Centre, Bombay	5.00	5.00	2.53	10.00	1.50
26	18	NIHFW, New Delhi	21.00	21.35	14.52	20.00	3.15
27	19	IIPS, Mumbai	5.70	6.90	6.83	10.00	1.70

Annexure 2.10.2 (Contd/-)

28	20	Assistance to I.M.A.	0.65	0.67	0.64	1.00	0.25
E RESEARCH			96.00	107.00	96.58	159.50	30.30
29	21	Population Research Centres	35.00	33.00	22.47	45.00	8.00
30	22	CDRI, Lucknow	8.00	8.00	8.00	12.00	2.30
31	23	ICMR and IRR	53.00	66.00	66.11	100.00	20.00
32	24	Other Research Projects				2.50	0.00
F CONTRACEPTION			1541.50	1578.70	1458.35	2727.50	483.50
	25	Free distribution of contraceptives	460.00	491.30	436.83	1045.00	184.00
33		Conventional Contraceptives	265.00	310.00	286.20	800.00	
34		Oral Contraceptives	80.00	78.40	65.66	130.00	
35		IUD	115.00	102.90	84.97	115.00	
36		New Methods					
	26	Social marketing of contraceptives	400.00	428.70	407.40	660.00	115.00
37		Conventional Contraceptives		360.85	339.04	550.00	
38		Oral Contraceptives		67.85	68.36	110.00	
	27	Sterilization	680.20	653.80	610.26	1002.00	180.50
39		Sterilization Beds	8.60	8.60	8.79	12.00	
40		Sterilisation and IUD insertion	600.00	575.00	534.22	900.00	
41		Supply /Procurement of Laparoscopes	70.00	68.00	66.75	90.00	
42		Recanalization	1.60	2.20	0.50		
43	28	Testing Facilities	1.30	1.90	1.24	2.50	0.50
	29	Role of Men in Planned Parenthood	Included in RCH	3.00	2.62	18.00	3.50
44		No Scalpel Vasectomy		3.00	2.62	8.00	
45		Other Innovative Schemes (<i>Male Participation</i>)				10.00	
G REPRODUCTIVE & CHILD HEALTH			5150.00	4423.30	3753.49	6333.86	1174.20
	30	Immunisation	Included in RCH	Included in RCH	Included in RCH	1410.00	226.00
46		Procurement of Vaccines for Routine Immunisation				850.00	
47		Cold Chain					
		(a) <i>Cold Chain Maintenance</i>				35.00	
		(b) <i>Cold Chain Equipment</i>				200.00	
48		Surveillance against VPDs					
49		Other Vaccines (<i>Hepatitis B</i>)				325.00	
50	31	Routine Immunisation Strengthening	Included in RCH	Included in RCH	Included in RCH	17.86	10.00
51	32	Pulse Polio	Included in RCH	Included in RCH	Included in RCH	1450.00	400.00
		(a) <i>OPV</i>				870.00	240.00
		(b) <i>Operating cost</i>				580.00	160.00

33	ChildHealth	Included in RCH	Included in RCH	Included in RCH	20.00	1.00
52	Essential New Born care (<i>Home based neonatal care</i>)				20.00	
53	Diarheal Diseases - Prevention/Treatment					
54	ARI-Prevention/Treatment					
34	NUTRITION	Included in RCH	Included in RCH	Included in RCH	Included in RCH	Included in RCH
55	Vitamin-A Programme					
56	35 Adolescent Health	Included in RCH	Included in RCH	Included in RCH	50.00	3.00
36	Maternal Health	Included in RCH	Included in RCH	Included in RCH	1384.00	254.00
57	Ante-natal care					
58	Nutritional Anaemia (<i>Anaemia Control & De-worming</i>)				30.00	
59	Home Delivery Care					
	(a) <i>Community based midwives</i>				30.00	
	(b) <i>Dais Training</i>				40.00	
60	Dais Kits (<i>Drugs, Kits & Equipments</i>)					
	(a) <i>Drug Kits/FRU Drugs/PHC Drugs/RTI Drugs</i>				704.00	
	(b) <i>MTP/RTI/STI Equipment/Kit/IUD Kit</i>				350.00	
	(c) <i>Equipment for Blood Storage & Lab. Equipment</i>				10.00	
	(d) <i>Needles & Syringes</i>				125.00	
	(e) <i>Neo-Natal Equipment</i>				20.00	
61	Promoting Institutional Deliveries					
	(a) <i>24 Hour Delivery</i>				25.00	
	(b) <i>Operationalising FRUs for Emergency Obs. & NN Care</i>				50.00	
62	37 MTP Services (Manual Vac. Aspirator for safe abortion)	Included in RCH	Included in RCH	Included in RCH	4.00	1.20
63	38 RTI/ STI prevention and management	Included in RCH	Included in RCH	Included in RCH	35.00	2.00
39	Other RCH Interventions and services	Included in RCH	Included in RCH	Included in RCH	730.00	122.00
64	Referral Transport				15.00	
65	Out reach Services				130.00	
66	RCH Camps				95.00	
67	Civil Works				350.00	
68	Research (In RCH Activities)				40.00	
69	MIS				90.00	
70	Expdt. At Headquarters				10.00	
71	40 NGOs and SCOVA	Included in RCH	Included in RCH	Included in RCH	130.00	22.00

Annexure 2.10.2 (Concl/-)

41	Training	Included in RCH	Included	Included in RCH	328.00	53.00
72	RCH Training				265.00	
73	Training of ISM&H				15.00	
74	Training of AWW				48.00	
75	42 Tribal Projects	Included in RCH	Included in RCH	Included in RCH		
76	43 Urban Slums Projects	Included in RCH	Included in RCH	Included in RCH	700.00	5.00
77	44 District Projects	Included in RCH	Included in RCH	Included in RCH	75.00	75.00
78	45 Other Projects under RCH	Included in RCH	Included in RCH	Included in RCH		
	H. OTHER FAMILY WELFARE PROGRAMMES	643.25	450.72	318.68	1900.50	355.90
79	46 Maternity Benefit Scheme	Transferred from M/o Rural Development	80.00	80.00	500.00	90.0
80	47 Information, Education and Communication	170.00	184.80	160.91	489.50	84.70
	<i>Non-RCH</i>					
	<i>RCH</i>					
81	48 Travel of Experts/Conferences /Meetings etc.	16.10	15.35	2.15	7.00	1.50
82	49 International Contribution	6.30	6.99	6.33	9.00	1.70
83	50 Empowered Action Group		30.00	30.00	250.00	50.00
84	51 Community Incentive Scheme		30.00	5.00	300.00	60.00
85	52 Family Welfare Link Health Insurance Plan		0.01	0.01	250.00	50.00
86	53 Policy Seminars		3.00	3.00	20.00	3.00
87	54 Other Initiatives	265.00	0.03	0.03	75.00	15.00
88	Strengthening of Rural Family Welfare Centres under National Human Development Initiative	Included in Sub-centres (scheme 2)	20.00	Included in Sub-centres (scheme 2)		
89	Other Offices under Direction & Administration	28.10	29.60	29.02		
90	ISM Institutions	7.00	5.02	1.39		
91	Regional Institute of MCH	0.75	0.60	0.31		
92	Hindustan Latex Limited	1.90	1.72	0.13		
93	Family Welfare Counsellor Scheme	1.00	1.00	0.00		
94	School Health Scheme	147.10	42.60	0.40		
55	Additional RCH activities in the Tenth Plan				25.00	0.30
56	Other New Initiatives				22.00	6.00
	GRAND TOTAL	15120.00	14968.70	14588.97	27125.00	4930.00

Sl. No.	SI. Name of State/UT	Couple Protection Rate		Crude Birth rate		Total Fertility Rate		Infant Mortality Rate		Neo Natal Mortality Rate		Safe Delivery		Ante Natal Care			
		Current Level (Average of NFHS,RHS) By Ster. (Modern)	Expected Level 2007 (Modern)	Current level SRS 2000	Expected Level 2007	Current level SRS 1998	Expected Level 2007	Current level SRS 2000	Expected Level 2007	Current level NFHS-2	Expected Level 2007	Current level NFHS-2	Expected Level 2007	Current level NFHS-2	Expected Level 2007		
	INDIA	35.5	8.0	50.0	15.0	25.8	21	3.2	2.3	68	45	43.4	26	42.3	80	43.8	90
	I. MAJOR STATES																
1	Andhra Pr	57.4	1.4	65.0	10.0	21.3	17	2.4	1.8	65	42	43.8	22	65.2	90	80.1	95
2	Assam	15.1	12.5	35.0	16.9	26.9	22	3.2	2.3	75	50	44.6	30	21.4	55	30.8	80
3	Bihar	20.7	2.2	30.0	10.0	31.9	24	4.3	2.8	62	45	46.5	25	23.4	70	17.8	80
4	Chattisgarh	38.0	5.0	45.0	10.0	26.7	22	NA	2.6	79	50	54.9	38	65.9	95	28.1	85
5	Gujarat	44.0	8.8	60.0	21.2	25.2	20	3.0	2.1	62	40	39.6	22	53.5	80	60.2	95
6	Haryana	40.1	12.9	56.3	26.0	26.9	22	3.3	2.2	67	40	34.9	23	42	80	37.4	95
7	Jharkhand	21.0	2.0	30.0	10.0	26.5	22	NA	2.6	70	50	46.5	35	42.4	60	17.8	80
8	Karnataka	52.5	4.8	60.0	12.7	22.0	20	2.4	2.0	57	40	37.1	21	59.1	85	71.4	95
9	Kerala	50.7	6.3	60.0	10.7	17.9	15	1.8	1.6	14	9	13.8	5	94	100	98.3	100
10	Madhya Pr	38.0	5.1	55.0	17.0	31.2	23	3.9	2.6	88	58	54.9	30	29.7	70	28.1	85
11	Maharashtra	51.4	7.7	66.0	14.9	20.9	17	2.7	2.1	48	34	32	20	59.4	95	65.4	98
12	Orissa	34.8	5.1	55.0	12.9	24.3	21	2.9	2.2	96	68	48.6	35	33.4	70	47.3	90
13	Punjab	31.0	22.8	55.0	30.0	21.5	18	2.6	2.1	52	35	34.3	15	62.6	90	57	95
14	Rajasthan	37.1	6.2	45.0	15.5	31.2	22	4.1	2.7	79	50	49.5	30	35.8	70	22.9	80
15	Tamil Nadu	45.8	4.4	60.0	12.0	19.2	16	2.0	1.7	51	30	34.8	20	83.8	100	91.4	100
16	Uttar Pr	14.9	7.0	35.0	21.0	32.8	24	4.6	2.7	83	58	53.6	35	22.4	75	14.9	80
17	West Bengal	32.9	13.5	50.0	19.4	20.6	17	2.4	2.1	51	38	31.9	25	44.2	80	57	95
	II. SMALLER STATES																
1	Arunachal Pr	18.4	15.0	30.0	20.8	22.3	20	2.8	2.4	44	40	41.8	30	31.9	65	40.5	80
2	Goa	28.6	8.9	45.0	12.4	14.3	12	1.8	1.5	23	9	31.2	20	29.7	75	95.7	100
3	Himachal Pr	51.5	10.1	65.0	19.6	22.1	20	2.4	2.0	60	35	22.1	15	40.2	80	60.9	85
4	J & K	30.3	14.1	40.0	18.5	19.6	17	NA	2.0	50	40	40.3	30	23.4	75	66	80
5	Manipur	12.8	9.8	30.0	15.8	18.3	16	2.4	2.0	23	20	18.6	10	53.9	85	54.4	80
6	Meghalaya	8.6	8.0	30.0	10.8	28.5	23	4.0	2.6	58	50	50.7	40	20.6	50	31.3	80
7	Mizoram	42.3	10.0	56.8	15.5	16.9	16	NA	2.0	21	19	18.8	12	67.5	90	75.8	90
8	Nagaland	12.3	10.7	30.0	14.1	NA	15	1.5	1.5	NA	32	20.1	15	32.8	60	23.1	85
9	Sikkim	23.9	20.2	31.3	28.5	21.8	17	2.5	2.1	49	45	26.3	20	35.1	60	42.6	85
10	Tripura	20.0	20.0	30.0	36.4	16.5	16	3.9	2.6	41	35	48.3	60	48.3	60	51	85
11	Uttaranchal	30.0	10.0	40.0	18.2	20.2	18	NA	2.0	50	40	53.6	30	22.4	80	19.6	80
	III. UNION TERRITORIES																
1	A&N Islands	44.7	13.6	50.0	15.0	19.1	15	1.9	1.7	23	22	71.3	80	71.3	80	92.3	100
2	Chandigarh	21.1	35.9	40.0	35.0	17.5	14	2.1	1.9	28	25	71.2	80	71.2	80	73	85
3	D&N Haveli	29.7	5.7	35.0	10.0	34.9	23	3.5	2.8	58	50	27.6	60	27.6	60	74.6	85
4	Daman & Diu	44.4	6.3	50.0	10.0	23.7	16	2.5	2.1	48	45	70.6	85	70.6	85	80.7	90
5	Delhi	28.7	33.6	40.0	30.0	20.3	16	1.6	1.6	32	25	29.5	20	73.7	85	68.2	85
6	Lakshadweep	7.4	4.1	30.0	10.0	26.1	20	2.8	2.4	27	25	74.1	85	74.1	85	98.3	100
7	Pondichery	50.6	6.2	65.0	10.0	17.8	16	1.8	1.6	23	20	93.4	100	93.4	100	95.8	100

CHAPTER 2.11

WOMEN AND CHILDREN

INTRODUCTION

2.11.1 In the context of adopting human development as the ultimate goal of all our developmental efforts, empowerment of women and development of children gains priority on the country's development agenda. Women and Children together constitute 65.6 per cent of the country's total population and account for 673.80 million (as projected) in 2001.

I. EMPOWERMENT OF WOMEN

2.11.2 Women, as an independent target group, account for 495.74 million and represent 48.3 per cent of country's total population, as per the 2001 Census. Empowering women as a process demands a life-cycle approach. Therefore, every stage of their life counts as a priority in the planning process. Depending upon the developmental needs at every stage, female population has been categorised into 5 distinct sub-groups (population as projected for 2001). They include:

- Girl children in the age-group 0-14 years who account for 171.50 million (34.6 per cent), deserve special attention because of the gender bias and discrimination they suffer from at such a tender age;
- Adolescent girls in the age-group 15-19 years who account for 52.14 million (10.5 per cent) are very sensitive from the viewpoint of planning because of the preparatory stage for their future productive and reproductive roles in the society and family, respectively;
- Women in the reproductive age-group 15-44 years numbering 233.72 million (47.1 per cent) need special care and

attention because of their reproductive needs;

- Women in the economically active age-group 15-59 years, who account for 289.40 million (58.4 per cent), have different demands like those of education/training, employment, income generation and participation in the developmental process, decision making etc.; and
- The elderly women in the age-group 60+ years numbering 34.87 million (7.0 per cent), have limited needs mainly relating to health, financial and emotional support.

2.11.3 The country's concern in safeguarding the rights and privileges of women found its best expression in the Constitution of India. While Article 14 confers equal rights and opportunities on men and women in the political, economic and social spheres, Article 15 prohibits discrimination against any citizen on the grounds of sex, religion, race, caste etc. and Article 15(3) empowers the State to make affirmative discrimination in favour of women. Similarly, Article 16 provides for equality of opportunities in the matter of public appointments for all citizens; Article 39 stipulates that the State shall direct its policy towards providing men and women equally the right to means of livelihood and equal pay for equal work; Article 42 directs the State to make provisions for ensuring just and humane conditions of work and maternity relief; and Article 51(A)(e) imposes a fundamental duty on every citizen to renounce practices derogatory to the dignity of women. To make this de-jure equality into a de-facto one, many policies and programmes were put into action from time to time, besides enacting/enforcing special legislations, in favour of women.

POLICIES AND PROGRAMMES: A REVIEW

2.11.4 Development of women has been receiving attention of the Government right from the very First Plan (1951-56). But, the same has been treated as a subject of 'welfare' and clubbed together with the welfare of the disadvantaged groups like destitute, disabled, aged, etc. The Central Social Welfare Board (CSWB), set up in 1953, acts as an Apex Body at national level to promote voluntary action at various levels, especially at the grassroots, to take up welfare-related activities for women and children. The Second to Fifth Plans (1956-79) continued to reflect the very same welfare approach, besides giving priority to women's education, and launching measures to improve maternal and child health services, supplementary feeding for children and expectant and nursing mothers.

2.11.5 The shift in the approach from 'welfare' to 'development' of women could take place only in the Sixth Plan (1980-85). Accordingly, the Sixth Plan adopted a multi-disciplinary approach with a special thrust on the three core sectors of health, education and employment. In the Seventh Plan (1985-90), the developmental programmes continued with the major objective of raising their economic and social status and bringing them into the mainstream of national development. A significant step in this direction was to identify/promote the 'Beneficiary-Oriented Schemes' (BOS) in various developmental sectors which extended direct benefits to women. The thrust on generation of both skilled and unskilled employment through proper education and vocational training continued. The Eighth Plan (1992-97), with human development as its major focus, played a very important role in the development of women. It promised to ensure that benefits of development from different sectors do not by-pass women, implement special programmes to complement the general development programmes and to monitor the flow of benefits to women from other development sectors and enable women to function as equal partners and participants in the development process.

2.11.6 The Ninth Plan (1997-2002) made two significant changes in the conceptual strategy of planning for women. Firstly, 'Empowerment of Women' became one of the nine primary objectives of the Ninth Plan. To this effect, the Approach of the Plan was to create an enabling environment where women could freely exercise their rights both within and outside home, as equal partners along with men. Secondly, the Plan attempted 'convergence of existing services' available in both women-specific and women-related sectors. To this effect, it directed both the centre and the states to adopt a special strategy of 'Women's Component Plan' (WCP) through which not less than 30 per cent of funds/benefits flow to women from all the general development sectors. It also suggested that a special vigil be kept on the flow of the earmarked funds/benefits through an effective mechanism to ensure that the proposed strategy brings forth a holistic approach towards empowering women.

2.11.7 To ensure that other general developmental sectors do not by-pass women and benefits from these sectors continue to flow to them, a special mechanism of monitoring the 27 BOS for women was put into action in 1986, at the instance of the Prime Minister's Office (PMO). The same continues to be an effective instrument till today. Sector/scheme-wise achievements under women-specific and women-related sectors of health, nutrition, education, labour, rural development, urban development, science and technology and women and child development are detailed in the following paragraphs:

2.11.8 The National Health Policy 2001 (Draft) promises to ensure increased access to women to basic health care and commits highest priority to the funding of the identified programmes relating to women's health. During the Ninth Plan period, several new initiatives were taken as part of the Reproductive and Child Health (RCH) Programme (1997), in order to make it broad-based and client-friendly. All the interventions of the erstwhile

programme of Child Survival and Safe Motherhood (CSSM) became part of RCH. During this period, the focus shifted from the individualised vertical interventions to a more holistic integrated life-cycle approach with more attention to reproductive health care. This includes access to essential obstetric care during the entire period of pregnancy, provision of emergency obstetric care as close to the community as possible, improving and expanding early and safe abortion services and provision for treatment of Reproductive Tract Infections/Sexually Transmitted Infections (RTI/STI) cases at the sub-district level.

2.11.9 Under the Universal Immunisation Programme, launched in 1985-86, which became part of the RCH Programme in 1997, the coverage of Tetanus Toxoid Vaccination of pregnant women increased from 40 per cent in 1985-86 to 76.4 per cent in 1996-97 and to 83.4 per cent in 2000-01. The scheme of Training of Daïs was initiated in 2000-01 in 142 districts in 17 states. An extensive network of 2,935 Community Health Centres (CHCs), 22,975 Primary Health Centres (PHCs) and 1,37,271 village level Sub-Centres was put into operation by the end of the Ninth Plan. The Ninth Plan also envisaged to promote institutional deliveries, both in urban and rural areas. A comparison of National Family Health Survey (NFHS) I and II shows that the institutional deliveries has risen from 26 per cent in 1992-93 to 34 per cent in 1998-99. As a result of the above initiatives, the Crude Birth Rate fell from 29.5 to 26.1 and the Crude Death Rate from 9.8 to 8.7 between 1991 and 1999.

2.11.10 The National Nutrition Policy (1993) advocates a comprehensive inter-sectoral strategy for alleviating all the multi-faceted problems of under/malnutrition and its related deficiencies and diseases so as to achieve an optimal state of nutrition for all sections of society but with a special priority for women, mothers and children who are vulnerable as well as 'at-risk'. Of the two major problems of macro and micro-nutritional deficiencies that the women, mothers and children suffer from, while the former are manifested through chronic energy deficiency (CED), the latter are reflected in Vitamin A, Iron and Iodine deficiencies. The strategies

adopted in the Ninth Plan include – screening of all pregnant women and lactating mothers for CED; identifying women with weight below 40 kg and providing adequate ante-natal, intra-partum and neo-natal care under the RCH programme and ensuring they receive food supplementation through the Integrated Child Development Services (ICDS) Scheme. The ICDS, launched in 1975, provides supplementary feeding to bridge the nutritional gaps that exist in respect of children below 6 years and expectant and nursing mothers.

2.11.11 Besides this, since 2000-01, the Government of India has been providing Additional Central Assistance to the states under the nutrition component of Pradhan Mantri Gramodaya Yojana (PMGY) in an effort to prevent the onset of under-nutrition in the age-group 6-24 months. Supplementary nutrition is also provided to 105 million school-going children under the National Programme of Nutritional Support to Primary Education (also popularly known as Mid-Day Meals Programme). (More details are available under the Chapter on 'Food and Nutrition Security').

2.11.12 The National Population Policy adopted in 2000 seeks to address the issues related to population stabilisation and to ensure universal access to quality contraceptive services as a step towards attaining the two-child norm. It calls for reduction in the Infant Mortality Rate (IMR) to 30 and Maternal Mortality Rate (MMR) to 100 by 2010, immunisation of children, promoting delayed marriage for girls and enhancing the number of institutional deliveries. IMR and MMR have been showing a steady declining trend. While IMR declined from 94.5 in 1988 to 71.7 in 1998 and to 70.0 in 1999, MMR declined from 437 in 1993 to 407 in 1998.

2.11.13 The National Policy on Education, announced in 1986 (revised in 1992), gave a big momentum to the task of providing basic education for all. Concerted efforts made during the Ninth Plan were able to expand access, increase retention and improve learning achievements of children in primary and upper primary schools. The National

Literacy Mission, set up in 1988 with the goal of attaining full literacy, i.e. a sustainable threshold level of 75 per cent by 2005, continued to follow a multi-pronged strategy to eradicate illiteracy in the country. Of 600 total districts in the country, 576 have taken up literacy work. Of these, 160 districts have been covered under the Total Literacy Campaign, 264 under the Post Literacy Campaign and 152 under the Continuing Education Scheme. More than 91.53 million people were made literate upto December 2000, 61 per cent of whom were females. By 1999-2000, the scheme of Non-Formal Education (NFE) benefited 7.3 million learners in 2,92,000 NFE Centres spread over 25 States/UTs. The scheme targets out-of-school children in the age-group 6-14 years who have remained outside the formal system due to socio-economic and cultural reasons.

2.11.14 The Mahila Samakhya scheme was launched in 1989 to translate the goals of the National Policy on Education into a concrete programme for education and empowerment of women in rural areas, particularly women in socially and economically marginalised groups. The programme is currently implemented in over 9,000 villages in 60 districts spread over 10 states. The programme has enabled women's collectives to address the larger socio-cultural issues that have traditionally inhibited the participation of women and girls in the education system. Through its strategy of building grassroot women's organisations, the programme has created a forum and environment for women's education at the community level besides managing 866 NFE Centres and around 1,000 Early Childhood-Care Education Centres by the end of the Ninth Plan.

2.11.15 The first National Agriculture Policy, announced in July 2000, seeks to mainstream gender concerns in agriculture. It promises to initiate appropriate structural, functional and institutional measures to empower women, build their capabilities and improve their access to inputs, technology and other farming resources. Under both the Oilseeds Production Programme, which covers 408 districts, and the National Pulses Development

Project, which covers 350 districts, preference is given to women farmers while extending the benefits under various components of these programmes. The State Departments of Agriculture, which are the implementing agencies, have been requested to make women farmer beneficiaries of gender-friendly farm implements. The scheme of Women in Agriculture was approved for implementation during the Ninth Plan in one district each in 15 states. About 415 viable groups of women farmers were constituted and 7,200 farmwomen were trained. A total of 1,603 Village-based training camps and 78 Link workers' training camps were successfully organised. Extension support was provided to the enrolled farmwomen through 4,971 Result Demonstrations, 66 Study Tours and 27 *Mahila Goshthies*. A supplementary credit delivery system in the form of Self-Help Groups (SHGs) addresses the problems and aspirations of the poor women. By March 2000, nearly 2 million rural poor families were accessing financial services from the formal banking system through SHGs formed under the support and linkage programme launched by the National Bank for Agriculture and Rural Development (NABARD). About 84 per cent of these groups are exclusive women's groups.

2.11.16 The Co-operative Sector in India has emerged as one of the largest in the world with 5.3 lakh societies of various types with a membership of 229 million. The scheme of Assistance to Women's Co-operatives, initiated during 1993-94, aims exclusively at the economic betterment of women, by focusing special attention on their needs and providing assistance in the form of assured work and income by organising co-operative societies for taking up economic activities in agro-based commercial/industrial sectors. Under the scheme, a total number of 850 women's co-operatives were benefited during the Ninth Plan. The Women Dairy Co-operative Leadership Programme nurtures leadership amongst women dairy farmers for economic and social empowerment besides ensuring their say in the governance of dairy co-operatives. Presently, the programme is being implemented by 39 milk unions and each milk union covers 25 to 30 village dairy co-operatives every year.

2.11.17 In the Small-Scale Industries Sector, the National Institute for Entrepreneurship and Small Business Development organised Entrepreneurship Programmes for Women during the Ninth Plan. The coir industry employs about 5 lakh people and nearly 80 per cent of coir workers in the fibre extraction and spinning sectors are women. Mahila Coir Yojana intends to provide self-employment opportunities to rural women artisans in regions producing coir fibre. Women spinners are trained in spinning coir yarn on motorised ratts by the Coir Board.

2.11.18 In the field of Labour and Employment, the Women's Vocational Training programme, launched in 1974, aims to implement various skill training programmes to increase women's wage employment and self-employment opportunities. Under the Women's Occupational Training Directorate, there are 10 Regional Vocational Training Institutes (RVTIs) in different parts of the country, besides a National Vocational Training Institute (NVTI) at NOIDA. These institutes organise regular skill training courses at basic, advanced and post advanced levels. By the end of the Ninth Plan, there were 4,499 Industrial Training Institutes (ITIs) with 6.6 lakh seats. Vocational training facilities exclusively for women are also provided through a network of Women Industrial Training Institutes (WITIs) and Women's wings in general ITIs under the administrative control of the State Governments. There are 765 Institutes (231 WITIs and 534 Women's wings in General ITIs/Private ITIs) with 46,750 training seats. Thus, training and upgradation of skills for women in the modern and up-coming trades received high priority during the Ninth Plan period.

2.11.19 In the field of Rural Development, anti-poverty programmes have been a dominant feature of Government initiatives in rural areas. The Swarnajayanti Gram Swarozgar Yojana (SGSY) was launched in 1999 with the objective of bringing the beneficiary families (*swarozgaris*) above the poverty line by providing them income-generating assets through a mix of bank credit and Government subsidy. It is envisaged that 50 per cent of SHGs in each block should be exclusively of women, who

will account for at least 40 per cent of the *swarozgaris*. Since inception of the scheme, 7.4 lakh SHGs have been formed. Around 4.3 million *swarozgaris*, 24 per cent of whom were women, were assisted during the Ninth Plan. The Jawahar Gram Samriddhi Yojana (JGSY) reserves 30 per cent of employment opportunities for women. During the Ninth Plan, around 3.9 million man-days constituting 28 per cent of the total employment generated under JGSY, were provided for women. The Indira Awas Yojana (IAY) stipulates that houses under the scheme are to be allotted in the name of the female member of the beneficiary household or in the joint names of husband and wife. Priority is given to widows and unmarried women. Since its inception in 1985-86, 7.9 million houses have been built. Under the National Maternity Benefit Scheme (now transferred to the Department of Family Welfare with effect from the year 2001-02) that aims at assisting expectant mothers by providing them Rs. 500 each for the first two live births, 6.5 lakh women have been benefited since 1995 when the scheme was started. Under the National Old Age Pension Scheme, central assistance is provided to women and men above the age of 65 years who have little or no regular means of subsistence. Around 7.7 million women, constituting 24 per cent of the aged, benefited from this scheme during the Ninth Plan. The Restructured Centrally Sponsored Rural Sanitation Programme, launched in 1999, ensures construction of village sanitary complexes exclusively for women, wherever the construction of individual household latrines are not feasible.

2.11.20 In the Urban Development sector, the Swarna Jayanti Shahari Rozgar Yojana (SJSRY) provides gainful employment to the urban unemployed/under-employed through encouraging the setting up of self-employment ventures/provision of wage employment. The special scheme of Urban Self-Employment Programme (USEP), which is a component of SJSRY, provides assistance to the urban poor, especially women living below the urban poverty line. The scheme for Development of Women and Children in the Urban Areas (DWCUA) provides assistance to groups of urban poor women for setting up gainful self-employment ventures. The

SPECIAL INITIATIVES / ACHIEVEMENTS FOR THE EMPOWERMENT OF WOMEN DURING THE NINTH PLAN (1997-2002)

- Adoption of Women's Component Plan (WCP) to ensure that benefits from other developmental sectors do not by-pass women and not less than 30 per cent of funds/benefits flow to them from all the women-related sectors. Review of the progress of WCP during the Ninth Plan reveals that funds flowing from one of the women-related Departments (viz. Family Welfare) was as high as 70 per cent of its Gross Budgetary Support of the Ninth Plan; (1997) (Details are given in the Box on WCP)
- Launching of '**Swa-Shakti**' to create an enabling environment for empowerment of women through setting up of self-reliant Self-Help Groups (SHGs) and developing linkages with lending institutions to ensure women's access to credit facilities for income-generation activities; (1998)
- '**Stree Shakti Puraskars**' instituted for the first time in the history of women's development to honour 5 distinguished women annually for their outstanding contribution to the upliftment and empowerment of women; (1999)
- Setting up of a Task Force on Women under the Chairpersonship of Shri K.C.Pant, Deputy Chairman, Planning Commission to review the existing women-specific and women-related legislations and suggest enactment of new legislations or amendments, wherever necessary. The Task Force also suggested a thematic programme for celebrating the year '2001 as Women's Empowerment Year', besides reviewing 22 existing legislations; (2000)
- Introduction of Gender Budgeting to attain more effective targetting of public expenditure and to offset any undesirable gender-specific consequences of previous budgetary measures; (2000-01)
- Adoption of a National Policy for Empowerment of Women to eliminate all types of discrimination against women and to ensure gender justice, besides empowering women both socially and economically; (2001)
- Celebration of the Year 2001 as 'Women's Empowerment Year' to create awareness generation, remove negative thinking, besides building up confidence in women through the processes of conscientization so that they can take their rightful place in the mainstream of the nation's social, political and economic life; (2001)
- Recasting of Indira Mahila Yojana as '**Swayamsidha**', - an integrated programme for empowerment of women through a major strategy of converging the services available in all the women-related programmes besides organising women into SHGs for undertaking various entrepreneurial ventures; (2001)
- Launching of '**Swadhar**' to extend rehabilitation services for 'Women in Difficult Circumstances'; (2001)
- Introduction of a Bill on Domestic Violence against Women (Prevention) to eliminate all forms of domestic violence against women and the girl child; (2002)

Revolving Fund given to these Groups is meant for purposes like purchase of raw materials and marketing, infrastructure support, one-time expenses on child-care activity, etc. Since inception of the

scheme in 1997, 19,730 DWCUA groups have been formed, helping 33,875 women to set up Joint Self-Employment ventures.

2.11.21 In the Science and Technology sector, the programme of Science and Technology for Women is aimed at empowering women through inputs of science and technology. Under this scheme, financial support is extended to projects aimed at identifying the technological needs of women, and for developing and adapting technology transfer to reduce the day-to-day drudgery of women. Under the scheme, projects are approved in priority sectors such as post-harvest technologies, land-based activities, women's health, income generation activities and reducing/eliminating drudgery, rural engineering, medicinal plants, pottery, natural dyes etc.

2.11.22 In the Women and Child Development sector, the nodal Department of Women and Child Development also implements a few innovative schemes besides formulating policies and programmes; enacts/amends legislations affecting women and co-ordinates the efforts of both governmental and non-governmental organisations (NGOs) to raise the overall status of women on par with that of men. The programmes of the Department include – i) empowering strategies; ii) employment and income generation; iii) welfare and support services; iv) awareness generation and gender sensitisation and v) other enabling measures. These programmes play the role of being both supplementary and complementary to the other general development programmes in the sectors of health, education, labour and employment, rural and urban development, etc. Some of the important on-going interventions of the nodal Department during the Ninth Plan are detailed below:

2.11.23 **Empowering Strategies** : The erstwhile programme of Indira Mahila Yojana launched in 1995, was recast as Swayamsidha in 2001 to empower women by generating awareness and helping them to achieve economic strength through micro-level income-generation activities and facilitate easy convergence of various services such as literacy, health, non-formal education, rural development, water supply, entrepreneurship, etc. Out of the Ninth Plan outlay of Rs. 165 crore, no expenditure was incurred during the first three years

of the Plan as the scheme was being recast. The expenditure during 2000-01 and 2001-02 was Rs. 8.95 crore to expand the existing 238 blocks in 1999-2000 to 650 blocks in 2001-02 to form 53,100 Women's SHGs covering 9.3 lakh women beneficiaries. Another empowering intervention refers to 'Swa-Shakti Project', sanctioned in 1998 for a five-year period till 2003 with assistance from the International Development Association and International Fund for Agricultural Development. Swa-Shakti has been in action in 57 districts of 9 states of Bihar, Chhattisgarh, Gujarat, Haryana, Jharkhand, Karnataka, Madhya Pradesh, Uttaranchal and Uttar Pradesh. Its major objective is to create an enabling environment for empowerment of women through setting up of self-reliant women's SHGs and developing linkages between SHGs and lending institutions in order to ensure women's continued access to credit facilities for income-generation activities. Of the Ninth Plan outlay of Rs. 102.94 crore, the expenditure was Rs. 36 crore to set up around 9,735 SHGs through 118 NGOs (till October 2001).

2.11.24 **Employment and Income-Generation** : The Support for Training and Employment Programme (STEP), launched in 1987, provides a comprehensive package of upgradation of skills through training, extension inputs and market linkages to poor and assetless women in the traditional sectors of agriculture, dairy farming, handicrafts, handlooms, animal husbandry, sericulture and fisheries. Of the Ninth Plan outlay of Rs. 88.32 crore, the expenditure was Rs.76.84 crore benefiting 87,140 women. Since inception of this programme, about 6.1 lakh women have been covered under 133 projects launched in 19 states viz. Andhra Pradesh, Bihar, Chhattisgarh, Gujarat, Haryana, Himachal Pradesh, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Manipur, Nagaland, Orissa, Sikkim, Tamil Nadu, Tripura, Uttaranchal, Uttar Pradesh and West Bengal. Nearly 60 per cent of the projects have been in the dairy sector. About 8,000 women's dairy co-operatives with more than 4 lakh members have been organised throughout the country mainly through the initiative of State Co-operative Milk Federations. Another programme

called Training-cum-Production Centres for Women (popularly known as NORAD) was launched in 1982-83 with the assistance from the Norwegian Agency for Development and Cooperation (NORAD). The scheme attempts to improve the lives of young women/girls especially school drop-outs and semi-literates, by extending training to non-traditional trades like electronics, watch assembling, computer programming, garment making, secretarial work, community health work, embroidery, weaving, etc. Of the Ninth Plan outlay of Rs. 88.98 crore, expenditure incurred was Rs. 76.50 crore, benefiting 53,050 women.

2.11.25 Yet, another major programme of employment and training for poor and needy women, being implemented by CSWB, is the Socio-Economic Programme (SEP). Of the Ninth Plan outlay of Rs. 26.42 crore, expenditure incurred was Rs. 4.92 crore. Around 62 SEP Units were set up during the Ninth Plan to benefit about 3,100 women. The major reason for the failure to achieve the targets set for this programme was the decision to phase out the scheme and finally drop the same in the Tenth Plan. The scheme of Condensed Courses of Education & Vocational Training for Adult Women (CCE & VT), being run by CSWB since 1958, aims to provide new avenues of employment through continuing education and vocational training for women and girls who are school drop-outs. Against the Ninth Plan outlay of Rs. 45.60 crore, an amount of Rs. 19.54 crore was spent for conducting 2,805 courses to benefit around 70,000 women.

2.11.26 **Welfare and Support Services** : Launched in 1972-73, the programme of Hostels for Working Women (HWW) aims to promote greater mobility for women in the employment market by providing safe and cheap accommodation to working women belonging to the lower income strata living away from home. Of the Ninth Plan outlay of Rs. 51.25 crore, Rs. 34.57 crore was spent for setting up 102 new hostels benefiting around 8,000 women. Since inception of the scheme, 881 hostels were sanctioned with a capacity to accommodate 62,308 women till date, and their 8,226

WOMEN AND MICRO - FINANCE

The Rashtriya Mahila Kosh (RMK), since its registration in 1993, has established its credentials as the premier micro-credit agency with its focus on women and their economic empowerment through the provision of credit to poor and assetless women in the informal sector. RMK mainly channelises its support through Voluntary Organisations, Women's Development Corporations, Women's Co-operative Societies, Block Samitis under the Swayamsidha programme. Achievements of RMK since its inception include - sanction of credit worth Rs. 109.73 crore benefiting 4.2 lakh women through 992 Voluntary Organisations/NGOs; and disbursement of Rs. 82.38 crore upto February 2002. Above all, the success of RMK lies in the fact that it has maintained a creditable recovery rate of 90 per cent and above, all these years.

dependent children in the attached 316 day-care centres. The programme of Short Stay Homes (SSH) for Women and Girls was launched in 1969 to protect and rehabilitate those women and girls who are in social and moral danger due to break-up of families, mental strain/stress, social ostracism, exploitation etc. Of the Ninth Plan outlay of Rs. 55.64 crore, the expenditure was Rs. 25.53 crore. At present, there exist 271 SSHs, benefiting more than 6,700 women.

2.11.27 The scheme of Assistance to Voluntary Organisations for Education Work for Prevention of Atrocities against Women was started in 1982. Under this scheme, Women Study Centres and institutions of higher learning and voluntary organisations are given financial assistance for undertaking various activities relating to education. Of the Ninth Plan outlay of Rs. 1.50 crore, expenditure amounts to Rs. 0.81 crore. The General Grants-in-Aid to Voluntary Organisations through CSWB and for strengthening its field organisations is a multi-faceted scheme providing financial assistance to voluntary organisations for rendering welfare services to women, children, aged and infirm, handicapped and other special groups through various

programmes. Of the Ninth Plan outlay of Rs. 70.03 crore, expenditure incurred was Rs. 53.36 crore. In addition, expenditure on activities like Field Counselling and Inspections, Evaluation and Statistics/Data Bank and Administration Expenditure of Central and State Boards are also covered. Under the scheme of Grant-in-Aid for Research, Publication and Monitoring, 65 new research studies were taken up by the end of the Ninth Plan. Of the Ninth Plan outlay of Rs. 2.95 crore, expenditure was Rs. 2.43 crore under this scheme.

2.11.28 Awareness Generation and Gender Sensitisation: The Ninth Plan attached great importance to efforts that trigger changes in societal attitudes towards women and the girl child. An integrated media campaign - covering electronic, print and film media – which projects a positive image of both women and the girl child is the most

important component of the Government's communication strategy. To sensitise the enforcement machinery, a countrywide gender sensitisation programme was launched in 1991 in collaboration with United Nations Development Fund for Women, New Delhi. Special campaigns to combat atrocities against women were also launched throughout the country in collaboration with the State Home Departments and NGOs. A set of 10 legal literacy manuals written in a simple and illustrated format was also published in 1992 with the aim of educating women about the laws concerning their basic rights. These manuals cover laws relating to working women, child labour, contract labour, adoption and maintenance, Hindu, Muslim and Christian Marriage Laws including right to property, dowry, rape, kidnapping and related police procedures. The Awareness Generation Project for Rural Poor Women (AGPRP) aims to identify the needs of these women and

NCW : A STATUTORY SAFEGUARD FOR WOMEN

NCW (National Commission for Women), a statutory body set up in 1992, safeguards the rights and interests of women. It continues to pursue its mandated role and activities; viz. safeguarding women's rights through investigations into the individual complaints of atrocities; sexual harassment of women at work place; conducting Parivarik/Mahila Lok Adalats, legal awareness programmes/camps; review of both women-specific and women-related legislations; investigates into individual complaints, atrocities, harassment, denial of rights etc. and takes suo moto remedial action to restore their legitimate rights. NCW, since its inception, investigated into a total number of 24,025 complaints, wherein dowry deaths and dowry harassments accounted for the maximum number. Open Adalats (public hearing) is the most innovative and informal style adopted by the Commission to hear the individual grievances. Out of the 41 legislations having direct bearing on women, the Commission reviewed and suggested remedial legislative measures in 32 Acts and forwarded the same to the government for necessary action, besides drafting a Bill on Sexual Harassment at the Work Places and a Bill on SAARC Regional Convention for Prevention and Combating Trafficking in Women and Children.

Amongst its success stories, the Commission requested the State Governments to reserve a certain percentage of resources for women even at the village level for programmes such as water supply, health services, nutrition, sanitation, etc. and reviewed the functioning of women's cells in governmental organisations and issued fresh guidelines to reactivate the cells. It has also organised many seminars/workshops on important emerging problems of women, viz. impact of globalisation on women, prevention of atrocities against women, economic empowerment of tribal women, girl child abuse, child marriages, empowerment of *Dalit* women, women in prostitution, images of women in the electronic media, rehabilitation of *devadasis*, besides conducting legal awareness camps in those states like Haryana, Punjab, Rajasthan, Bihar, Uttar Pradesh, etc. where the status of women is comparatively lower. The Commission has also been very successfully documenting information on many important social problems like that of rape, abortion, *devadasis*, sexual harassment, etc. besides sponsoring studies on various subjects related to women.

generate awareness amongst them about their rights and handling of social issues. Since 1986-87, the scheme has placed special emphasis on encouraging the participation of women in Panchayati Raj Institutions and learning about their role in national integration and communal harmony. Of the Ninth Plan outlay of Rs.15.63 crore, expenditure incurred amounts to Rs.10.92 crore. The programme for Information and Mass Education creates public awareness through the multi-media strategy on issues relating to women. Of the Ninth Plan outlay of Rs. 9.75 crore, expenditure was Rs. 8.70 crore.

2.11.29 Other Enabling Measures : These include Rashtriya Mahila Kosh (RMK), set up in 1993, as a national-level mechanism to meet the credit needs of poor and assetless women in the informal sector. RMK has taken a number of promotional measures to popularise the concept of micro-financing, thrift credit, formation and stabilisation of SHGs and also enterprise development for poor women. Since its inception, RMK has so far, sanctioned credit worth Rs. 109.73 crore, benefiting 4.2 lakh women through 992 NGOs and disbursed Rs. 82.38 crore upto February 2002. The National Commission for Women (NCW), set up in 1992, has a mandate to safeguard the rights and interests of women. Its major objectives are to investigate, examine and review all matters relating to the safeguards provided for women under the Constitution, review of both women-specific and women-related legislations and suggest amendments wherever needed and to function as an agency to keep surveillance and facilitate redressal of grievances of women. Of the total 41 legislations having a direct bearing on women, the Commission reviewed and suggested remedial legislative measures in respect of 32 Acts and forwarded the same to the government for further action. The Commission has accorded the highest priority to securing speedy justice to women. Of the Ninth Plan outlay of Rs. 16.25 crore, expenditure was Rs.16.17 crore.

2.11.30 The year 2001 was celebrated as 'Women's Empowerment Year'. During the year, various

activities and programmes were taken up on different themes pertaining to women's social, political and economic empowerment. The Scheme for Women in Difficult Circumstances – 'Swadhar' has been designed with a flexible and innovative approach to cater to the requirements of various categories of women in distress, in diverse situations under different conditions. The Scheme aims to provide basic needs of shelter, food, clothing and care to the marginalised women/girls living in difficult circumstances who are without any social and economic support. It also attempts to provide emotional support and counselling to such women and ensure their social and economic rehabilitation through education, awareness, skill upgradation and personality development through behavioural training etc.

Women's Component Plan (WCP) and its Progressive Implementation

2.11.31 The genesis of WCP, though officially launched in the Ninth Plan, can be traced back to as early as in the Seventh Plan (1985-90) when PMO, in collaboration with the Planning Commission, identified 27 BOS for women. Monitoring the progress of the implementation of these Schemes was entrusted to the Department of Women and Child Development to assess the quantum of funds/benefits flowing to women. These efforts were further strengthened when the Eighth Plan made a commitment stating that the benefits of development from different sectors do not by-pass women and the flow of benefits to women in education, health and employment will be monitored. Later in the Ninth Plan, the concept of WCP was brought into action as one of the important strategies by directing both the Centre and the State Governments to ensure that not less than 30 per cent of funds/benefits are earmarked in all the women-related sectors. Also, the flow of funds/benefits were monitored through an effective mechanism of inter-sectoral review to ensure that adequate funds/benefits flow to women from all the related sectors so as to prove that the strategy of empowering women is a multi-sectoral approach towards holistic development and advancement of women.

2.11.32 A review of the progress made by WCP has confirmed that it has already started paying rich dividends proving its strength as an effective strategy to achieve its objective. As per the information made available to the Planning Commission, substantial amount of funds are flowing to women through both women-specific and women-related schemes, implemented by 15 Central Ministries/Departments. Of these, while 4 Ministries/Departments viz. Family Welfare, Health,

Education and Indian Systems of Medicine and Homeopathy are contributing to women with as high as 50 to 70 per cent of their Gross Budgetary Support (GBS) in the Ninth Plan. While Labour and Rural Development contribute a flow of 30 to 50 per cent, others stand with less than 30 per cent of their GBS. Based on this, the total amount that flowed to women during the Ninth Plan from the women-specific nodal Department and women-related Ministries/Departments works out to

WOMEN'S COMPONENT PLAN : SOME FACTS & FIGURES

(Rs. in Crore)

Sl. No.	Name of Ministry/ Department	Ninth Plan (GBS)	Flow to WCP	% (Col 4 to Col 3)
(1)	(2)	(3)	(4)	(5)
A. Women-Specific (Nodal Department)				
●	Women and Child Development	7,810.42	7810.42	100.0
B. Women-related Ministries/Departments				
1.	Health	5,118.19	2,581.25	50.4
2.	Family Welfare	15,120.20	10,541.26	69.7
3.	Indian Systems of Medicine & Homeopathy	266.35	133.18	50.0
4.	Education	20,381.64	10,212.44	50.1
5.	Labour	899.12	300.85	33.5
6.	Agriculture & Cooperation	9,153.82	349.96	3.8
7.	Rural Development	41,833.87	17,415.00	41.6
8.	Urban Employment & Poverty Alleviation	4,931.22	403.60	8.2
9.	Social Justice & Empowerment	6,608.13	814.81	13.2
10.	Tribal Affairs	*	60.00	*
11.	Science & Technology	1,497.35	7.50	0.5
12.	Information & Broadcasting	680.05	30.00	4.4
13.	Non-Conventional Energy Sources	2,122.14	401.00	18.9
14.	Small-Scale & Agro-Related Industries	3,786.85	868.93	23.0
15.	Youth Affairs & Sports	826.09	12.33	1.5
Sub-Total (B)		1,13,225.02	44,132.11	39.0
Grand Total (A + B)		1,21,035.44	51,942.53	42.9

*Included in the Ministry of Social Justice & Empowerment

The total Gross Budgetary Support (GBS) of all Ministries and Departments for the Ninth Plan was Rs. 2,03,982 crore. WCP as a percentage of the total GBS of the GOI for the Ninth Plan works out to 25.5.

Rs.51,942.53 crore, which accounts for 42.9 per cent of the GBS of those very same Ministries/ Departments. However, the same will come down to 39 per cent if the GBS of only the 15 women-related Ministries/Departments are taken into consideration and further goes down to 25.5 per cent as part of the total GBS of all the Central Ministries/Departments. (Details are given in the Box). Further, the most striking feature in this entire exercise is to notice that there are Departments like Family Welfare accounting for as high as 70 per cent flow of its total budget for the good of women. Also, the review has brought forth a revealing factor that the WCP has created lot of awareness and sensitisation amongst the planners, policy-makers and administrators to ensure that the funds/benefits from other development sectors do not by-pass women.

Legislative Measures

2.11.33 To make the de-jure equality into a de-facto one, the State has enacted both women-specific and women-related legislations to safeguard the rights and interests of women, besides protecting against social discrimination, violence and atrocities and also to prevent social evils like child marriages, dowry, rape, practice of *Sati* etc. Efforts of the Government have been to review and amend these legislations from time to time to take care of the interests of women in the changing situations and societal demands/obligations. The National Commission for Women was attending to this responsibility since its inception in 1992 as it was mandated to. Of the total 41 legislations having direct/indirect bearing on women, the Commission has reviewed and suggested certain amendments in 32 Acts and forwarded the same to the Government for necessary action. The recommendations of the Commission in respect of 14 Acts were further examined in detail in 2000 by a Task Force on Women and Children headed by Shri K.C. Pant, Deputy Chairman, Planning Commission. To start with, the nodal Department of Women and Child Development has initiated action to move amendments in respect of 4 women-specific legislations, viz. The Immoral Traffic (Prevention) Act, 1956; The Dowry Prohibition Act, 1961; The Indecent Representation of Women (Prohibition) Act, 1986 and The Commission of Sati (Prevention) Act, 1987, besides drafting

LEGISLATIVE SUPPORT FOR WOMEN

Women-specific Legislations

- The Immoral Traffic (Prevention) Act, 1956[@]
- The Dowry Prohibition Act, 1961 (28 of 1961)[@]
- The Indecent Representation of Women (Prohibition) Act, 1986[@]
- The Commission of Sati (Prevention) Act, 1987 (3 of 1988)[@]

Women-related Legislations

- The Guardians and Wards Act, 1860 (8 of 1890) *
- Indian Penal Code, 1860 **
- The Christian Marriage Act, 1872 (15 of 1872) *
- The Indian Evidence Act, 1872 (yet to be reviewed)
- The Married Women's Property Act, 1874 (3 of 1874) *
- The Workmen's Compensation Act, 1923 **
- The Legal Practitioners (Women) Act, 1923[@]
- The Indian Succession Act, 1925 (39 of 1925) *
- The Child Marriage Restraint Act, 1929 (19 of 1929) *
- The Payments of Wages Act, 1936 **
- The Muslim Personal Law (Shariat) Application Act, 1937 *
- The Factories Act, 1948[@]
- The Minimum Wages Act, 1948[@]
- The Employees' State Insurance Act, 1948[@]
- The Plantation Labour Act, 1951 **
- The Cinematograph Act, 1952 **
- The Special Marriage Act, 1954 *
- The Hindu Marriage Act, 1955 (28 of 1955) *
- The Hindu Adoptions & Maintenance Act, 1956 *
- The Hindu Minority & Guardianship Act, 1956 *
- The Hindu Succession Act, 1956 *
- The Maternity Benefit Act, 1961 (53 of 1961)[@]
- The Beedi & Cigar Workers (Conditions of Employment) Act, 1966 **
- The Foreign Marriage Act, 1969 (33 of 1969) *
- The Indian Divorce Act, 1969 (4 of 1969) *
- The Medical Termination of Pregnancy Act, 1971 (34 of 1971) *
- Code of Criminal Procedure, 1973 **
- The Bonded Labour System (Abolition) Act, 1976[@]
- The Equal Remuneration Act, 1976[@]
- The Contract Labour (Regulation & Abolition) Act, 1979[@]
- The Inter-State Migrant Workmen (Regulation of Employment and Conditions of Service) Act, 1979[@]
- The Family Courts Act, 1984[@]
- Juvenile Justice Act, 1986 *
- The Child Labour (Prohibition & Regulation) Act, 1986**
- National Commission for Women Act, 1990 (20 of 1990) *
- The Infant Milk Substitutes, Feeding Bottles and Infant Foods (Regulation of Production, Supply and Distribution) Act, 1992 *
- The Pre-Natal Diagnostic Technique (Regulation and Prevention of Misuse) Act, 1994 *

* Reviewed by National Commission for Women (NCW)

** Reviewed by the Task Force on Women & Children

[@] Reviewed by both NCW and the Task Force on Women & Children

a Bill on Domestic Violence against Women (Prevention). This draft Bill is now awaiting the approval of the Parliament.

PRESENT STATUS OF WOMEN

2.11.34 While the impact of various developmental policies, plans and programmes implemented over the last few decades have brought forth a perceptible improvement in the socio-economic status of women, problems like illiteracy, ignorance, discrimination and violence continue to persist even today. The following paragraphs give an account of achievements in the selected areas of demography and vital statistics; health and family welfare; literacy and education; work and employment; decision-making; political participation; etc.

Demography and Vital Statistics

2.11.35 There has been a slight increase in the total female population of the country, from 407.1 million (48.1 per cent of total population) in 1991 to 495.7 million (48.3 per cent) in 2001 (Table 2.11.1). While the percentage increase of 0.2 is very marginal, increase in terms of absolute numbers

was 88.6 million as against 77.1 million between 1981 and 1991. The growth rate of female population for the 1991-2001 decade was 21.79 per cent, which was 0.86 percentage points higher than that of males and 0.45 percentage points more than that of the total population. Yet, the demographic imbalances between women and men continue to exist till date.

2.11.36 The sex ratio, which represents the survival scene of women, registered a very marginal improvement, from 927 in 1991 to 933 in 2001 (Table 2.11.2). While the sex ratio in respect of all ages has increased, it has declined in the most crucial 0-6 age-group, from 945 in 1991 to 927 in 2001. Also, the same declining trend was reflected in most states, including the more economically advanced ones like Punjab and Haryana. This clearly points to the fact that economic growth may not necessarily bring about an improvement in the status of women. This, in turn, can be attributed to the discrimination that the girl child faces and the consequential problems of poor health and nutritional status. Added to these are the problems of female foeticide and female infanticide, the incidence of which is on an increase.

Table-2.11.1
Population by Sex and Decennial Growth Rate (1981-2001)

(Population in million)

Census	Females		Males		Total	
	Population	DGR*	Population	DGR*	Population	DGR*
(1)	(2)	(3)	(4)	(5)	(6)	(7)
1981	330.0	24.93	353.4	24.41	683.4	24.66
1991	407.1	23.37	439.2	24.30	846.3	23.86
2001	495.7	21.79	531.3	20.93	1027.0	21.34

Note : * Decennial Growth Rate

- i) The population figures exclude the area under the occupation of Pakistan and China; ii) The 1981 Census was not held in Assam. The figures for 1981 include the interpolated population of Assam; iii) The 1991 Census was not held in Jammu & Kashmir. The figures for 1991 include the population of Jammu & Kashmir as projected by the Standing Committee of Experts on Population Projections (October, 1989).

Source : Census of India, 1991 & Census of India, 2001 : Provisional Population Totals, Registrar-General & Census Commissioner, GOI, New Delhi.

Table - 2.11.2
Sex Ratio (1981-2001)*

Census	Sex ratio
(1)	(2)
1981	934
1991	927
2001	933

Note : * Sex Ratio : Females per 1,000 males

Source : Census of India, 2001 : Provisional Population Totals, Registrar-General & Census Commissioner, GOI, New Delhi.

2.11.37 The expectation of life at birth in respect of females has been rising steadily (Table 2.11.3). It has increased from 55.7 years in 1981 to 65.3 at 2001, by-passing even the male life expectancy of 62.3 years and recording the highest ever increase of 5.6 years between 1989-93 and 1996-2001.

Table - 2.11.3
Life Expectancy at Birth (1981-2001)

(in years)		
Year	Females	Males
(1)	(2)	(3)
1981-85	55.7	55.4
1989-93*	59.7	59.0
1996-2001	65.3	62.3

Note : * Based on the Sample Registration System Estimates.

Source : Census of India, 1991; and Census of India, 2001 : Provisional Population Totals, Registrar-General & Census Commissioner, GOI, New Delhi.

2.11.38 Similarly, the effective mean age at marriage for females has also increased from 18.3 years in 1981 to 19.5 years in 1997 (Table 2.11.4). The Child Marriage Restraint Act, 1976, which raised the age of marriage for girls from 15 to 18 years has, no doubt, helped reduce child/early marriages and the consequent early pregnancies and birth of premature babies. At the same time, education and employment of women/girls has also played a very important role in raising the age of marriage.

Table - 2.11.4
Mean Age at Marriage (1981-1997)

(in years)		
Year	Females	Males
(1)	(2)	(3)
1981	18.3	23.3
1991	19.5	23.9
1997	19.5	N.A.

Source : Sample Registration System Bulletins for respective years, Registrar-General and Census Commissioner, GOI, New Delhi

Health and Family Welfare

2.11.39 While the Birth Rate has declined by 7.8 points from 33.9 in 1981 to 26.1 in 1999, the Death Rate has also declined by 3.8 points from 12.5 in 1981 to 8.7 in 1999 (Tables 2.11.5 & 2.11.6).

Table - 2.11.5
Birth Rate (1981-1999)

(per thousand)	
Year	Birth Rate
(1)	(2)
1981	33.9
1991	29.5
1999	26.1

Source : Sample Registration System Bulletins for respective years, Registrar General and Census Commissioner, GOI, New Delhi

Table - 2.11.6
Death Rate (1981-1999)

(per thousand)			
Year	Females	Males	Total
(1)	(2)	(3)	(4)
1981	12.7	12.4	12.5
1991	9.7	10.0	9.8
1999	8.3	9.0	8.7

Source : Sample Registration System Bulletins for respective years, Registrar-General and Census Commissioner, GOI, New Delhi

However, while the female Death Rate has come down by 4.4 points from 12.7 in 1981 to 8.3 in 1999, the male Death Rate has come down by 3.4 points, i.e. from 12.4 in 1981 to 9.0 in 1991.

Table – 2.11.7
Maternal Mortality Rate (1980-1998)

(per one lakh live births)

Year	Maternal Mortality Rate
(1)	(2)
1980	468
1993	437
1998	407

Source : Sample Registration System Bulletins for respective years, Registrar-General and Census Commissioner, GOI, New Delhi

2.11.40 Although MMR has been declining from 468 in 1980 to 407 in 1998, it is still very high and, therefore, a matter of great concern (Table 2.11.7). The major causes responsible for this high rate have been detailed as follows (Table 2.11.8):

Table – 2.11.8
Percentage Distribution of Cause-Specific Maternal Mortality Deaths – 1998

Cause	Percentage
(1)	(2)
Haemorrhage	29.7
Anaemia	19.0
Sepsis	16.1
Obstructed Labour	9.5
Abortion	8.9
Toxaemia	8.3
Others	8.5

Source : Survey of Causes of Death (Rural), India, Annual Report, 1998, Registrar-General and Census Commissioner, GOI, New Delhi

2.11.41 The highest number of maternal deaths in 1998 was due to haemorrhage (29.7 per cent), followed by anaemia (19 per cent) and Sepsis (16.1

per cent), which could have been prevented easily through better reproductive health care and nutrition. Despite the special sanction of the Medical Termination of Pregnancy (MTP) Act in 1971, illegal abortions continue to be performed by unauthorised persons like local quacks and untrained persons under unhygienic and unsafe conditions. In fact, abortions accounted for 8.9 per cent of the maternal deaths, which is quite high. Other causes of high morbidity amongst women are Reproductive Tract Infections (RTIs) and Sexually Transmitted Diseases (STDs), besides their higher vulnerability to cancer, malaria and tuberculosis and other diseases due to their lower access to health care facilities.

Table – 2.11.9
Prevalence of Anaemia amongst Pregnant Women

Category	Percentage
(1)	(2)
Normal (> 11 g/dl)	13
Mild (8-11 g/dl)	40
Moderate (5-8 g/dl)	34
Severe (< 5 g/dl)	13

Source : National Nutrition Monitoring Bureau (NNMB), 1996

2.11.42 In addition to the NNMB's data given above, the National Family Health Survey (NFHS)-II of 1998-99 shows that while 1.9 per cent of the adolescent married girls suffer from severe anaemia, 45.9 per cent from moderate anaemia. If left undetected and untreated, this will lead not only to increased morbidity amongst mothers, but also to higher risk of low birth rate and higher pre-natal mortality. Poor child-rearing practices of these adolescent mothers will add to the otherwise high mortality, morbidity and under/malnutrition amongst the infants and thus perpetuate the problems in the inter-generational cycle. The survey also shows that 51.8 per cent of women (15-49 years) suffer from nutritional anaemia, which can easily be prevented by providing better nutrition during their adolescent period and, more specifically, during pregnancy and lactation. Studies conducted by the Indian Council of Medical Research (ICMR), New

Delhi, show that the prevalence of anaemia is highest amongst pregnant women, ranging between 50 and 90 per cent. However, the NFHS II estimates the prevalence to be 49.7 per cent, which is substantially lower than earlier reports. What is more important is that the prevalence of moderate and severe forms of anaemia (< 8 gms per cent and < 5 gms per cent) associated with adverse obstetric outcomes continues to remain high. (More details are available in the Chapter on 'Family Welfare').

Literacy and Education

2.11.43 The past gains in women's education as reflected in the female literacy rate shows an increase from 29.76 per cent in 1981 to 54.16 per cent in 2001 (Table 2.11.10). Also, it is encouraging to note that as revealed by the 2001 Census for the first time, the absolute number of female illiterates has come down from 200.07 million in 1991 to 189.6

Table – 2.11.10
Literacy Rates by Sex (1981-2001)

(in per cent)

Census	Females	Males	Persons	Male-female gap in literacy rate
(1)	(2)	(3)	(4)	(5)
1981	29.76	56.38	43.57	26.62
1991	39.29	64.13	52.21	24.84
2001	54.16	75.85	65.38	21.69

Note : i) The literacy rates relate to the population aged seven years and above; ii) The 1981 Census Literacy rates exclude Assam. The 1991 Census Literacy Rates exclude Jammu & Kashmir.

Source : Census of India, 2001 : Provisional Population Totals, Registrar-General & Census Commissioner, GOI, New Delhi.

Table – 2.11.11
Enrolment of Girls in Graduate/Post Graduate/Professional Courses (1990-91 to 1999-2000)

(Figures in million)

Levels	1990-91		1996-97		1999-2000	
	Women	Total	Women	Total	Women	Total
(1)	(2)	(3)	(4)	(5)	(6)	(7)
Graduate (B.A./B.Sc./B.Com)	1.14 (34.7)	3.29	1.82 (37.4)	4.87	2.66 (40.9)	6.51
Post Graduate (M.A./M.Sc./M.Com)	0.12 (32.8)	0.35	0.17 (30.5)	0.54	0.22 (39.6)	0.55
Ph.D/D.Sc./D.Phil	0.01 (26.2)	0.03	0.01 (29.2)	0.04	0.02 (35.4)	0.05
B.E./B.Sc.(Eng)/ B.Architecture	0.03 (10.9)	0.24	0.05 (14.9)	0.33	0.08 (22.0)	0.36
M.B.B.S.	0.03 (34.3)	0.08	0.04 (35.4)	0.12	0.05 (37.8)	0.14
Total	1.32 (33.0)	3.99	2.09 (35.3)	5.90	3.03 (39.8)	7.61

Note : Figures within parentheses indicate percentage to total.

Source : Selected Educational Statistics for respective years, Department of Education, Ministry of Human Resource Development, GOI, New Delhi.

million in 2001. Similarly, the gap between female and male illiterates and drop-outs has also started narrowing down. Some states, however, continue to have very large inter-regional variations in education and there are still 299 districts with lower female literacy levels than the national average. While Kerala recorded the highest female literacy rate of 87.86 per cent, Bihar recorded the lowest at 33.57 per cent in 2001.

2.11.44 Similarly, the Gross Enrolment Ratio (GER) for girls both at primary and middle levels have also increased from 64.1 in 1980-81 to 85.2 in 1999-2000 in respect of primary level and from 28.6 to 49.7 in respect of middle level during the same period. Between 1990-91 and 1999-2000, the GER of girls at the middle level has also increased from 47.8 to 49.7 (Data on the subject is given in Table 2.11.26 under 'Development of Children').

2.11.45 The number of women in higher education which includes colleges, universities, professional colleges of engineering, medicine, technology, etc. has also increased from 1.32 million (33.0 per cent) in 1990-91 to 3 million (39.8 per cent) in 1999-2000 (Table 2.11.11). The number of women enrolled has

shown an increase in both absolute and relative terms.

2.11.46 The drop-out rates, which have a direct bearing on the school retention rates, have also shown a definite declining trend from 1980-81 to 1999-2000, both in the case of boys and girls at all levels of school education. Although, the drop-out rates for girls at primary and middle levels reduced from 62.5 and 79.4 respectively in 1980-81 to 42.3 and 58.0 in 1999-2000, the rates are still higher than those for boys (Data on the subject is given at Table 2.11.27 under 'Development of Children').

Work and Employment

2.11.47 While the female work participation rate increased from 19.7 per cent in 1981 to 25.7 per cent in 2001, still it is much lower than the male work participation rate in both urban and rural areas (Table 2.11.12). There are wide regional variations amongst the major states, ranging from as high as 34 per cent in Mizoram to as low as 4 per cent in Punjab, as per the 1991 Census. (State-wise data for the 2001 Census is not yet available).

Table – 2.11.12

Work Participation Rates by Sex (1981 to 2001)

(in per cent)

Census	T/R/U	Female	Male	Persons
(1)	(2)	(3)	(4)	(5)
1981	Total	19.7	52.6	36.7
	Rural	23.1	53.8	38.8
	Urban	8.3	49.1	30.0
1991	Total	22.3	51.6	37.5
	Rural	26.8	52.6	40.1
	Urban	9.2	48.9	30.2
2001	Total	25.7	51.9	39.3
	Rural	31.0	52.4	42.0
	Urban	11.6	50.9	32.2

Source : Census of India, 1991, Series I and Census of India, 2001 : Provisional Population Totals, Registrar General & Census Commissioner, GOI, New Delhi.

2.11.48 Women's share in the organised workforce has also shown an increasing trend, from 2.8 million (12.2 per cent) in 1981 to 4.8 million (17.2 per cent) in 1999 (Table 2.11.13). Between 1991 and 1999, rise in the percentage points of women was 3.1. In contrast, the share of men has been declining. However, women's participation in the organised sector is still very low, as compared to men.

Table – 2.11.13
Women in the Organised Sector (1981-99)

(Figures in million)

Year	Women	Men	Total
(1)	(2)	(3)	(4)
1981	2.8 (12.2)	20.1	22.9
1991	3.8 (14.1)	23.0	26.7
1999	4.8 (17.2)	23.3	28.1

Note : Figures within parentheses indicate percentage to total.

Source : Director-General of Employment and Training, Ministry of Labour, GOI, New Delhi.

2.11.49 Similarly, women's employment in the public sector has also recorded an increase from 1.5 million (9.7 per cent) in 1981 to 2.8 million (14.5

per cent) in 1999 (Table 2.11.14). However, it is still much lower than that of men.

Table – 2.11.14
Women in the Public Sector (1981 – 99)

(Figures in million)

Year	Women	Men	Total
(1)	(2)	(3)	(4)
1981	1.5 (9.7)	14.0	15.5
1991	2.4 (12.3)	16.7	19.1
1999	2.8 (14.5)	16.6	19.4

Note : Figures within parentheses indicate percentage to total.

Source : Director-General of Employment and Training, Ministry of Labour, GOI, New Delhi.

2.11.50 Just as in the case of women in Public Sector, they also hold a low-key with only 14.6 per cent of the total 10.7 million employees in Government in 1997. No doubt, there has been an increasing trend in the representation of women in Government, as it rose from 11 to 14.6 per cent between 1981 and 1997, but at the same time, their representation can be rated as very low, when compared to the number of educated women (Table 2.11.15).

Table – 2.11.15
Women in the Government (1981-97)

(Figures in million)

Year	Women	Men	Total
(1)	(2)	(3)	(4)
1981	1.2 (11.0)	9.7	10.9
1997	1.6 (14.6)	9.1	10.7

Note : Figures within parentheses indicate percentage to total.

Source : Director-General of Employment and Training, Ministry of Labour, GOI, New Delhi.

Decision-making

i) Administrative

Table – 2.11.16
Representation of Women in Premier Services (1987-2000)

Service	1987		1997		2000	
	Women	Total	Women	Total	Women	Total
(1)	(2)	(3)	(4)	(5)	(6)	(7)
IAS	339 (7.5)	4,204	512 (10.2)	4,991	535 (10.4)	5,159
IPS	21 (0.9)	2,418	67 (2.2)	3,045	110 (3.3)	3,301
Total	360 (5.4)	6,622	579 (7.2)	8,036	645 (7.6)	8,460

Note : Figures within parentheses indicate percentage to total.

Source: Department of Personnel & Training, GOI, New Delhi.

2.11.51 The representation of women in the decision-making levels through the Premier Services viz., the Indian Administrative Service (IAS) and Indian Police Service (IPS), which stood at only 5.4 per cent in 1987, increased marginally to 7.6 per cent in 2000 (Table 2.11.16). However, the figure is still very low, requiring not only affirmative action but also special interventions to help raise the number of women at various decision-making levels.

ii) Political

Table – 2.11.17
Women in Panchayati Raj Institutions (1995-2001)

(Figures in thousand)

Year	Women	Men	Total
(1)	(2)	(3)	(4)
1995#	318 (33.5)	630	948
2001@	725 (26.6)	1,997	2,722

Note : Figures within parentheses indicate percentage to total.

Data refers to 9 states – Gujarat, Haryana, Karnataka, Kerala, Madhya Pradesh, Punjab, Rajasthan, Tripura and West Bengal.

@ For whole of India. (As on 18.10.2001)

Source : Ministry of Rural Development, GOI, New Delhi.

2.11.52 The 73rd and 74th Constitutional Amendments in 1993 have brought forth a definite impact on the participation of women, in terms of absolute numbers, in grassroot democratic institutions viz. Panchayati Raj Institutions (PRIs) and Local Bodies (Table 2.11.17). In fact, these amendments have helped women not only in their effective participation but also in decision-making in the grassroot democracy. Of the 475 Zilla Parishads in the country, 158 are being chaired by women. At the Block Level, out of 51,000 members of Block Samitis, 17,000 are women. In addition, nearly one-third of the Mayors of the Municipalities are women. In the elections to PRIs held between 1993 and 1997, women have achieved participation even beyond the mandatory requirement of 33 $\frac{1}{3}$ per cent of the total seats in states like Karnataka (43.45 per cent), Kerala (36.4 per cent) and West Bengal (35.4 per cent). However, the all India figures for women show that their representation in 2001 is still low.

2.11.53 Although the number of women in Parliament has increased from 59 in 1998 to 70 in 2001, their share continues to be very low representing only 8.5 per cent (Table 2.11.18) of the total Members in Parliament in 2001.

2.11.54 The number of women in the Central Council of Ministers continues to remain extremely

Table – 2.11.18
Representation of Women in Parliament (1998-2001)

Year	Females	Males	Total
(1)	(2)	(3)	(4)
1998	59 (7.2)	761	820
1999	67 (8.5)	723	790
2001	70 (8.5)	750	820

Note : Figures within parentheses indicate percentage to total.

Source: 1. Election Commission of India.
2. National Informatics Centre, Parliament House, New Delhi.

low, but with a marginal increase of 0.8 per cent between 1985 and 2001 (Table 2.11.19). Of these, 2 are of Cabinet rank and 6 are of the rank of Minister of State, and of these, 2 are holding Independent Charge. These trends point out very clearly to the need for affirmative action besides addressing these issues in a systematic and expeditious way so that women's concerns gain political prominence and a fairly representative number of women are in position not only at grassroot level, but also at the state and national levels.

2.11.55 To sum up, Table 2.11.20 presents the status of women including that of the girl child along with the progress made by them over a period of two developmental decades (1981-2001) as reflected in the 21 Selected Gender Development Indicators.

2.11.56 A quick review of the progress made by women (Table 2.11.20) has not only focused light on the gains but also brought forth to surface certain critical areas of concern relating to women requiring

Table – 2.11.19
Representation of Women in the Central Council of Ministers (1985 & 2001)

Year	Women	Men	Total
(1)	(2)	(3)	(4)
1985	4 (10.0)	36	40
2001	8 (10.8)	66	74

Note : Figures within parentheses indicate percentage to total.

Source : National Informatics Centre, Parliament House, New Delhi.

Table – 2.11.20
The 21 Selected Gender Development Indicators : 1981 to 2001

S. No.	Indicators	Women	Men	Total	Women	Men	Total
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Demography and Vital Statistics							
1	Population (in million in 1981 & 2001)	330.0	353.4	683.4	495.7	531.3	1027.0
2	Decennial Growth (1981 & 2001) *	24.93	24.41	24.66	21.79	20.93	21.34
3	Sex Ratio (1981 & 2001) **	934	-	-	933	-	-
4	Life Expectancy at Birth (in years in 1981-85 & 1996-01)	55.7	55.4	-	65.3	62.3	-
5	Mean Age at Marriage (in years in 1981 & 1991)	18.3	23.3	-	19.5	23.9	-
Health and Family Welfare							
6	Birth Rate (per thousand in 1981 & 1999)	-	-	33.9	-	-	26.1
7	Death Rate (per thousand in 1981 & 1999)	12.7	12.4	12.5	8.3	9.0	8.7
8	Infant Mortality Rate (per thousand live births in 1988 & 1999)	93.0	96.0	94.5	70.8	69.8	70.0
9	Child Mortality Rate (per thousand live births under 5 years of age in 1985 & 1997)	40.4	36.6	-	24.5	21.8	-
10	Maternal Mortality Rate (per one lakh live births in 1980 & 1998)	468	-	-	407	-	-
Literacy and Education							
11	Literacy Rates (1981 & 2001) *	29.76	56.38	43.57	54.16	75.85	65.38
12	Gross Enrolment Ratio (1980-81 & 1999-2000)						
	- Classes I-V	64.1	95.8	80.5	85.2	104.1	94.9
	- Classes VI – VIII	28.6	54.3	41.9	49.7	67.2	58.8
13	Drop-out Rate (1980-81 & 1999-2000) *						
	- Classes I – V	62.5	56.2	58.7	42.3	38.7	40.3
	- Classes VI – VIII	79.4	68.0	72.7	58.0	52.0	54.6
Work and Employment							
14	Work Participation Rate (1981 & 2001) *	19.7	52.6	36.7	25.7	51.9	39.3
15	Organised Sector (No. in million in 1981 & 1999)	2.80	20.05	22.85	4.83	23.28	28.11
		(12.2 %)			(17.2%)		
16	Public Sector (No. in million in 1981 & 1999)	1.5	14.0	15.5	2.8	16.6	19.4
		(9.7 %)			(14.5%)		
17	Government (No. in million in 1981 & 1997)	1.2	9.7	10.9	1.6	9.1	10.7
		(11%)			(14.6%)		
Decision – Making							
18	Administration (No. in IAS & IPS in 1987 & 2000)	360	6262	6622	645	7815	8460
		(5.4%)			(7.6%)		
19	PRIs (No. in thousand in 1995 & 2001)	318***	630***	948 ***	725	1997	2722
		(33.5%)			(26.6%)		
20	Parliament (No. in 1998 & 2001)	59	761	820	70	750	820
		(7.2%)			(8.5%)		
21	Central Council of Ministers (No. in 1985 & 2001)	4	36	40	8	66	74
		(10%)			(10.8%)		

* figures in per cent; ** females per 1,000 males; *** Refers to 1995 in respect of some states, namely, Gujarat, Haryana, Karnataka, Kerala, Madhya Pradesh, Punjab, Rajasthan, Tripura and West Bengal

Note : i) Figures in parentheses indicate the percentage to the total and year of the data in respective columns. Although, efforts were made to keep a common 'base' and common 'comparable year', but the same could not be kept up because of the limitations in the availability of data and other practical problems; ii) The years given in the parentheses refers to the year of the data in columns 3,4 & 5 and 6,7 & 8 respectively.

Source : 1. Census of India, 1991; Census of India, 2001: Provisional Population Totals; and SRS Bulletins for respective years, Registrar General & Census Commissioner, GOI, New Delhi; 2. Selected Educational Statistics for respective years, Dept of Education, Ministry of HRD, New Delhi; 3. Annual Report, 1999-2000, Depts of Elementary & Literacy and Secondary & Higher Education, Ministry of HRD, New Delhi; 4. Employment Exchange Statistics, DGE&T, Ministry of Labour, New Delhi; 5. Dept of Personnel & Training, New Delhi; 6. Ministry of Rural Development, New Delhi; 7. Election Commission of India, New Delhi; 8. National Informatics Centre, Parliament House, New Delhi.

attention of the Government during the Tenth Plan. They include: increasing burden of poverty; unequal access to primary health care, under/malnutrition, high rates of illiteracy and lack of training; lack of access and control on assets and resources; inequalities in sharing of power and decision-making; lack of access to information and media; increasing violence against women, adolescent and the girl child; persisting discrimination against the girl child etc. (These are discussed in detail under 'Gender Justice' of this Chapter.) Keeping these Issues/Concerns in view, the Tenth Plan suggests the following approach not only to strengthen, but also to speed up, the on-going process/efforts of empowering of women.

APPROACH TO THE TENTH PLAN - PATH AHEAD

2.11.57 In the context of having a laid down National Policy, approach to the Tenth Plan for empowering women will be very distinct from that of the earlier Plans, as it now stands on a strong Platform for Action with definite goals, targets and a time-frame. Further, as the process of empowering women initiated during the Ninth Plan is expected to continue through and beyond the Tenth Plan, there can be no better approach than translating the recently adopted National Policy for Empowerment of Women (2001) into action through -

- Creating an environment, through positive economic and social policies, for the development of women to enable them to realise their full potential;
- Allowing the de-jure and de-facto enjoyment of all human rights and fundamental freedoms by women on par with men in all spheres - political, economic, social, cultural and civil;
- Providing equal access to participation and decision-making for women in social, political and economic life of the nation;

- Ensuring equal access to women to health care, quality education at all levels, career and vocational guidance, employment, equal remuneration, occupational health and safety, social security and public office etc.;
- Strengthening legal systems aimed at the elimination of all forms of discrimination against women;
- Changing societal attitudes and community practices by active participation and involvement of both men and women;
- Mainstreaming a gender perspective into the development process;
- Eliminating discrimination and all forms of violence against women and the girl child; and
- Building and strengthening partnerships with civil society, particularly women's organisations, corporate and private sector agencies.

2.11.58 The Operational strategy, as prescribed in the Policy, directs all the Central Ministries and State Departments to draw up Time-Bound Action Plans for translating the Policy into a set of concrete actions through a participatory process of consultations with all the concerned, both in the governmental and non-governmental sectors. Accordingly, the first step in this direction will be to prepare a National Plan of Action for implementation of the Policy by the nodal Department of Women and Child Development through identifying its partners; specifying Action Points in all the women-related development sectors; developing an in-built mechanism for effective co-ordination and monitoring of the implementation of the Policy; besides evaluating/assessing the impact of the implementation of Policy in improving the status of women, based on a Gender Development Index.

2.11.59 The Plans of Action thus prepared will clearly specify - i) the measurable goals to be achieved along with the time targets, preferably in consonance with the time-frames set by the other women-related national policies; ii) commitment of resources; iii) earmarking of the benefits under WCP; iv) fixing of responsibilities for implementation of the Action Points; and v) identification of structures and mechanisms to ensure effective review, monitoring, and impact assessment of all the related policies, Plans of Action and programmes in raising the status of women, adolescent girls and girl children on par with their counterparts. As the time target set for achieving the goals in the Policy goes beyond the Tenth Plan, the following measurable/ monitorable goals set in the Tenth Plan (Approach Paper) having a direct bearing on the empowerment of women and the girl child, will be adopted in the proposed Action Plans:

- Reduction of poverty ratio by 5 percentage points by 2007 and by 15 percentage points by 2012;
- Providing gainful (high-quality) employment to the addition to the labour force over the Tenth Plan period;
- All children in school by 2003; all children to complete 5 years of schooling by 2007;
- Reduction of gender gaps in literacy and wage rates by at least 50 per cent by 2007;
- Reduction in the decadal rate of population growth between 2001 and 2011 to 16.2 per cent;
- Increase in Literacy rate to 75 per cent within the Plan period;
- Reduction of IMR to 45 per 1000 live births by 2007 and to 28 by 2012;
- Reduction of MMR to 2 per 1000 live births by 2007 and to 1 by 2012; and
- All villages to have sustained access to potable drinking water by 2007.

2.11.60 To translate the above Goals into action, the Tenth Plan reaffirms the major strategy of mainstreaming the gender perspectives in all sectoral policies and programmes and plans of action. This will help achieve the ultimate goal of eliminating gender discrimination and creating an enabling environment of gender justice, which would encourage women and girls to act as catalysts, participants and recipients in the country's development process. Further, women-specific interventions will be undertaken to bridge the existing gaps.

2.11.61 Acknowledging the fact that women's equality in power sharing and active participation in decision-making, both in administrative and political spheres, is a very strong instrument to achieve the goals of empowerment, the Tenth Plan will initiate all necessary steps to guarantee equal access and full participation to women in decision-making bodies, including the legislative, executive, judicial, corporate, statutory bodies and their advisory Commissions/ Committees, Boards etc. Affirmative action such as reservations/quotas, including in the higher political, administrative and legislative bodies, will also be considered, if necessary, on a time-bound basis. Introduction of women-friendly personnel policies will be an additional feature during the Tenth Plan to encourage women to participate effectively in all the administrative decision-making processes.

2.11.62 The process of organising women into Self-Help Groups (SHGs), started during the Ninth Plan to provide them a permanent fora for articulating their needs and contributing their perspectives to development, has made tremendous progress as it brought into action more than a million SHGs all over the country. Experience has already shown that these Groups have been very effective institutions at grassroot level in facilitating access to women, be it for financial or material resources or services or for information. Therefore, the Tenth Plan will continue to encourage SHG mode to act as the agents of social change, development and empowerment of women.

2.11.63 As much of the success of empowering women depends upon the holistic impact of various sectoral achievements, efforts will be initiated/intensified during the Tenth Plan to converge the existing services, resources, infrastructure and manpower available both in the women-specific and women-related sectors with an ultimate objective of optimising the benefits with greater cost effectiveness. To this effect, efforts will be made to converge the services of health care, nutrition supplementation, safe drinking water, adult/functional/legal literacy, gainful employment both wage and self-employment, sanitation, health and nutrition awareness, knowledge and information about management of diseases, counselling to-wards safe motherhood practices, nutrition, welfare services etc. The integrated approach adopted by the two on-going programmes of women's empowerment viz. Swa-Shakti and Swayamsidha will be further strengthened and expanded during the Tenth Plan with an ultimate objective of universalising the same through the already available grassroot level networking of SHGs.

2.11.64 Governmental institutions and efforts by themselves are not adequate in terms of human and financial resources to achieve empowerment/ advancement of women in its various dimensions. Therefore, they need to be supplemented by Civil Society Organisations (Voluntary Organisations). Already, a large number of such organisations have emerged throughout the country and some of them have also made significant contributions towards projecting and addressing women's issues at the grassroot levels. Services of these organisations will be encouraged, supported and availed of so that the process of empowering women becomes truly a national and people's movement. Further, the corporate world is also evincing keen interest these days in welfare/ development issues including women's development, even by transcending their limited business mandates. Also, as corporate bodies have a strategic interface with the working

people, their services will be utilised for gender sensitisation of the corporate world as a whole, including their work force. Efforts will also be made to draw upon their infrastructure and resources for the implementation of women's development programmes, besides ensuring that their employment practices adhere to the norms of social and gender justice. Thus, the Tenth Plan will endeavour to increasingly involve the corporate bodies/private bodies in fulfilling their social responsibility through empowering women.

2.11.65 As part of the efforts for empowering women, the Tenth Plan will take note of the recommendations of the Task Force on Women and Children (2000) with regard to women-specific and women-related legislations, and expedite action to bring forth necessary amendments and enact new legislations, if required. In this regard, special efforts during the Tenth Plan will be made to consider/encourage necessary amendments in legislations relating to ownership of property and inheritance by evolving consensus on the subject and thus make them gender-just, as the evolution of property rights in the patriarchal system has contributed to the subordinate status of women. Further, to ensure that justice is quick and that punishment is meted out to the guilty, the existing legal/judicial systems and also the enforcement machinery will be made more responsive and gender-sensitive to women's needs, especially in the cases of domestic violence and personal assault.

2.11.66 Finally, the Tenth Plan will also take cognisance of the gender asymmetry in the population pyramid with 'males out-numbering females' as a whole and 'females out-numbering males' at the upper end of the age structure and calls for urgent interventions to protect the girl child, besides providing social security for the aged women. The special interventions launched through the Balika Samridhi Yojana (BSY) in 1999 do not seem to be having the much desired impact on the conditions of the adolescent/girl

COMMITMENTS OF THE TENTH PLAN TO EMPOWER WOMEN

The Approach

To continue with the major strategy of 'Empowering Women' as Agents of Social Change and Development

Strategies

To adopt a **Sector-specific 3-Fold Strategy for empowering women**, based on the prescriptions of the National Policy for Empowerment of Women. **They include :**

- **Social Empowerment** - to create an **enabling environment** through various affirmative **developmental policies and programmes** for development of women besides providing them **easy and equal access to all the basic minimum services** so as to enable them to realise their full potentials.
- **Economic Empowerment** - to ensure provision of training, employment and income-generation activities with both 'forward' and 'backward' linkages **with the ultimate objective of making all potential women economically independent and self-reliant**; and
- **Gender Justice** - to **eliminate all forms of gender discrimination** and thus, allow women to enjoy not only the **de-jure** but also the **de-facto** rights and fundamental freedom on par with men in all spheres, viz. political, economic, social, civil, cultural etc.

child who is still a victim of various types of discrimination, both within and outside the family. It is hoped that the National Population Policy, with its much-advocated strategy of concentrating on the 133 high fertility districts identified specially for the purpose of paying special attention on population stabilisation, will be able to help rectify these demographic imbalances over a period of time.

2.11.67 While the above-mentioned holistic strategies are expected to reinforce the on-going process of empowering women, the Tenth Plan also suggests a sector-specific three-fold strategy for empowering women through - i) Social Empowerment, ii) Economic Empowerment, and iii) Gender Justice, as per the details given below:

i) Social Empowerment

Health & Family Welfare

2.11.68 While taking note of the importance of the Life-Cycle Approach adopted in the Ninth Plan for meeting the health needs of the target groups viz. women, mothers, the adolescent girls and the Girl Child, the Tenth Plan commits to improve the accessibility and utilisation of services of primary health care and family welfare with a special focus on the under-served and under-privileged segments of population through universalising RCH services. In this context, it also reiterates the need to achieve the goals set by the National Health & Population Policies, especially with regard to women and children, in consonance with the targets set by the Tenth Plan.

SOCIAL EMPOWERMENT

Create an enabling environment through adopting various affirmative developmental policies and programmes for development of women, besides providing them easy and equal access to all the basic minimum services so as to enable them to realise their full potentials through -

- Providing easy and equal access to ensure basic minimum services of primary health care and family welfare with a special focus on the under-served and under-privileged segments of population through universalising Reproductive and Child Health (RCH) services
- Achieving the goals set by the National Population Policy (2000) with regard to reducing Infant Mortality Rate (IMR) to 30 per thousand and Maternal Mortality Rate (MMR) to 100 per lakh live births by 2010
- Supplementing health care and nutrition services through the Pradhan Mantri Gramodaya Yojana (PMGY) to fill the critical gaps in the existing primary health care infrastructure and nutrition services
- Tackling both macro and micro-nutrient deficiencies through nutrition supplementary feeding programmes with necessary support services like health check-ups, immunisation, health and nutrition education and nutrition awareness etc.
- Consolidating the progress made under female education and carrying it forward for achieving the set goal of 'Education for Women's Equality' as advocated by the National Policy on Education, 1986 (revised in 1992)
- Providing easy and equal access to and free education for women and girls at all levels and in the field of technical and vocational education and training in up-coming and job-oriented trades
- Increasing enrolment/retention rates and reducing drop-out rates by expanding the support services through mid-day meals, hostels and incentives like free supply of uniforms, textbooks, transport charges etc.
- Extending the existing network of regional vocational training centres to all the states and Women's Industrial Training Institutes and Women's Wings with General Industrial Training Institutes with residential facilities in all districts and sub-districts and provision of training in marketable trades
- Encouraging the media to project positive images of women and the Girl Child; change the mind-set of the people and thus promote the balanced portrayals of women and men
- Gender sensitising both the administrative and enforcement machinery and ensuring that the rights and interests of women are taken care of, besides involving them in planning, implementation and monitoring of processes.

2.11.69 Further, the Tenth Plan will also take the maximum advantage of the present strategy of extending health care services through PMGY to fill the critical gaps in the existing primary health care infrastructure and services. It will thus help improve the accessibility to women and children with

special priority to the rural and urban poor living below the poverty line, based on the individual needs but not on the ability to pay.

2.11.70 The other effective measures to continue in this direction will be to focus on the essential

obstetric care through early registration of pregnancy and screening of all pregnant women at least thrice during this period to detect risk factors; identification and management of high risk mothers; appropriate management of anaemia and hypertension disorders; providing referral care to 'at-risk' mothers and to ensure safe delivery. Services for the prevention, detection and management of RTIs and STIs will also continue as a priority area and as part of the essential RCH care. Special efforts to promote institutional deliveries; initiatives to promote safe-home deliveries by extending training to Traditional Birth Attendants and supply of Delivery Kits will also continue in a much bigger way as part of the total endeavours to reduce the existing high MMR.

2.11.71 Considering the fact that more than 50 per cent of the deliveries and a large number of illegal abortions are being performed by the unqualified persons, particularly in the rural areas, special efforts will be made to promote ready access to medical termination of pregnancy facilities and intra-partum care at PHCs. Also, prevention/ control of the misuse of medical technologies for commercial purposes will be taken up, on a priority basis, as the incidence of female foeticide has been on an increase due to misuse of the medical technology (ultra-sound) for sex determination, followed by illegal and harmful practice of female foeticide. Action in this direction will include effective enforcement of the Pre-natal Diagnostic Techniques (Regulation and Prevention of Misuse) Act, 1994 with stringent punishment to both the parties. Efforts will also be made to create an enabling environment for women to exercise their reproductive rights and choices freely, as effective measures to contain the population growth. (More details are available in the Chapters on 'Health' and 'Family Welfare').

Food and Nutrition Security

2.11.72 Recognising the critical link between the health and nutritional status of women, mothers and girl children, the Tenth Plan lays down special emphasis on these two nutritionally vulnerable groups through ensuring intra-household food security as the gender biases in the allocation of

food have resulted in many nutritional deprivations amongst women and girls, perpetuating the vicious cycle of under/mal-nourishment. Just as in the case of health, women also deserve a life-cycle approach in respect of nutrition as they face high-risk with the problems of under/malnutrition and the resultant deficiencies and diseases during the critical stages of infancy, childhood, adolescence and motherhood. Special efforts will, therefore, be made to tackle both macro and micro-nutrient deficiencies, especially amongst pregnant and lactating mothers as they lead to various diseases and disabilities not only amongst women, but also amongst children, especially those in the age-group 0-24 months, as this is the most crucial age where the problems of malnutrition generally sets in. Therefore, all the direct and indirect nutritional supplementary feeding programmes will be reinforced with necessary support services like health check-ups, immunisation, ante-natal and post-natal care, health and nutrition education and awareness etc., so as to achieve the goals set in the National Nutrition Policy. Also, the Targeted Public Distribution System (TPDS) needs to be streamlined as a support system for household food security (More details are available in Chapter on 'Food and Nutrition Security').

Education and Training

2.11.73 The bold decision to declare 'Education as the Fundamental Right' (being processed) reflects the Government's concern and commitment to ensure that everyone born in this country is literate/educated and thus fulfil the Constitutional commitment of 'Education for All' by 2007. Through the specially targeted programme of Sarva Shiksha Abhiyan (SSA), launched in 2000, efforts will be made to reach the un-reached women and the girl child. Thus, all out efforts will be made during the Tenth Plan to ensure that the SSA achieves its commitment within the time targets set.

2.11.74 The Tenth Plan will further endeavour to consolidate the progress made under female education and carry it forward for achieving the set goal of 'Education for Women's Equality' as advocated by the National Policy on Education,

1986 (revised in 1992) by reducing the gender gaps at the secondary and higher education levels. Also, special attention will be paid to the already identified low female literacy pockets and to the women and girl children belonging to the socially disadvantaged groups viz. Scheduled Castes (SCs), Scheduled Tribes (STs), Other Backward Classes (OBCs), Minorities, Disabled etc. as they still lag behind the rest of the population with female literacy rates as low as 5 to 10 per cent, while the national average of female literacy stands at 54.16 per cent in 2001.

2.11.75 While 'Education for All' continues to be a priority area in the Tenth Plan, special efforts will be made to create an enabling environment by providing easy and equal access to and free education for women and girls. Steps will also be initiated to remove gender bias and stereo-types in the curricula, text-books and learning material; create a gender-sensitive educational system; promote gender sensitisation of teachers on a regular basis; appoint more women teachers at primary level (at least 90 per cent); reduce drop-out rates and increase enrolment and retention rates of girl children through special incentives like free supply of uniforms, text books, mid-day meals, scholarships, flexible school timings and attached hostels and crèches; and improve the quality of education besides facilitating life-long learning through correspondence courses, distance learning and self-study programmes for women and girls who drop out from the formal system of schooling. In fact, the re-cast programme of BSY revolves around the very same theme of educating and empowering the girl child living below the poverty line with adequate financial support till she completes higher secondary education or gets equipped with the necessary skills to earn her livelihood (More details under Section on 'Development of Children').

2.11.76 Vocationalisation of secondary education and vocational training for women is another priority area requiring greater attention during the Tenth Plan. In this direction, efforts will be made to extend the existing network of regional vocational training centres to all the states and Women's ITIs with residential facilities to all districts and sub-districts. Simultaneously, efforts will also be made to

encourage eligible women/girls with suitable incentives to join vocational education/training so that the facilities available both at the general/exclusive Training Institutions for women are utilised optimally. Introduction of part-time and short-term courses will also be considered to meet the special needs and timings of working women/girls. Special campaigns will be organised, with necessary incentives, to encourage women and girls to opt for the emerging trades/areas of technical education having high employment potential, such as electronics, computer applications, bio-engineering, bio-technology, food processing, fabric designing, beauty culture, communications, media etc.

2.11.77 Further, to encourage more and more girls to enter into the mainstream of higher education, the Tenth Plan endeavours to put into action the governmental commitment of providing free education for girls upto the college level, including professional courses, so as to quicken the process of empowerment of women. All these efforts will continue during the Tenth Plan with the strength and support of the National Policy on Education, as it extends the most positive interventionist role in empowering women.

Welfare and Development

2.11.78 The Tenth Plan will expedite implementation of 'Swadhar' - an innovative intervention for 'Women in Difficult Circumstances' with a special focus on the rehabilitation of sex workers, women/girls offered to temples, viz. *devadasis*, *basvis*, *jogins*, women/girls in social and moral danger, destitute/young/elderly widows; single women in difficult circumstances; women-headed households; displaced women; women affected by natural calamities etc. Scope of services of the scheme will be enlarged to give space to the emerging/demanding situations and groups. While other welfare programmes of the nodal Department of Women and Child Development like short stay homes, hostels for working women, crèches etc. will continue with expansion during the Tenth Plan to meet the specific/emerging needs of women, especially for those belonging to other disadvantaged groups viz. SCs, STs, OBCs and Minorities.

Women and Media

2.11.79 Media will be used to portray positive images consistent with human dignity of girls and women. The Tenth Plan will consciously address the need for a well-planned media strategy not merely for bringing about a massive awareness and education on the gender issues but also for preventing derogatory, demeaning and degrading portrayals of women in the media. Private sector partners and media networks will be involved at all levels to ensure equal access for women particularly in the area of information and communication technologies. The strategy would be to encourage media to develop a code of conduct, professional guidelines and other self-regulatory mechanisms to remove gender stereotypes and promote balanced portrayals of women and men. Also, there is an urgent need for adopting a media policy with laid down prescriptions of 'do's and don'ts' in support of the Constitutional guarantee of upholding women's dignity.

Women and Environment

2.11.80 Considering the impact of environmental factors on sustenance and livelihood, special efforts will be made to increase women's participation in the conservation and restoration of the environment and in the control of environmental degradation. Therefore, the major strategy in the Tenth Plan will be to promote only those programmes that involve the efficient use of non-conventional energy resources in an environment-friendly manner. Further, women will also be involved in propagating the use of solar energy, biogas, smokeless *chullahs* and other rural applications so that these measures will have both visible and viable impact in influencing the eco-system and also in changing the lifestyles of rural women. Efforts will also be made to sensitise the forest staff and local communities about the need to involve women's groups in the planning and management of forest conservation as they have already proved their credentials through the programmes of Social Forestry in Gujarat and West Bengal.

Science & Technology for Women

2.11.81 Recognising the fact that the application of science & technology is vital for the advancement of women, the Tenth Plan will encourage women to participate in science and technology activities, especially in rural areas as it reduces the drudgery of household chores and provides a better quality of life. These will include measures to motivate girls to take up subjects of science and technology in higher education and ensure that development projects with scientific and technical inputs involve women fully. Efforts to develop a scientific temper and awareness will also be stepped up. Special measures will be taken to train women in areas where they have special skills like communication and information technology. Efforts to develop appropriate technologies suited to women's needs as well as to reduce their drudgery will be made through the on-going programme of 'Science & Technology Projects for Women'. Also, special efforts/ provisions will be made to cover the existing gap in disseminating and reaching the technologies to rural women for whose benefit these were designed.

ii) Economic Empowerment

Women in Poverty

2.11.82 As women comprise nearly 70 per cent of the population living below the poverty line, and are very often in situations of extreme/abject poverty, the on-going poverty alleviation programmes are expected to address specifically the needs and problems of such women as poverty affects women more than men. Though, 40 per cent of benefits under SGSY have been earmarked for women, but in practice, benefits are not reaching women in the same proportion, as some of the studies have revealed. Therefore, the Tenth Plan will address the need for better targeting of benefits to women under various poverty alleviation programmes. Further, as the women-specific scheme of Development of Women and Children in Rural Areas (DWCRA) has been subsumed/merged under the SGSY, it is

necessary to exercise a greater vigil to ensure that the allocations earmarked for women are not diverted to other components of SGSY. Also, as the earlier programmes have proved that the 'Group Approach' is more successful than the individual beneficiary approach, steps will be taken for mobilisation of poor women into SHGs and through convergence of services, offering them a wide range of economic and social options, along with necessary support services to enhance their joint capabilities. To this effect, the available programmes for women will be converged into block level action plans of the newly launched Swayamsidha programme, meant for empowering women.

Women in Agriculture and Land Management

2.11.83 As the majority (89.5 per cent) of female workforce is concentrated in the agriculture sector, they are being doubly marginalised, first as women and second as landless labourers with no inheritance rights, either for land or for other productive assets. Therefore, the Tenth Plan will ensure effective implementation of land reform legislations, ceiling and distribution of surplus land and issue of Joint *Pattas* under Government schemes etc. It will also make concerted efforts to ensure that the benefits of training and extension in agriculture and its allied activities of horticulture, small animal husbandry, poultry, fisheries etc. reach women in proportion to their numbers. Special training programmes in the latest technology, keeping in view the role of women as producers, will be expanded to assist rural women in meeting the market demands. With the rise in the number of women-headed households, the phenomenon of feminisation of agriculture, will be attended to as a concern at the policy level.

Women in Industry

2.11.84 The important role played by women in the fields of electronics, technology, food processing, agro-industry and textiles has been crucial to the development of these sectors. During the Tenth Plan, to increase the share of women in factories and industrial establishments, efforts will be made to remove the existing traditional bias that women

ECONOMIC EMPOWERMENT

Ensure provision of training, employment and income generation activities with both 'forward' and 'backward' linkages with the ultimate objective of making all women economically independent and self-reliant through -

- Organising women into Self-Help Groups under various poverty alleviation programmes, viz. Swarnajayanti Gram Swarozgar Yojana (SGSY), Swarna Jayanti Shahari Rozgar Yojana (SJSRY), Rashtriya Mahila Kosh (RMK), Support for Training and Employment Programme (STEP), Training-cum-Production Centres for Women (NORAD) etc. and offering them a range of economic options along with necessary support measures to enhance their capabilities and earning capacities with an ultimate objective of making them economically independent and self-reliant
- Ensuring that women in the Informal Sector who account for more than 90 per cent are given special attention with regard to improving their working conditions as the same continued to be very precarious without even minimum or equal wages, leave aside other legislative safeguards
- Making concerted efforts to ensure that the benefits of training and extension in agriculture and its allied activities of horticulture, small animal husbandry, poultry, fisheries, etc. reach women in proportion to their numbers; and also issue of Joint *Pattas* for husband and wife under the Social Forestry and Joint Forest Management programmes
- Ensuring that the employers fulfil their legal obligations towards their women workers in extending child care facilities, maternity benefits, special leave, protection from occupational hazards, allowing formation of women workers' associations/unions, legal protection/aid etc.
- Re-training/upgrading the skills of women displaced from traditional sectors due to advancement of technology so that they can take up jobs in the new and expanding areas of employment and formulating appropriate policies and programmes to promote alternative opportunities for wage/self-employment in traditional sectors like khadi and village industries, handicrafts, handlooms, sericulture, small scale and cottage industries
- Initiating affirmative action to ensure at least 30 per cent of reservation for women in services in the Public Sector as their representation in 1999 was only 14.5 per cent, along with required provisions for upward mobility
- Increasing access to credit for women either through the establishment of new micro-credit mechanisms or micro-financial institutions catering to women or strengthening existing arrangements in these areas along with an expansion of the limited coverage of RMK

are good only in stereo-type/feminine jobs and encourage women to equip themselves with necessary professional/vocational skills and compete with men to make an entry into newer areas. Simultaneously, efforts will also be put into action to ensure that the employers fulfil their legal obligations towards their women workers in extending child care facilities, maternity benefits, special leave, protection from occupational hazards, allowing formation of women workers' associations/unions, legal protection/aid etc. In this context, the Tenth Plan will make special efforts to sensitise the Trade Unions to play the role of a watch-dog with regard to protection of women's rights/interests. Further, women, at present, cannot work on night shift in factories, even if they wish to. Therefore, the Tenth Plan will consider initiating measures to facilitate women to work in the night shift in factories, if they so desire, as advocated by the National Policy for Empowerment of Women.

Employment and Income-Generation

2.11.85 Further, as the ultimate objective of empowering women is to make them economically independent and self-reliant, special efforts will be made to generate gainful employment through promotion/expansion of both wage and self-employment opportunities. In this context, the on-going training-cum-employment-cum-income-generation programmes viz. SGSY, SJSRY, PMRY, STEP, NORAD etc. will be further expanded to create more and more of employment-cum-income-generation opportunities and to cover as many women as possible living below the poverty line. In these efforts, priority will be given to female-headed households and women living in extreme/abject poverty. The programme of Swayamsidha will be further expanded to 2,000 additional blocks during the Tenth Plan. The micro-credit programme of RMK will be closely tied up with SHGs formed under Swayamsidha for financing various employment-cum-income-generation activities. Thus, Swayamsidha is going to emerge as a nation-wide integrated programme to provide a strong base for empowering women, both socially and economically, during the Tenth Plan and beyond.

Women in Small-Scale/Cottage Industries

2.11.86 The Tenth Plan will make special efforts to identify the traditional sectors that are shrinking due to advancement of technology, market shifts and changes in the economic policies and introduce necessary training programmes to re-train/upgrade the skills of the displaced women to take up jobs in the new and emerging areas of employment. Also, formulation of appropriate policies and programmes will be attempted to generate opportunities for wage/self-employment in traditional sectors like khadi and village industries, handicrafts, handlooms, sericulture, small scale and cottage industries. While attempting to bring forth necessary structural adjustments in these sectors, women will receive priority attention.

Women in the Un-organised/Informal Sector

2.11.87 Women in the Informal Sector will receive special attention during the Tenth Plan as they account for more than 90 per cent and are still continuing to struggle in the most precarious working conditions without any legislative safeguards. To start with, efforts will be made to ensure both minimum and equal wages for women on par with men, towards fulfilling the Constitutional commitment of 'equal pay for equal work'. To this effect, the Tenth Plan will also endeavour to extend the important labour legislations to the Informal Sector, especially those legislations where the employers have a mandatory binding for providing basic minimum working conditions along with necessary welfare services for women workers. While formulating necessary policies and programmes for the betterment of women in the Informal Sector, the findings/results of the Fourth Economic Census (2001) as well as the un-attended recommendations of the National Commission on Self-Employed Women and Women in the Informal Sector (Shram Shakti), will be taken into consideration.

Women and Globalisation

2.11.88 With the removal of all quantitative restrictions on the import of various products, the

self-employed women's groups, especially in the informal sector, have started facing competition from the low-priced imported consumer goods which are invading the Indian market. Although this has the imminent danger of displacing a large number of employed/self-employed women, but at the same time, the process of globalisation has also opened up opportunities for women entrepreneurs for exporting their products to the markets all over the world. Globalisation has thus opened up new challenges for the realisation of the goal of women's empowerment. The Tenth Plan, will, therefore, plan to design such strategies to enhance the capacity of women and empower them to cope with the negative economic and social impacts of the globalisation process.

Women in Services

2.11.89 The Tenth Plan recognises the need to initiate affirmative action to ensure at least 30 per cent reservation for women in services in the Public Sector as against the existing representation of 14.5 per cent in 1999. Efforts will, therefore, be made to increase the representation of women in Services through providing coaching facilities, encouraging women to compete along with men in the competitive examinations on the one hand, and on the other, providing support services for working women to ensure mobility in the employment market. Towards this, efforts will be made to ensure expansion of the existing limited support services like hostels for working women, creches/day-care centres at work places and homes for the aged and the disabled, so that women can find time to be more productive, economically. Also, efforts will be made to introduce special concessions and relaxations, like multiple entries, increase in the upper age limit, flexi-timings etc. for women. In addition to the above, the Tenth Plan will also attempt to gender sensitise the existing personnel policies to facilitate up-ward mobility for women in Services.

Women and Micro-Credit

2.11.90 The Tenth Plan recognizes the need for a comprehensive Credit Policy to increase women's access to credit either through the establishment of new micro-credit mechanisms or micro-financial

institutions or strengthening the existing ones. In this context, expansion of the activities of RMK will receive special attention with adequate financial support for the Tenth Plan. Efforts will be made to draw lessons from the success stories of various voluntary organisations which have already established their credentials in the field of micro-credit for women and encourage them to expand their activities, both within and outside their states. There will also be efforts to equip all States/UTs with Women's Development Corporations to provide both 'forward' and 'backward' linkages of credit and marketing facilities to women entrepreneurs, besides being active catalysts for empowering women economically. Further, the Tenth Plan will try and expedite the earlier efforts of setting up of an exclusive 'Development Bank for Women Entrepreneurs' in the Small Scale and Tiny Sectors.

iii) Gender Justice

2.11.91 As stated earlier, the principles of gender equality and gender justice and protection of women's rights have been the prime concern, since Independence. The Constitution of India not only guarantees gender equality by conferring equal rights on both women and men, but also prohibits discrimination on the grounds of sex. It also empowers the State to make affirmative discrimination in favour of women only to ensure gender justice through Gender Equality. With these strong commitments in the back-drop, the National Policy for Empowerment of Women (2001) set its major objective to eliminate gender discrimination on priority basis and to create a positive environment for empowering women. In line with this, the Tenth Plan calls for a time-bound survey/search to identify areas with gender inequalities and suggest remedial action to remove the gender gaps/rectify the existing imbalances and thus ensure gender justice. Following are some of the areas identified for initiating immediate interventions:

Arrest the Adverse and Ever-declining Sex Ratio

2.11.92 The adverse sex ratios, which have fallen from 972 in 1901 to 933 females for 1,000 males in 2001 (except between 1991 and 2001) in respect of all age-groups and the sudden fall of sex ratio of

GENDER JUSTICE

Eliminate all forms of gender discrimination and, thus, enable women to enjoy not only de-jure but also de-facto rights and fundamental freedom on par with men in all spheres, viz. political, economic, social, civil, cultural etc. through -

- Complete eradication of female foeticide and female infanticide through effective enforcement of both the Indian Penal Code, 1860 and the Pre-Natal Diagnostic Technique (Regulation and Prevention of Misuse) Act, 1994 with most stringent measures of punishment so that a very harsh path is set for the illegal practitioners
- Adopting measures that take into account the reproductive rights of women to enable them to exercise their reproductive choices
- Working out strategies, in close collaboration with the Ministry of Labour, to ensure extension of employment opportunities and thus, remove inequalities in employment – both in work and accessibility
- Initiating interventions at the macro-economic level to amend existing legislations to improve women's access to productive assets and resources
- Ensuring that the value added by women in the Informal Sector as workers and producers is recognised through redefinition/re-interpretation of conventional concepts of work and preparation of Satellite and National Accounts
- Defining the Women's Component Plan (WCP) clearly and identifying the schemes/programmes/projects under each Ministry/Department which should be covered under WCP and ensuring the adoption of women-related mechanisms through which funds/benefits flow to women from these sectors
- Initiating action for enacting new women-specific legislations; amending the existing women-related legislation, if necessary, based on the review made and recommendations already available to ensure gender justice, besides, reviewing all the subordinate legislations to eliminate all gender discriminatory references
- Expediting action to legislate reservation of not less than 1/3 seats for women in the Parliament and in the State Legislative Assemblies and thus ensure women in proportion to their numbers reach decision-making bodies so that their voices are heard
- Arresting the ever-increasing violence against women and the Girl Child including the Adolescent girls on top priority with the strength and support of a well-planned Programme of Action prepared in consultation with all the concerned, especially the enforcement authorities; implementing effectively with the strength of the Law and Order Authorities both at the centre and state levels and assessing the situation
- Expediting standardisation of a Gender Development Index based on which the gender segregated data will be collected at national, state and district levels; compiled/collated and analysed to assess the progress made in improving the status of women at regular intervals with an ultimate objective of achieving equality on par with men
- Initiating/accelerating the process of societal reorientation towards creating a Gender-Just Society

children 0-6 years from 945 in 1991 to 927 in 2001 illustrate the most disturbing survival scene of women and the girl child in India. The ever-declining trend in the sex ratios can be attributed to higher mortality rates amongst females as compared to males in all age groups right from the childhood to the child-bearing ages. Other contributory factors include - limited access to health care services and relative deprivation of the female child in respect of rearing as well as feeding practices. Interventions to this effect have been in progress, but not with much impact in reaching the set goal. Therefore, the Tenth Plan will take special measures to look into the reasons responsible for this state of affairs and initiate necessary action to set right the existing demographic imbalances between women and men, as it does not augur well for the future of the country. It will also try and ensure easy accessibility for women and the girl child to the basic minimum services of primary health care, drinking water supply, nutrition, primary education etc. through effective inter-sectoral co-ordination and convergence.

Eradiation of Sex-Related Harmful Practices

2.11.93 Related to the problem of gender bias and the persistent discrimination against the girl child are the sex-related harmful practices of female foeticide and female infanticide leading to the most un-wanted abortions and the present high rates of female infant mortality of 70.8 (1999), female child mortality of 24.5 (1997) and maternal mortality of 407 (1998) (More details under the section on 'Development of Children'). Based on the 1991 Census, 65 districts have been identified as problem districts, with sex ratio abnormally in favour of males between 1,100 to 1,218 males for 1,000 females in the states of Andhra Pradesh, Bihar, Delhi, Gujarat, Haryana, Madhya Pradesh, Punjab, Rajasthan, Tamil Nadu and Uttar Pradesh. Besides, a multi-centric study sponsored by the Department of Women and Child Development in 1993 also confirmed that while Female Foeticide is being practised all over the country, the Female Infanticide exists as a local phenomenon amongst certain communities. The Tenth Plan will, therefore, initiate action to enforce effectively both the Indian Penal Code, 1860 and the Pre-natal Diagnostic Technique

(Regulation and Prevention of Misuse) Act, 1994 to control/eradicate the female foeticide and female infanticide, respectively with a very close vigil and surveillance along with severe punishment for the guilty. Along with this, long-term measures of sensitising the society to change their mind-set which is negatively disposed towards the girl child - as un-wanted, neglected and discriminated both within and outside her home, will also be put into action throughout the country with a special focus on the problem districts and problem communities.

Elimination of Discriminatory Feeding Practices

2.11.94 Malnutrition and its related deficiencies and diseases amongst women, mothers and children have become a big threat to their development potential. This, to some extent, could be attributed to the discriminatory feeding practices that exist within the family towards women and the girl child. Surveys conducted by the National Nutrition Monitoring Bureau (NNMB), Hyderabad, in 1989-90 confirmed that more than 52.5 per cent of children in the age-group of 1-5 years and 49.3 per cent of women were suffering from various chronic energy deficiencies and 87.5 per cent of pregnant women were anaemic of various degrees during 1989-90. The programme of ICDS, which was launched in 1975 to take care of these problems amongst children and mothers, could not extend its coverage throughout the country. Further, the supplementary feeding programme which is the back-bone of ICDS covering, at present, a total number of 37.5 million children and mothers, has received some set-back due to the inadequacy of funds with almost all the States/UTs. Thus, the Tenth Plan will take immediate steps to ensure that adequate allocations are made available through PMGY and also under the newly launched programme of National Nutrition Mission of 2002, so as to reinforce the supplementary feeding services in all the 7.5 lakh Anganwadis (expected to be in action by the end of the Ninth Plan), as per the prescribed norms. Besides, efforts will also be made to ensure 'Food Security for All at House-hold Level' so that the existing discriminatory practices against the women and the girl child in sharing of the food within the family can be put to an end.

Increasing Access to Health, Education and Employment

2.11.95 Discrimination in the access to health and education for women and girls continues to persist in many areas owing to negative societal attitudes. Discriminatory practices do exist even in child-rearing, feeding and providing health services. The same are very much reflected in the health and nutritional status of women and girls, especially amongst pregnant and lactating mothers, as mentioned earlier. Therefore, the Tenth Plan will adopt a holistic approach to women's health which includes both nutrition and health services with special attention to the needs of women and girls at all stages of the life-cycle. Also, special efforts will be made to increase easy access towards a comprehensive, affordable and quality health and nutrition care through widespread RCH and ICDS services. Also, measures will be adopted to take into account the reproductive rights of women to enable them to exercise their reproductive choices.

2.11.96 Girls and young women are expected to manage both educational and domestic responsibilities, which often results in poor academic performance and early drop-out from the educational system. The same are very much reflected in the existing gender differentials in respect of literacy rates (54.16 for females as against 75.85 per cent for males in 2001), enrolment ratios (85.2 for girls and 104.1 for boys at the primary level in 1999-2000) and drop-out rates (42.3 for girls and 38.7 for boys at the primary level in 1999-2000). These have long-lasting consequences for all aspects of women's life. Therefore, the Tenth Plan will endeavour to create a favourable social environment in which women and men and girls and boys are treated equally and are encouraged to achieve their full potential. Further, it will also initiate various actions to increase access to women and girls through special affirmative measures viz. providing free education, appointing more women teachers, creating a gender-sensitive educational system, increasing enrolment and retention rates of girls through provision of hostels, mid-day meals and improving the quality of education to facilitate life-long learning as well as development of vocational/

technical skills and thus, eliminate discrimination against women and girls in respect of education. Efforts will also be made to develop gender-sensitive curricula at all levels of the educational system in order to address the issue of stereotyping, which is one of the causes of the gender discrimination.

2.11.97 The low female work participation rate of 25.7 per cent in 2001; their very low representation of 17.2 per cent in the organised sector in 1999; 14.5 per cent in public sector in 1999; 14.6 per cent in Government in 1997; the present high rate of 14 per cent of educated women being unemployed in 1999-2000; and finally more than 90 per cent of women struggling in the Informal/Unorganised Sector, speaks volumes about the most subtle way of discriminating women and their inaccessibility to employment. Keeping these serious concerns in view, the Tenth Plan will not only plan to strengthen the on-going successful strategies, but will also work out new strategies, in close collaboration with the Ministry of Labour and other related sectors with employment potential. It is also hoped that the Special Group on Targeting 10 Million Jobs per year over the Tenth Plan period set up in the Planning Commission in 2001 to consider the recommendations of the Task Force on Employment Opportunities (2001) will be able to increase job opportunities as well as access to women to employment. Thus, these special efforts of the Tenth Plan are expected not only to remove the existing inequalities but also work towards gender justice in the field of employment.

Providing Access to and Control on Productive Resources

2.11.98 Women's control and access to various productive resources like land, raw materials, credit, marketing etc. which are key to her economic empowerment is either very much restricted or limited to nothing. Also, traditionally women have been discriminated in providing inherited property or possessing productive assets. The Tenth Plan will, therefore, endeavour to attempt such strategies/interventions at the macro-economic level, and bring-forth, if necessary, amendments in the existing legislations or through enacting new legislation to

eliminate these age-old discrimination against women and thus improve women's access to productive assets and resources.

Making Women more Visible

2.11.99 Women's work still continue to be the most invisible in the National Accounts, despite their high levels of contribution to the national economy. The 2001 Census, as already pointed out earlier, could record only 25.7 per cent as female workforce. The reason being - women's work could never get recorded either in the population Census or their contribution in the National Accounts due to the problem of definitions. But, in practice, women hold substantial share in the workforce of various sectors viz. 90 per cent in informal sector; 70 per cent in the agriculture sector; 35.3 per cent in its allied sectors; 46.1 per cent in the Khadi & Village Industries; 65.5 per cent in Handloom and Sericulture etc. and also contribute a lot to the national economy. In view of this, the 1991 Census made an attempt to capture data on women's work in the informal sector and the same got intensified in the Census of 2001. However, the detailed report of the 2001 Census on the subject is still awaited.

2.11.100 Further, the Time-Use Survey on women conducted by the Central Statistical Organisation (CSO) during 1998-99, also brought forth a most revealing factor stating that 51 per cent of women's work is not recognised and, therefore, remains unpaid. Therefore, as one of the important measures to ensure gender justice, the Tenth Plan will attempt - i) a dialogue with the concerned authorities/organisations to ensure that the contribution of women as workers and producers is recognised through a re-definition/re-interpretation of conventional concept of work; ii) making an assessment of the contribution of women to the national economy, based on the information being collected through the Population Census and the Economic Census; and iii) ensure the same get reflected in the National Accounts of the country, as directed by the National Policy on Empowerment of Women.

Strengthening Women's Component Plan

2.11.101 To make the implementation of the Women's Component Plan (WCP) more effective

to ensure flow of adequate funds/benefits to women from all other developmental sectors, the Tenth Plan will ensure not only defining the concept of WCP clearly, but would also go a step further in identifying the schemes and programmes of various Ministries/Departments which should be covered under WCP. Efforts will also be made to see the possibility of maintaining a sub-head for WCP under the relevant major head of the respective programme, just as it is done in the case of SCP for SCs and TSP for STs. No re-appropriation from WCP to the other schemes will be permitted without the prior approval of the Department of Women and Child Development. Detailed Schedules and Formats for reporting progress will also be devised so that the benefits flowing to women can be monitored closely and on a continuing basis. Though the concept of WCP has not been operationalised systematically, it will be streamlined/strengthened with comprehensive guidelines/instructions along with a strong monitoring machinery during the Tenth Plan.

Adoption of Gender Budgeting

2.11.102 While taking note of the efforts initiated during the Ninth Plan towards ensuring a gender-just/gender-sensitive budget, the Tenth Plan will continue the process of dissecting the Government budget to establish its gender-differential impact and to translate gender commitments into budgetary commitments. As the process of Gender Budgeting has its own limitations in terms of being a post-facto effort to dissect/analyse and thus offset any undesirable gender-specific consequences of the previous budget, this cannot be an effective measure to ensure adequate flow of funds and benefits for women. Therefore, the Tenth Plan will initiate immediate action in tying up these two effective concepts of WCP and Gender Budgeting to play a complementary role to each other, and thus ensure both preventive and post-facto action in enabling women to receive their rightful share from all the women-related general development sectors. More than the quantum or percentage of outlays, what is more important for empowering women is ensuring that the funds from various developmental sectors are effectively converged, properly utilised and monitored. This can be done through a systematic process of identifying the existing gaps in services

and facilities being provided and ensure reaching adequate resources to fill those gaps as these very gaps are standing as major obstacles in the process of empowering women. In this context, the Tenth Plan also takes note of the over-riding priority given to the programmes of child development and the resultant intra-budgetary imbalances that exist today within the budget of the nodal Department of Women and Child Development and suggests to rectify the same through a much more balanced distribution of resources between 'Empowerment of Women' and 'Development of Children' - the two major responsibilities entrusted to it.

Effective Enforcement of Legislation

2.11.103 Taking into consideration the recommendations of the review made by the National Commission for Women and the Task Force on Women and Children, the Tenth Plan will initiate action in consultation with the concerned Ministries/ Departments either for amending the existing legislation or for enacting new legislation, wherever necessary. In continuation of this, an attempt will also be made to review all the subordinate legislations, related rules and regulations, as well as the executive/administrative orders and guidelines and eliminate all the gender discriminatory references. This will be evolved through a consultation process involving all the concerned under the guidance of the National Commission for Women. In addition, the following specific measures will be taken to implement the legislation effectively, as suggested in the National Policy on Empowerment of Women- i) strict enforcement of all relevant legal provisions and speedy redressal of grievances with a special focus on violence and gender-related atrocities; ii) measures to prevent and punish sexual harassment at the work place, protection for women workers in the organised/un-organised sectors and strict enforcement of relevant laws such as Equal Remuneration Act, 1976 and Minimum Wages Act, 1948; iii) regular review of crimes against women, their incidence, prevention, investigation, detection and prosecution etc. by the centre and states at district levels. Reputed local voluntary organisations will be authorised to lodge complaints and facilitate registration of cases, investigations and legal

proceedings related to violence and atrocities against girls and women; iv) Women's cell in Police Stations, Women Police Stations, Family Courts, Mahila Courts, Counselling Centres, Legal Aid Centres and Nyaya Panchayats will be strengthened and expanded to eliminate violence and atrocities against women; and v) widespread dissemination of information on all aspects of legal rights, human rights and other entitlements of women, through specially designed legal literacy manuals and programmes.

Increasing the Numbers in Decision-making

2.11.104 Adding to the serious problems listed above, lack of education, information and awareness generation aggravate the deprivation of women, thereby excluding them not merely from political, social and economic processes, but also from decision-making. True to this statement, while their representation in the administrative decision-making is as low as 7.6 per cent (2000) in the Premier Services of Indian Administrative Service and Indian Police Service; their representation in political decision-making is 8.5 per cent (2001) in Parliament and 10.8 per cent (2001) in the Central Council of Ministers. No doubt, they represent 26.7 per cent (2001) in Panchayats against the 33-1/3 per cent reservation for women. When more and more women are positioned at various levels of decision-making, it is bound to have a definite impact on public policy in favour of women and thus, women's issues will get transformed into societal issues. Therefore, efforts in the Tenth Plan will be to increase the number of women in decision-making at various levels both in administrative and political spheres, through affirmative discrimination, if called for. In this context, the Tenth Plan will not hesitate to make an attempt to expedite the process of approval of the pending Bill to provide 33-1/3 per cent of seats for women in the State Legislative Assemblies and in the Lok Sabha.

Arresting the Increasing Violence

2.11.105 The ever-increasing violence against women is yet another manifestation of low and unequal status of women and the Girl Child, besides

being detrimental to their development. Violence against women and the girl child, both domestic and at work place, has been showing an alarming trend, especially during the recent past. As per the latest data (1999) published by the National Crime Records Bureau, New Delhi, the total number of crimes committed against women has been increasing year by year from 1.21 lakh in 1997 to 1.31 lakh in 1998 and 1.36 lakh in 1999. Of the total 1.36 lakh crimes against women in 1999, torture claims the highest share of 32.3 per cent; followed by molestation (23.8 per cent); kidnapping and abduction (11.7 per cent); rape (11.4 per cent); sexual harassment (6.5 per cent); and dowry death (4.9 per cent); immoral traffic (6.9 per cent) and others (2.5 per cent). Amongst the states, while Madhya Pradesh reports the highest incidence of 12.6 per cent of the total crimes, Uttar Pradesh and Maharashtra followed suit with 12.5 per cent and 10.0 per cent respectively. Delhi which shares 1.3 per cent of the country's total population, accounts for 1.8 per cent of the total crime, and holds the fourth highest crime rate in the country with 17.9 (number of crimes per one lakh population), while the all India crime rate stands at 13.8. The Tenth Plan will, therefore, address the problems of violence against women, on top priority basis, through a well-planned Programme of Action (POA) with both short and long-term measures at both national and state levels. Situation also demands activating the enforcement machinery, besides bringing some necessary amendments both in the Indian Penal Code and other related legislations to make the punishment of various crimes against women more stringent. Initiating efforts in close collaboration with the committed NGOs to bring forth societal re-orientation is yet another important area for intervention during the Tenth Plan. However, the National Commission for Women, in close collaboration with the non-governmental organisations already working in this field, can play a lead role in combating the day-to-day increasing violence against women and the girl child.

Awareness Generation and Gender Sensitization

2.11.106 Keeping in view the commitments of the Policy in empowering women, vigorous efforts will

be made to accelerate the process of societal re-orientation towards creating a gender-just society. The focus in this regard will be on changing the negative attitudes within families and the community towards women and the girl child and eliminating all types of discrimination against them. In this process, both governmental and non-governmental organisations are expected to play a big role in utilising both mass media and other traditional means. Gender sensitisation will be institutionalised within the training systems of Government through induction as well as refresher courses. Specially designed gender sensitisation programmes will be conducted on a regular basis with special focus on the State functionaries viz. the executive, legislative, judicial and enforcement wings of all governmental agencies. Other initiatives in this direction include generating societal awareness to gender issues; review of curriculum and educational materials leading to the removal of all references derogatory to the dignity of women; use of different forms of mass media to communicate special messages relating to women's equality and empowerment.

Effective Monitoring

2.11.107 Lack of gender disaggregated data on various Development Indicators, both at the state and district levels has been a major problem in monitoring the progress made in improving the status of women towards achieving 'Equality' on par with men. Realising this problem, the Tenth Plan will take immediate steps to expedite standardisation of the Gender Development Index based on which the gender segregated data will be collected at national, state and district levels; compiled/collated and analysed so as to make Assessment Reports on the progress of the status of women at regular intervals which should be comparable not only at the national level, but also at international levels. In fact, the nodal Department of Women and Child Development, in collaboration with CSO which is already engaged in collecting and publishing gender-based data and other primary and secondary data collecting Agencies like Registrar General of India, National Sample Survey Organisation (NSSO) and concerned Ministries/Departments should develop Women's Information Network

System to ensure that the gender disaggregated data flows into on a regular basis. This would help make an assessment of the efforts in achieving the ultimate goal of Gender Justice. Also, the efforts initiated by the Planning Commission in collaboration with States/UTs and with the assistance of UNDP, Delhi to bring out both national and state level human development reports should allocate a separate Chapter on Gender, besides continuing these reports on biennial basis. Over and above this technical monitoring, the National Council for Women, being set up under the Chairpersonship of the Prime Minister and the Parliamentary Committee on Empowerment of Women set up in 2000 will oversee and review from time to time the progress made by women in achieving gender equality/gender justice on par with men.

2.11.108 To sum up, if Gender Justice is to be ensured, women need to be empowered socially, economically and politically. If women are to be empowered socially, it is necessary to make everyone of them literate, reach them information and generate awareness, equip them with legal literacy and help them in every way to realise their own potential. If women are to be empowered economically, it is necessary to equip them with vocational skills; provide employment and income generation, extend free channels of micro-credit, provide management/entrepreneurial skills, social security and thus allow them greater visibility. If women are to be empowered politically, the immediate need is to adopt to different forms of affirmative discriminations so that women in proportionate numbers reach critical places to ensure that their voices are heard. In fact, it is the empowerment strategy that has emerged as the most challenging task not only for those who are working for women, but also for women themselves.

II. DEVELOPMENT OF CHILDREN

2.11.109 Development of Children is the first priority on the country's development agenda not because they are the most vulnerable, but because they are our supreme assets and also the future human resources of the country. Therefore, the foundations for life-long learning and human

development are necessarily to be laid in the very crucial years of the childhood.

2.11.110 The child population with a defined age-group of 0-14 years, and as projected for 2001, accounts for 347.54 million (33.8 per cent) of the total population of the country. Of these, 171.50 million (49.3 per cent) are female children. Of the total child population, 20.71 million (6 per cent) are infants who are below 1 year; 41.75 million (12 per cent) are toddlers in the age-group 1-2 years; 77.32 million (22.2 per cent) are pre-schoolers in the age-group 3-5 years; and another 207.76 million (59.8 per cent) are in the age-group of 6-14 years. While the children as a group require special attention, the three age groups viz. the infants, toddlers, and pre-school children require individual attention because of their age-specific needs.

2.11.111 Considering the fact that children have neither voice nor any political constituency, the Constitution of India laid down certain special safeguards ensuring their right to 'survival, protection and development'. While the Article 14 guarantees that the State shall not deny to any person equality before the law, Article 15(3) empowers the State to make any special provisions in favour of children. Similarly, while Article 23 prohibits traffic in human beings, and forced labour and treats any contravention to this provision as a punishable offence; Article 24 prohibits employment of children below the age of 14 years in any factory or mine or other hazardous occupations; Article 39 states that the tender age of children is not abused and are not forced to enter into avocations unsuited to their age (e) and given opportunities and facilities to develop in a healthy manner and in conditions of freedom and dignity, so that childhood is protected against exploitation and against moral and material abandonment (f); Article 45 provides the right for children to compulsory education up to the age of 14 years; and Article 47 stipulates that the State shall endeavour to raise the level of nutrition and standard of living and to improve public health.

POLICIES AND PROGRAMMES : A REVIEW

2.11.112 The well-being of children has been a priority and also an integral part of country's

developmental planning, since 1951. During the 1960s, the major responsibility of developing child-care services had primarily rested with the voluntary sector and with a welfare-oriented approach. The 1970s marked a shift in the approach to children from 'welfare' to 'development' and accordingly child-welfare services were expanded to the sectors of health, education, nutrition etc. Important measures included Maternal and Child Health services (MCH), primary education, supplementary feeding for pre-school and school-going children etc. It was during this period that a National Policy for Children was adopted (1974) and also a programme called Integrated Child Development Services (ICDS) of national importance was launched in 1975 with an integrated approach to extend a package of 6 basic services viz. health check-ups, immunisation, referral services, supplementary feeding, pre-school education and health and nutrition education for children upto 6 years and expectant and nursing mothers through a single-window delivery, at village level.

2.11.113 The 1980s saw an effective consolidation and expansion of programmes started in the earlier Plans. The National Health Policy adopted in 1983, now being revised, set certain specific targets like bringing down the high rates of infant and child mortality through the universalisation of immunisation and other MCH services. The National Policy on Education (1986) also emphasised universal enrolment and retention of children in schools and thus reduce the high rates of school drop-outs, especially amongst the girl children. The Juvenile Justice Act, was enacted in 1986 by repealing the then existing Children Act, 1961, to deal effectively with the problems of juvenile delinquency/vagrancy and to provide a framework for handling such children (This was further revised and re-titled as Juvenile Justice (Care and Protection) Act, 2000). The Child Labour Prohibition and Regulation Act, 1986, was followed up by the adoption of a National Policy on Child Labour in 1987.

2.11.114 During the 1990s, inter-sectoral efforts in terms of both policies and programmes towards the holistic development of children, especially the young child, have been put into action in the three

core sectors of health, nutrition and education. To supplement and complement these efforts, the nodal Department of Women and Child Development has also been adopting/launching, various policies and programmes from time to time. In line with various on-going child-specific and child-related policies and programmes, the Ninth Plan continued its efforts towards universalising the early childhood development services with a special focus on the young and the girl child. Sectoral contributions in the field of health, family welfare, nutrition, education, labour, welfare and women and child development, have been summed up below:

2.11.115 In the field of Health, maternal and child health services have been receiving highest priority, as per the prescriptions of the National Health Policy of 1983. The scope of the erstwhile programme of Child Survival and Safe Motherhood programme was further widened into a comprehensive programme of RCH with a special thrust on child survival and other related measures. Under the Universal Immunisation Programme, which is part of the RCH, significant achievements were made with the coverage reaching to 100.3 per cent in respect of DPT; 98.2 per cent for OPV; 102.7 per cent for BCG; and 92.1 per cent for measles by the end of 2001. All these were proved to have a definite impact in reducing IMR from 71 per cent in 1997 to 70 per cent in 1999 and MMR from 408 per one lakh in 1997 to 407 per one lakh in 1998, as per the Sample Registration System of 2001. Further, the Government had also launched a School Health Programme essentially aiming at screening of all primary school children for common ailments, referral services for children for full check-up and treatment and creating awareness amongst the community and teachers about the health problems of children.

2.11.116 In the field of Nutrition, children below 6 years and expectant and nursing mothers, receive highest priority in line with the provisions of the National Nutrition Policy (1993) and the National Plan of Action on Nutrition (1995). The inter-sectoral approach adopted in the field of nutrition resulted in substantial gains in the nutritional status as follows: While the number of children with 'normal'

status has increased from 5.9 per cent in 1975-79 to 9.8 per cent in 1996-97; the 'mild' has increased from 31.6 per cent to 40.7 per cent. During the same period, while the 'moderate' has decreased from 47.5 per cent to 42.7 per cent, the 'severe' has also declined from 15 per cent to 6.8 per cent. Despite the shortfalls that were recorded in terms of feeding and funding by the State Governments, while the coverage under Special Nutrition Programme has reached 31.5 million children of 0-6 years, the coverage under the National Programme of Nutritional Support to Primary Education commonly known as Mid-Day Meals (MDM), has reached 105 million school children in the age-group of 6-14 years by the end of the Ninth Plan. The Additional Central Assistance for the nutrition component under PMGY to eradicate malnutrition amongst children under 3 years is an additionality over and above the funds provided for the supplementary feeding of ICDS in the State Plan.

2.11.117 In the field of Education, the National Policy on Education of 1986 (as revised in 1992) and the Programme of Action (1992) have been giving a special thrust to the measures of Universal Primary Education. As a result of these, the country could make quite impressive achievements by increasing the number of schools in the country four-fold from 2.31 lakh in 1950-51 to 9.88 lakh in 1999-2000, while the enrolment at the primary level jumped up by about six times from 19.2 million to 113.6 million. Similarly, the GER at the primary stage has reached 94.9. Access to schools is no longer a major problem as 94 per cent of country's rural population has schooling facilities within one km and at the upper primary stage, facilities are available to 84 per cent of rural population within 3 km. Now, the latest in the series viz. Sarva Shiksha Abhiyan, launched in 2000, aims to provide quality elementary education to all children in the 6-14 age-group by 2010, besides bridging all gender and social category gaps at primary stage by 2007. In all these efforts, the girl child and the children belonging to the socially and economically disadvantaged groups viz. SCs and STs are given special priority along with the special incentives like scholarships, hostel facilities, free books, uniforms and mid-day meals etc. In fact, MDM has not only helped to increase

the school enrolment, retention and attendance but has also improved the nutritional status of students in primary classes.

2.11.118 In the field of Child Development, services for the early childhood development have been receiving priority treatment with a special focus on

SPECIAL INITIATIVES/ACHIEVEMENTS FOR DEVELOPMENT OF CHILDREN DURING THE NINTH PLAN (1997-2002)

- Launching of Balika Samridhi Yojana to extend a special package to girl children belonging to families living below the poverty line to ensure that all girl children enter into schools. Special incentives, viz. Rs. 500 to the mother and annual scholarships ranging from Rs. 300 to Rs. 1000 for girl children in classes I to X; (1997)
- Introduction of Kishori Shakti Yojana as an enriched version of the scheme for Adolescent Girls being implemented as part of ICDS to improve the nutritional and health status of girls in the age-group of 11-18 years and to equip them with vocational skills so that they can be gainfully engaged; (2000)
- Extending Additional Central Assistance of Rs. 375 crore under the Pradhan Mantri Gramodaya Yojana to fill the existing financial gaps for implementing the Special Nutrition Programme of ICDS; (2001)
- Universalisation of ICDS by the end of the Ninth Plan to cover all the 5,652 blocks/wards over the country benefiting 54.3 million children and 10.9 million expectant and nursing mothers; (2001-02)
- Enhancement of honorarium to Anganwadi Workers from Rs. 500 to Rs. 1,000 and to Anganwadi Helpers from Rs. 260 to Rs. 500 per month in recognition of the services being extended by the 2 grassroot level workers; (2002)
- Drafting of a National Policy and Charter for Children to fulfil the Constitutional commitments to children through seeking partnership with the family, community and the non-governmental organisations and thus, ensure protection of children's rights (2002)
- Drafting of a Bill for setting up of a National Commission for Children to safeguard the Rights of Children (2002)

the girl child. The nation-wide programme of ICDS continues to be the major intervention for the overall development of children. It caters to the pre-school children below 6 years and expectant and nursing mothers with a package of services viz. health check-ups, immunization, referral services, supplementary nutrition, pre-school education and health and nutrition education. Efforts were being made to strengthen the on-going approach of converging the basic services of health, nutrition and pre-school education towards promoting the holistic development of the young child through the programme of ICDS.

2.11.119 Universalisation of ICDS was originally contemplated to achieve by the end of 1995-96 through expansion of the services all over the country. But, due to paucity of funds, out of the total of 5,614 ICDS Projects sanctioned till 1996, only 4,200 could become operationalised by the end of the Eighth Plan and the same position continued even during the first two years of the Ninth Plan. The process of universalisation of ICDS which was re-started in 1999-2000 and was expected to be completed by the end of the Ninth Plan by covering all the 5,652 blocks/wards spread all over the country. However, only 4,608 blocks could be operationalised by the end of the Ninth Plan. ICDS, when gets universalised, is expected to cover around 54.3 million children and 10.9 million mothers. Of the Ninth Plan outlay of Rs. 4,980 crore, the expenditure was Rs. 4,556.86 crore benefiting 31.5 million children and 6 million expectant and nursing mothers through 4,608 ICDS Projects.

2.11.120 The World Bank-assisted ICDS Programme (WB-ICDS) has been in operation since 1990-91. Apart from providing the normal ICDS package, the World Bank also extends assistance for a few additional inputs like construction of Anganwadi buildings and Child Development Project Officers (CDPOs) office-cum-godowns on a selective basis, strengthening of training and communication, improved health facilities, income-generation activities etc. While the WB-ICDS Project-I (1991-97) covered 301 ICDS projects in the states of Andhra Pradesh (110) and Orissa (191), the WB-ICDS Project II (1997-2000) covered

UNIVERSALISATION OF ICDS

The Integrated Child Development Services (ICDS), launched in 1975, is a nation-wide single programme which aims at promoting the holistic development of children upto 6 years of age with a special focus on children upto 2 years, besides expectant and nursing mothers. This is done through a package of 6 services viz. health check-ups, immunisation, referral services, supplementary feeding, non-formal pre-school education and health and nutrition education. ICDS was targeted to be universalised by the end of the Ninth Plan, covering 54.3 million children below 6 years and 10.9 million mothers living in the most backward rural/tribal areas and urban slums through more than 7.5 lakh Anganwadi Centres spread all over the country. The present coverage is 31.5 million children and 6.0 million expectant and nursing mothers.

The World Bank-assisted ICDS (WB-ICDS) has also been in operation simultaneously through different phases, I to III, covering a total of 1,953 projects in the states of Andhra Pradesh, Orissa, Bihar, Madhya Pradesh, Uttar Pradesh, Rajasthan, Tamil Nadu, Kerala, Chhattisgarh, Jharkhand and Maharashtra. WB-ICDS has some additional inputs like construction of project buildings, income-generation activities for women/mothers, experimentation of nutritional rehabilitation services, training in project management, equipment, etc.

ICDS which completed 25 years in the year 2000 was put to test of evaluation by both individual researches and various Research Institutes. The most important study, carried out by the National Institute for Public Cooperation and Child Development in 1992, confirms the earlier findings that ICDS has a positive impact on the health and nutritional status of the pre-school children and their mothers. Similarly, the Mid-Term Evaluation of the WB-ICDS in Andhra Pradesh during 1995-96 also reveals such positive results. But the recent country-wide Concurrent Evaluation by the National Council for Applied Economic Research during 1996-99, has pointed out, besides various positive results, that the Study calls for evolving intensive training programmes on a continuing basis, besides effective convergence both within and between the concerned Departments.

649 projects in the states of Bihar including Jharkhand (272) and Madhya Pradesh including Chhattisgarh (377). The WB-ICDS Project III (1998-2004) which started in 1998-99, is expected to cover 1,003 projects in the states of Andhra Pradesh, Kerala, Tamil Nadu, Maharashtra, Rajasthan and Uttar Pradesh. The programme in Andhra Pradesh is being implemented as part of the total programme of Andhra Pradesh Economic Reconstruction Programme (APERP). Out of the Ninth Plan outlay of Rs.1,163.79 crore, the expenditure was Rs. 883.62 crore.

2.11.121 The programme of ICDS, which completed 25 years of its implementation in October 2000, was evaluated by a number of individual experts and various research organisations. Of these, the National Evaluation of ICDS conducted by the National Institute of Public Co-operation and Child Development (NIPCCD), New Delhi, in 1992 and the Mid-term Evaluation of the WB-ICDS need special mention. While the findings of the Study by NIPCCD indicated a very positive impact of ICDS on the health and nutrition status of pre-school children, the mid-term evaluation of the WB-ICDS (Project-I) conducted in Andhra Pradesh during 1995-96 revealed that the Project interventions had brought down the IMR to 62 per 1,000 live births, which was in consonance with the project objective of 60 per 1,000 live births. The incidence of severe malnutrition amongst children of 0-3 years was reduced to about 5 per cent and that of 3-6 years to 3 per cent. The proportion of low birth weight babies also came down to 20 per cent as against the project goal of 24 per cent. Similarly, in Orissa, the IMR had come down to 93.6 and the incidence of low birth weight of babies to 23 per cent.

2.11.122 The third important national-level evaluation on a concurrent basis was conducted during 1996-99 by the National Council for Applied Economic Research (NCAER), New Delhi. The evaluation was aimed at examining the performance of ICDS on the ground with a view to assess the success of meeting the objectives of the programme and to draw policy lessons for its improvement. The Study was based on a field survey of nearly 60,000 Anganwadi Centres (AWCs) and 1,80,000

beneficiary households selected from 4,000 operational blocks and spread over 32 States/UTs. Some of the important findings reveal the following :

- i) The Programme of ICDS has benefited more than 50 per cent of the eligible children and women in the country, despite the fact that most AWCs are located within a distance of 100-200 metres from the beneficiary households;
- ii) The AWCs were found to be adequately staffed and most of the staff were residing within the accessible distance from the AWCs. However, inadequate availability of inventories and inadequate provision of in-service training to functionaries were major constraints in the effective functioning of the programme;
- iii) Results of the Institutional delivery, Immunisation and Ante-natal care are close to the findings of NFHS-I and II stating that only one-third women receive complementary food at the right time. However, neither the quality nor the quantity and frequency was stated. Practices vary from state to state, but much depends upon the local feeding practices rather than any inputs from Anganwadi Workers (AWWs) or for any other health functionaries;
- iv) It is well known that maximum malnutrition is amongst children in the 6-24 months age-group. But, unfortunately, that is the age group which was never within the reach of ICDS. Therefore, ICDS has to adopt new strategies to deal with malnutrition amongst children of this age group. Involvement of the community for the overall success of ICDS is essential;
- v) The programme for Adolescent Girls being operated through ICDS needs a trained person as Instructor and community involvement along with a certain amount of funding. Adolescent girls being future mothers, their health during this period is an essential requisite. Prevalence of anaemia amongst them, to the tune of 60-90 per cent, is a cause for concern. Therefore, strategies to reach them should be a priority;
- vi) Some NGOs have successfully used the services of field-level workers for various aspects of health care such as treatment of

acute respiratory infections, care of the newborn, management of neo-natal infections thus reducing neo-natal mortality, which contributes significantly to infant mortality. However, it needs community awareness and participation, training and supervision of field-level workers and availability of the required drugs;

- vii) On the whole, the overall performance of the states based on Factor Analysis results of the critical indicators showing that while Gujarat, Haryana, Madhya Pradesh, Maharashtra and Orissa are amongst the better performing states, the performance of Bihar, Jammu & Kashmir, Punjab, Uttar Pradesh and West Bengal has been below average;
- viii) While identifying the strengths and weaknesses of the programme, the evaluation study calls for evolving effective training programmes on a continuing basis and convergence both within and amongst the concerned Departments for effective co-ordination in the delivery of services. Perhaps, more concerted efforts are needed to improve the involvement of the local community in ICDS activities.

2.11.123 Making use of the findings of all the three national surveys, the Tenth Plan will continue the follow-up action in refining/enriching the programme through rectifying the defects in the content and services; problems in the implementation and co-ordination and further towards consolidating/strengthening the programme.

2.11.124 UDISHA is a special effort to strengthen the on-going ICDS Training Programme into a dynamic, responsive and comprehensive training-cum-human resource development programme. For the implementation of UDISHA, World Bank extends financial assistance to the extent of Rs. 600.55 crore. The NIPCCD, New Delhi with its nation-wide network of 4 Regional Centres at Bangalore, Guwahati, Indore and Lucknow; 43 Middle Level Training Centres (MLTCs) and 535 Anganwadi Workers Training Centres (AWTCs) is expected to implement UDISHA. Out of the Ninth Plan outlay of Rs. 329.29 crore, the expenditure was Rs. 142.63 crore. During the Ninth Plan, 2,304 Child Develop-

ment Project Officers/Additional Child Development Project Officers, 4,993 Supervisors and 2.8 lakh AWWs were trained under UDISHA.

2.11.125 The Scheme of Balika Samriddhi Yojana (BSY) originated from the announcement of the Prime Minister on 15 August 1997 stating that 'the Government would extend financial help to the families to whom a girl child is born and living Below Poverty Line (BPL). Later, scholarships would also be given when the girl child goes to school. Accordingly, a programme of Balika Samriddhi Yojana was launched on 2 October 1997 to extend a post-delivery grant of Rs. 500/- for the mother of the Girl Child belonging to the BPL families.

2.11.126 In 1999, BSY was reviewed and recast to make it more effective with the following features - i) a post-delivery grant of Rs. 500/- per girl child upto two girl children born on or after 15 August, 1997 will now, instead of being paid in cash, be deposited either in the Bank/Post Office in an interest-bearing account in the name of the girl child. Withdrawal of a portion of the post-birth grant of Rs. 500/- or of the amount of the annual scholarships eligible for deposit, may be permitted towards the sole purpose of paying the premium of an insurance policy in the name of the girl child under the Bhagyashree Balika Kalyan Bima Yojana. Such a utilisation may be permitted with due authorisation of the mother/guardian of the girl ; and ii) Annual scholarships would also be given to the girl child when she starts going to school. The rate of scholarships will be Rs. 300 each in classes I-III, Rs. 500 in class IV, Rs. 600 in class V, Rs. 700 each in classes VI and VII, Rs. 800 in class VIII and Rs. 1000 each in classes IX and X per annum. The scholarship amount can also be deposited in the same Account, at the option of the guardian of the Girl Child, in which the post-delivery grant of Rs. 500/- was kept. These deposits will be paid to the girl child on attaining the age of 18 years and remaining unmarried till then. The amount of scholarships can also be paid in kind at the discretion of the guardian of the girl child. The recast BSY with the above revisions was being put into action during 1999-2000, but it could not make much headway. Out of the Ninth Plan outlay of Rs. 390

crore, the expenditure was Rs. 176.64 crore, covering 3.5 million girl children. The Scheme is likely to be transferred to the state sector during the Tenth Plan.

2.11.127 The scheme of Crèches/Day-Care Centres for children of working/ailing mothers, initiated in 1975-76, being a non-expanding scheme, maintained the same level of 12,470 crèches benefiting 3.1 lakh children. However, to meet the growing demand for more crèches, a National Crèche Fund (NCF) was set up in 1994 with a corpus of Rs. 19.90 crore received under the Social Safety Net programme. The NCF extends financial assistance for the opening of crèches besides conversion of the existing Anganwadis into Anganwadi-cum-Creches. Out of the Ninth Plan outlay of Rs. 36.05 crore, the expenditure was Rs. 29.50 crore. Under the NCF, 3,114 creches were added during the Ninth Plan benefiting about 79,000 more children.

PRESENT STATUS OF CHILDREN

2.11.128 The present status of children, as reflected in the various developmental indicators discussed in the following paragraphs, shows significant improvement due to the special attention paid and effective interventions put into action both by the child-specific and child-related sectors of health, nutrition, education, welfare etc. While all the indicators have been showing favourable trends, the child sex ratio in respect of 0-6 years (Table 2.11.21) shows a highly negative trend and causes serious concern not only to demographers, but also to policy-makers and planners.

Table - 2.11.21
Child Sex Ratio (0-6 years) 1981-2001

Census	Sex ratio (0-6 years)
(1)	(2)
1981	962
1991	945
2001	927

Source : Census of India, 2001 : Provisional Population Totals, Registrar General & Census Commissioner, GOI, New Delhi.

2.11.129 The child sex ratio in the age-group of 0-6 years has declined by 18 points from 945 in 1991 to 927 in 2001. The same declining trend also got reflected in almost all the states and Union Territories, except in Sikkim, Mizoram, Tripura, Lakshadweep and Kerala. In 2001, while Punjab recorded the lowest sex ratio of 793 declining from 875 in 1991, Sikkim recorded the highest at 986 rising from 965 in 1991.

2.11.130 Reasons put forth by the Census 2001 for the declining sex ratio include - neglect of the girl child resulting in the high Female Infant and Child Mortality and Maternal Mortality Rates, the problems of sex-selective abortions (female foeticide), and female infanticide leading to imbalance in the sex ratio. In fact, the imbalance in the number of males and females, as revealed by Census, begins right at the time of birth as only 943 to 952 female births take place for every 1,000 male births. Further, as indicated earlier, the sample studies on the 'Declining Sex Ratio and the Problem of Female Foeticide and Female Infanticide' sponsored in 1993 by the nodal Department of Women and Child Development, New Delhi have also revealed that while the practice of Female Foeticide is a common feature in urban areas, the problem of Female Infanticide is a localised phenomenon and limited only to certain communities in the states of Andhra Pradesh, Bihar, Gujarat, Punjab, Haryana, Madhya Pradesh, Rajasthan and Tamil Nadu.

2.11.131 Reports have also confirmed that the practice of these two social evils is mainly due to the strong preference for son and as such, these are responsible to a large extent for the ever-declining sex ratio. Misuse of the modern technology of Ultra-sound for sex determination is an added dimension to this problem. In fact, the present ban on the sex determination tests through the enactment of the Pre-Natal Diagnostic Techniques (Regulation and Prevention of Misuse) Act, 1994 could hardly change the situation. Adding to this is the problem of ineffective implementation of the Compulsory Registration of Births and Deaths Act, 1969 which fails to provide information on vital statistics. Due to the special efforts made by the

Department of Family Welfare, states like Kerala, Tamil Nadu, Delhi, Punjab and Gujarat could make good progress in implementing these legislations during the Ninth Plan. All other States/UTs need to come a long way.

Health

2.11.132 In the field of health, while the life expectancy at birth has gone up, as already discussed in the first part of this Chapter, the infant and the child mortality rates have declined sharply with sex differentials almost bridged (Tables 2.11.22 and 2.11.23).

Table – 2.11.22
Infant Mortality Rates (1988-1999)

(per thousand live births)

Year	Females	Males	Total
(1)	(2)	(3)	(4)
1988	93.0	96.0	94.5
1998	73.5	69.8	71.7
1999	70.8	69.8	70.0

Source : Sample Registration System Bulletins for respective years, Registrar General & Census Commissioner, GOI, New Delhi.

2.11.133 As Table 2.11.22 shows, IMR in respect of female children has gone down sharply from 93 in 1988 to 70.8 in 1999, besides declining sharply

Table – 2.11.23
Child Mortality Rates (1985-1997)

(per thousand live births under 5 years age)

Year	Females	Males
(1)	(2)	(3)
1985	40.4	36.6
1992	28.2	24.9
1997	24.5	21.8

Source : Sample Registration System Bulletins for respective years, Registrar General & Census Commissioner, GOI, New Delhi.

by 2.7 points between 1998 and 1999, while it remained the same in respect of males during the same period. Despite the significant achievements in bringing down the female IMR, there exist inter-state variations with the highest female IMR of 96 in Orissa and the lowest being 6.6 in Goa in 1999.

2.11.134 Although CMR has been consistently higher for females than males, sex differentials are now being bridged slowly (Table 2.11.23). The CMR for females has come down from 40.4 in 1985 to 24.5 in 1997, and from 36.6 to 21.8 in respect of males during the same period. However, the same stands still very high when compared to other developing countries in the Region. Like IMR, there are regional variations in CMR too. While Madhya Pradesh recorded the highest CMR of 32.3, the lowest of 3.3 was recorded by Kerala in 1997.

Table - 2.11.24
Percentage Distribution of Cause-Specific Deaths of Children (0-4 years), 2000

Cause	Percentage (Estimates)
(1)	(2)
Lower respiratory tract infections	17.6
Peri-natal conditions	17.1
Diarrhoeal diseases	17.0
Vaccine preventable diseases	10.3
Congenital mal-formations	9.2
Malnutrition	3.2
Falls	2.4
HIV	2.2
Other causes	21.0
Total	100.0

Source : Report of the Working Group on Health Care for Women & Children for Tenth Five Year Plan (2002-07), Department of Family Welfare, Ministry of Health and Family Welfare, GOI, New Delhi

2.11.135 The high Infant and Child Mortality Rates can be attributable to a large extent to the specific causes given in Table 2.11.24 which are preventable/curable, especially the 'Lower-respiratory tract

infections' which account for the highest of 17.6 per cent, followed by 'Peri-natal conditions' (17.1 per cent); 'Diarrhoeal diseases' (17.0 per cent) and 'Vaccine preventable diseases' (10.3 per cent). Altogether, they account for more than 60 per cent which can easily be prevented through effective implementation and better coverage of RCH and supplementary feeding services.

Nutrition

2.11.136 Pre-school children constitute the most nutritionally vulnerable segment of the population. The prevalence of malnutrition amongst the pre-school children, especially that of 0-3 years has

Table – 2.11.25
Prevalence of Malnutrition amongst Children (1 to 5 years)

Nutritional Grade	Percentage		
	1975-79	1988-90	1996-97
(1)	(2)	(3)	(4)
Normal (>=90%)	5.9	9.9	8.9
Mild (75-90%)	31.6	37.6	40.6
Moderate (60-75%)	47.5	43.8	44.3
Severe (<60%)	15.0	8.7	6.2

Source : National Nutrition Monitoring Bureau, 1999

been a major threat to the development of their potential. The major reasons for malnutrition in India are low dietary intakes, low birth weight, poor infant feeding practices, infections and diseases due to poor sanitation, water and living conditions, illiteracy and ignorance, and intra-familial disparities in food distribution. The National Nutrition Monitoring Bureau (NNMB), Hyderabad has confirmed that there has been a declining trend in severe and moderate degrees of malnutrition amongst children. (Table 2.11.25)

2.11.137 Further, surveys conducted by the National Institute of Nutrition, Hyderabad, and other agencies reveal that the micro-nutrient deficiencies viz. Vitamin A deficiency, iron deficiency and iodine deficiency disorders are also affecting children in various degrees along with the macro-nutrient deficiencies. (The prevalence of macro and micro-nutrient deficiencies amongst children is dealt with in detail in the Chapter on 'Food and Nutrition Security').

Education

2.11.138 In the field of education, there has been substantial increase in the GER of both boys and girls both at the primary and middle levels (Table 2.11.26). The pace of progress maintained by the girls between 1980-81 and 1999-2000 (21.1

Table – 2.11.26
Gross Enrolment Ratios by Classes I-V and VI-VIII (1980-81 to 1999-2000)

Year	Primary (I-V)			Middle (VI-VIII)		
	Girls	Boys	Total	Girls	Boys	Total
(1)	(2)	(3)	(4)	(5)	(6)	(7)
1980-81	64.1	95.8	80.5	28.6	54.3	41.9
1990-91	85.5	114.0	100.1	47.8	76.6	62.1
1998-99	82.9	100.9	91.9	49.1	65.3	57.6
1999-2000*	85.2	104.1	94.9	49.7	67.2	58.8

Note : *Provisional

Source : Selected Educational Statistics for respective years, Department of Education, Ministry of Human Resource Development, GOI, New Delhi.

Table – 2.11.27
Drop-Out Rates amongst Girls and Boys (1980-81 to 1999-2000)

(In per cent)

Year	Primary (I-V)			Middle (VI-VIII)		
	Girls	Boys	Total	Girls	Boys	Total
(1)	(2)	(3)	(4)	(5)	(6)	(7)
1980-81	62.5	56.2	58.7	79.4	68.0	72.7
1990-91	46.0	40.1	42.6	65.1	59.1	60.9
1999-2000*	42.3	38.7	40.3	58.0	52.0	54.6
(Decrease between 1980-81 and 1999-2000)	(20.2)	(17.5)	(18.4)	(21.4)	(16.0)	(18.1)

Note : *Provisional

Source : Selected Educational Statistics for respective years, Department of Education, Ministry of Human Resource Development, GOI, New Delhi.

percentage points at both primary and middle levels) was quite good when compared to that of boys (8.3 and 12.9 percentage points, respectively). However, despite the good progress made by the girls at both the levels between 1990-91 and 1999-2000, very high gender differentials continued in terms of actual numbers. In fact, 40 million children (28 million girls and 12 million boys) have never entered schools, even while the education is being made a fundamental right.

2.11.139 Table 2.11.27 indicates the positive effect of increasing rates of school retention through decreasing drop-out rates in respect of both boys and girls at both the levels. Just as in the case of enrolment, girls maintained very good progress in reducing the drop-out rates at both the levels when compared to the boys. But at the same time, the gender differentials continued to exist, though narrowing down year by year.

APPROACH TO THE TENTH PLAN - PATH AHEAD

2.11.140 In the Tenth Plan, 'Development of Children' will be viewed not only as the most desirable societal investment for the country's future, but as the right of every child to achieve his/her full development potential. In fact, India's

ratification of the UN Convention on the Rights of the Child in 1992 followed by the adoption of two National Plans of Action - one for Children and the other for the Girl Child in 1992 makes it obligatory on the part of the Government to fulfil the universal rights of every child. Thus, the major challenge in the Tenth Plan will be 'reaching every young child in the country', besides ensuring their 'survival, protection and development'. In other words, the Tenth Plan advocates a Rights-based Approach to the development of children with the following strategies :

- To reaffirm that child's rights – economic, social, cultural, civil and political are inalienable from human rights and are also achievable within the normative and ethical framework provided by the UN Convention on the Rights of the Child (1992);
- To recognise that the early childhood years – especially the pre-natal to first three years, are the most crucial and vulnerable period in life for the achievement of full human development potential and cumulative life-long learning. This is the time when the foundations for physical, cognitive, emotional and social development are laid;

COMMITMENTS OF THE TENTH PLAN TO CHILDREN

The Approach

- To reaffirm the commitment of the 'Development of Children' with a special focus on the early childhood development, not only as the most desirable societal investment for country's future but also as the right of every child to achieve his/her full development potential
- To adopt a Rights-based approach to the development of children, as being advocated by the draft National Policy and Charter for Children (2002)

Major Strategies

- Reaching every young child in the country to ensure their '**survival**', '**protection**' and '**development**' as prescribed in the 2 National Plans of Action (1992) - one for Children and the other for the Girl Child
- To ensure 'survival' of children through arresting the declining sex ratio and curbing its related problems of female foeticide and female infanticide
- To ensure 'protection' for all children and in particular those with special needs and problems and those in difficult circumstances through effective implementation of the existing child-related legislations
- To ensure development through effective implementation of policies and programmes in the areas of health, immunisation, nutrition and education through the 3 nation-wide programmes of RCH, ICDS, SSA and other related programmes
- To continue ICDS as the mainstay for promoting the over-all development of young children and mothers, especially that of the Girl Child all over the country
- To recognise that while the early childhood up to six years is critical for the development of children, the pre-natal to first three years is the most crucial and vulnerable period in the life for laying the foundations for the achievement of full human development potential and cumulative life-long learning
- To reinforce the commitment to family-focused and community-based interventions, in addition to the institution-based interventions, which is critical for enhanced survival, growth and development of young children, adolescent girls and women across the life-cycle
- To expeditiously achieve universal coverage under the Universal Immunisation Programme, and to undertake area-specific micro-planning to meet their needs through high quality integrated RCH services
- To make focused interventions aimed at improving the nutritional status of children below 6 years, with special priority for children below 24 months, through the on-going direct feeding programme of the Special Nutrition Programme
- To operationalise universal screening of children belonging to those families living below the poverty line for macro and micro-nutrient deficiencies as the children below 6 years are the risk group and to improve the dietary intake through a change in the feeding practices and intra-family food distribution
- To ensure that every child is enrolled and to provide education to children who were never enrolled or dropped out without completing eight years of elementary schooling so as to honour the commitment of Universal Elementary Education
- To expand the support services of crèche/day care services and thus help reduce the burden of working/ailing mothers and of the girl child who is expected to bear the burden of sibling care
- To enrich all the child-related programmes through encouraging both family/community participation more and more, besides eliciting their contribution, in kind and cash
- To protect children from all types of exploitation through strict enforcement of the Immoral Traffic (Prevention) Act, 1956; the Juvenile Justice (Care and Protection) Act, 2000; the Child Labour (Prohibition and Regulation) Act, 1986; the Hindu Succession Act, 1956; Indian Penal Code, 1860 and the Pre-Natal Diagnostic Techniques (Regulation and Prevention of Misuse) Act, 1994

- To re-affirm the belief in the integrated approach, which promotes effective convergence of available services, resources, manpower and infrastructure in the areas of health, nutrition, education (early learning) and better parenting and is driven by the best interests of the child;
 - To reinforce the commitment to family-focused and community-based interventions, in addition to the institution-based interventions. This is critical for changing behaviour within the family and community for enhanced survival, growth and development of young children, adolescent girls and women across the life-cycle;
 - To highlight the role of both parents in shared parenting and caring responsibilities that enable the family to function as the primary institution for supporting the growth and development of young children. To promote affirmative action to raise the status of girls and women with enhanced involvement of men and families;
 - To emphasise the criticality of decentralised, locally responsive approaches to the care of young children, girls and women with respect for local needs, cultural patterns and diversity;
 - To acknowledge that efforts will be made to reach all children within which special efforts will be made to reach the ones who are the most difficult to reach, the most disadvantaged, those in difficult circumstances, and at risk, contributing to cohesive and inclusive societies;
 - To promote preventive approaches to malnutrition and disability-intervention as early as possible and across the life-cycle, focusing on the younger children, under 3 years of age, the adolescent girls, expectant and nursing mothers;
 - To ensure appropriate depiction and presentation of children's concerns in all fora, including the media, to change the societal attitudes in favour of the girl child and the children in difficult circumstances/exploitative conditions;
 - To foster new partnerships with parents, communities, civil societies corporate and private sectors and ensure that they fulfil their obligations to children, especially to the very young child and the girl child.
- 2.11.141 Keeping the above strategies in view, the Tenth Plan will attempt to bring forth the following strategic changes in terms of concept, approach, targets, scope, content, quality and quantity of services for children :

Strategic Changes for Development of the Child

From	Towards
<ul style="list-style-type: none"> • Different definitions about the age of the child as followed by different sectors 	<p>Setting up of an Inter-Ministerial Committee to give a clear and precise definition of the 'Age of the Child' and of the 'Adolescent' in view of its significant impact on the relevant policies and programmes and their coverage under various child-specific and child-related schemes</p>
<ul style="list-style-type: none"> • No clear-cut mechanism for converging resources/ strategies to different sectors to reach out to the child in totality 	<p>Setting up of necessary co-ordinating mechanisms for converging services, pooling resources of related sectors, utilising both manpower and infrastructure to address the 'holistic' and the 'whole-child approach' towards better early childhood care and development</p>
<ul style="list-style-type: none"> • A commitment to the developmental framework 	<p>A direct commitment to ensure fulfilment of child's right to 'Survival, Protection and Development'</p>
<ul style="list-style-type: none"> • Fragmented approach to different age-groups/ stages of the child 	<p>A 'Life-Cycle Approach' with a special focus on the criticality of addressing younger children of Under-3, girl child; adolescent girls, expectant and nursing mothers</p>
<ul style="list-style-type: none"> • Gender equality interventions focused more on women's empowerment 	<p>Affirmative action towards the betterment of the girl child and women by involving communities/families/ fathers in valuing, bonding with, and in caring for the young child</p>
<ul style="list-style-type: none"> • Decentralisation, stressing state/ district-specific strategies and resource capability 	<p>More decentralisation and more autonomy with an emphasis on district/cluster level strategies and resource capabilities involving PRIs and SHGs to bring forth locally responsive innovations</p>
<ul style="list-style-type: none"> • Expansion and extension of services 'across blocks' 	<p>Quality improvement and content enrichment of interventions with better targeting of the poorest and most disadvantaged and un-reached community groups.</p>
<ul style="list-style-type: none"> • Extension of Centre-based services through Anganwadi Centres 	<p>Initiatives to reach out to families and communities with improved quality of services through Anganwadi and other Child Care Centres (e.g. Health Care Centres, Primary Schools etc.)</p>
<ul style="list-style-type: none"> • Strategies related to children and women of urban slums with concern for urban poor and other disadvantaged communities 	<p>A clear commitment and strategy to address the needs of young children and women of urban poor and other disadvantaged groups.</p>
<ul style="list-style-type: none"> • Traditional partnerships envisaged with NGOs 	<p>New partnerships with parents, communities, civil society, non-governmental organisations, corporate sector and private sector more explicitly.</p>

2.11.142 After having accepted the rights-based approach for the development of children, it becomes obligatory on the part of the Government to ensure 'survival, protection and development' of children, especially that of the girl child. The first priority action will be to ensure 'survival' by arresting the declining sex ratio and curb its related problems of female foeticide and female infanticide. This could, perhaps, be the answer to the emerging call of the steep fall in the child sex ratio of 0-6 years from 945 in 1991 to 927 in 2001. One of the measures undertaken during the Ninth Plan in favour of the Girl Child was launching of an exclusive scheme of Balika Samridhi Yojana targeting to improve the overall status of the girl child and thus negate the negative attitudes of the people, yet it did not seem to have achieved the desired impact. Therefore, as already indicated earlier under the Section on 'Empowerment of Women', special efforts will be made to ensure effective enforcement of the related legislations to prevent/eradicate the two social problems, referred to above. Also, the proposed efforts to ensure compulsory registration of births and deaths, as visualised in the National Population Policy (2000) should be able to help solve the problem to a great extent. In these efforts, both medical and para-medical staff viz. doctors, auxiliary nurse-cum-midwives/trained dais, the frontline workers of ICDS and the local voluntary organisations are going to play a major role.

2.11.143 The second priority will be 'protection' of children, in general, and in particular, children with special needs and problems, including those in difficult circumstances viz. children whose parents are prostitutes, drug addicts, having contagious diseases and are in custody; victims of natural/man-made calamities; destitute/abandoned children; children with problems of under/malnutrition; children with disabilities etc. It is again the State, which has to come forward to protect these children with timely action to avoid the resultant social damages. As the target groups under this category are mostly those who need curative-cum-rehabilitative services, efforts in the Tenth Plan will be to expand the existing limited services, available in the field of disabled, social defence and social welfare.

2.11.144 The third priority will be to fulfil the birth right of every child for 'development', especially

those belonging to the disadvantaged and deprived groups. The present thrust will, therefore, be laid on the major areas of child development viz. health, nutrition, and education. While the most critical period, from conception to two years of age, will be addressed through key interventions of health, immunisation, nutrition and psycho-social development of the mother and the young child through RCH and ICDS programmes, the pre-school age will be taken care of exclusively by the ICDS through its six-service package and the school going age through various health, nutrition and educational programmes.

2.11.145 Taking note of the efforts of the Ninth Plan to fulfil the commitment of instituting a National Policy and Charter for Children in place of the existing National Policy for Children, (1974), the Tenth Plan will ensure early clearance of the draft Charter which advocates a Rights-based Approach along with the early setting up of a National Commission for Children. The Commission, as visualised, aims to protect/safeguard the rights of children with a strong legal base and services of a public defender to take up the individual cases on behalf of children and also to investigate/redress the individual complaints and grievances, just as on the lines of the National Human Rights Commission. The Tenth Plan also identifies the urgent need to review and synthesise all the existing policies, programmes and legislations, both child-specific and child-related to ensure that each one is complementary and supplementary to the other in achieving the objectives/goals set in the National Charter for Children. Special efforts will also be put into action to disseminate/spread legal literacy to equip children, especially the girl child, to grow with adequate knowledge about their own rights and privileges.

2.11.146 The Sectoral Approach for the holistic development of children during the Tenth Plan, will be as follows:

Health and Immunisation

2.11.147 Of the three core sectors of child development, health together with immunisation occupies the most important place followed by

nutrition, along with supply of safe-drinking water and education etc. As mentioned earlier, the Approach Paper to the Tenth Plan clearly lays down the target of bringing down the most crucial child health indicator of IMR from 70 in 1999 to 45 per 1000 live births by 2007 and to 28 by 2012. As this can be made possible only through ensuring 100 per cent coverage of immunisation in respect of the vaccine-preventable diseases of Diphtheria, Pertussis, Neo-natal Tetanus, Tuberculosis, Poliomyelitis and Measles, the Tenth Plan will make special efforts to improve the coverage levels through the Universal Immunisation Programme which is being implemented as part of the RCH Programme, besides reaching the identified areas with low coverage so as to achieve the universal coverage most expeditiously. Also, attempts will be made to assess the health needs of children, especially the adolescents, the girl child and women at PHC level and to undertake area-specific micro-planning to meet their needs through high quality RCH services. Further, the Child Survival Programme of RCH will ensure universal screening of all pregnant women to identify and manage those at high risk to analyse reduction in the pre-natal and neo-natal mortality and morbidity. Above all, the National Population Policy adopted in 2000 and the Health Policy, 2001 (draft) are expected to extend both policy and programmatic support with definite targets to ensure child survival (More details are available under the Chapter on 'Health').

Nutrition

2.11.148 The National Nutrition Policy adopted in 1993 recognises children below 6 years and the expectant and nursing mothers as nutritionally vulnerable and also as 'high-risk' groups and accords highest priority to them in all its policies and programmatic interventions. Taking note of both the shortfalls and failures of the Ninth Plan, the Tenth Plan commits to give focused interventions aimed at improving the nutritional status of these vulnerable groups. As visualised, there will be a paradigm shift from the household to family and individual food security and from the untargeted nutrition supplementation to identified categories of various grades of under/malnutrition. To this effect, the Tenth Plan commits to operationalise universal

screening of vulnerable groups for macro and micro nutrient deficiencies. The proposed screening includes all infants and pre-school children for under-nutrition; all children with severe under-nutrition for anaemia and all pregnant women for under-nutrition and anaemia. The other measures include - initiating appropriate nutrition interventions for management of under-nutrition; prevention and early detection; appropriate management of micro-nutrient deficiencies and the associated health hazards; and establishment of nutrition monitoring and surveillance to identify and attend to the emerging nutritional problems with appropriate interventionistic programmes.

2.11.149 Along with the above, the two on-going direct feeding programmes of Special Nutrition Programme (SNP) as part of ICDS covering about 31.5 million pre-school children and 6 million expectant and nursing mothers and the National Programme for Nutrition Support to Primary Education covering around 105 million school children will also be streamlined and strengthened by sorting out the existing financial and other managerial problems that were identified during the Ninth Plan. The Additional Central Assistance now being extended to states as part of PMGY to meet the costs of 'take-home food supplements for children 6 to 36 months' as part of SNP will be enlarged during the Tenth Plan to fill the existing financial gaps and thus ensure effective implementation of the country-wide programme of supplementary feeding for children and mothers.

2.11.150 Further, as a follow-up of the announcement of Prime Minister in his Independence Day speech of 2001, a National Nutrition Mission (NNM) was set up in 2002 with an overall responsibility of reducing/eliminating both macro and micro nutritional deficiencies in the country. As part of the efforts of NNM, a new programme to combat under-nutrition among adolescent girls and expectant and nursing mothers is being launched by the Department of Women and Child Development, on pilot basis during 2002-03. This Programme is expected to cover 2 most backward districts in each of the major states, and the most populous districts in the rest of the smaller States and UTs. Under this pilot programme, foodgrains are supplied free of cost,

through TPDS directly to the identified families with under/mal-nourished persons.

Education

2.11.151 The proposed declaration of 'Education as a Fundamental Right' demands the State to ensure 100 per cent enrolment and their retention along with adequate schooling facilities in all habitations ensuring easy accessibility. Thus, the Tenth Plan calls for a newer approach towards achieving the goal of Universalisation of Elementary Education (UEE). Till now most of the programmes in the field of elementary education were disjointed in nature. Therefore, the need of the Day is to have an all-comprehensive programme with a holistic and convergent approach, covering the entire country. An answer to this can be found in the recently introduced scheme of Sarva Shiksha Abhiyan (SSA) which will be the major vehicle for achieving the goals of UEE during the Tenth Plan period. With these commitments, SSA is expected to solve the present problems of low rates of enrolment and retention, besides high drop-out rates, especially amongst the girl children belonging to the social categories of SCs, STs, OBCs and Minorities (Muslims) during the Tenth Plan.

2.11.152 The increasing aspiration amongst the masses for education led by the National Literacy Mission will be tapped in the Tenth Plan by increasing the involvement of the community through PRIs in the implementation of UEE. Further, the emphasis of the Tenth Plan will be to focus on children who have never enrolled or those who have dropped out without completing eight years of elementary schooling. Special targets will be fixed for difficult to reach groups, so that the reasons for their staying away from school system are identified and steps taken to provide them elementary education.

2.11.153 In terms of pre-school education, the ECCE (Early Child Care Education) component of ICDS will continue to be a significant input for providing a sound foundation for development as well as the first step in the education ladder. Therefore, the thrust during the Tenth Plan will be

on strengthening the early joyful period of play and learning in the young child's life to ensure a harmonious transition from the family environment to the primary school. Towards this, special efforts will be made to develop 'operational linkages' between ICDS and primary education. These linkages will seek to reinforce co-ordination of timings and location of schools based on community appraisal and micro-planning at the grassroot level. Girls' education will be viewed as a major intervention for breaking the vicious inter-generational cycle of gender and socio-economic disadvantages. Effective expansion of crèches/day-care services and linkages between child-care services and primary schools will be a major input to promote educational opportunities for the girl child. Balika Samridhi Yojana - an education based special intervention for the Girl Child launched during the Ninth Plan will be expanded with effective implementation during the Tenth Plan. This will not only increase the enrolment of the girl children, but also their retention in the schools and reduce their drop-out rates. (More details are available in the Chapter on 'Elementary Education').

Child Development

2.11.154 The integrated approach adopted for the holistic development of children will continue during the Tenth Plan as it has already proved its credentials through the programme of ICDS. In fact, ICDS will continue to be the mainstay of the Tenth Plan and endeavour to promote the overall development of the young children all over the country through its universalisation. Thus, the present coverage of ICDS through 4608 projects covering 31.5 million children and 6 million mothers will be expanded to cover 54.3 million children and 10.9 million mothers through 5652 ICDS projects during the Tenth Plan. The scope of the on-going approach to converge the basic services of health, nutrition and pre-school education to promote holistic development of the young child, as embodied in ICDS, will be further strengthened with community participation/community action to reach the un-reached, i.e., children below 3 years. During the Tenth Plan, efforts will be made to expand/widen the scope of the development of children with necessary

interventions related to empowerment of women, with a special focus on the girl child and the adolescent girl.

2.11.155 Similarly, the on-going scheme for the Adolescent Girls, viz. Kishori Shakti Yojana (KSY), launched in 1991-92 aims at the empowerment and self-development of adolescent girls in preparation to their future productive and reproductive roles as confident individuals not only in family-building but also in nation-building. To the present package of health, nutrition, education, health and nutrition awareness, the Tenth Plan will add counselling facilities besides strengthening the component of vocational training and entrepreneurial skills. The scheme, which is now in operation in 2,000 ICDS Blocks will be expanded further during the Tenth Plan.

2.11.156 The Tenth Plan also recognises the increasing need for support services of Creches/Day Care Centres for the children of working/ailing mothers, especially in the present day context where more and more women are coming out for employment both in the organised and un-organised sectors. In this context, the National Creche Fund will be further strengthened to develop a wide network of crèches all over the country.

2.11.157 Finally, the major challenge in the field of child development during the Tenth Plan, will be to achieve the increased community ownership and qualitative improvement of various child-welfare/child development programmes. Priority will be accorded to strengthen the knowledge, skills and capabilities of frontline workers, as mobilisers of convergent action. This entails a major change in the training process so as to equip these frontline workers to understand community perceptions, practices and emerging situations/demands. Thus, the major thrust will be to develop decentralised training strategies with innovative ground-based approaches. In consonance with the above, new approaches for mobilising assistance, both in cash and kind, for the sustenance of child development programmes will be experimented, along with community participation in and contribution to ICDS.

Also, efforts will be made to involve the corporate sector to adopt ICDS projects and thus fulfil their societal obligations. The principles enunciated above, and the envisaged role of PRIs and Urban Local Bodies will have major implications not only in planning but also in the control of the flow of funds and their effective utilisation for the programmes of child development.

Elimination of Discrimination against the Adolescent /Girl Child

2.11.158 Despite the best efforts put in through various policies/programmatic interventions during the 1990s, the Adolescent/Girl Child still continues to experience discrimination throughout her life and unfortunately the existing socio-cultural practices also make it difficult for her to overcome the handicaps posed by the unequal status. Taking note of this situation, the Tenth Plan re-affirms the life-cycle approach for betterment of the Adolescent/Girl Child. The 2001 Census of India has starkly established how important it is for the country to realise that the neglect of the Adolescent/Girl Child can seriously affect country's future. The Tenth Plan will, therefore, concentrate its efforts to eliminate all forms of discrimination and violation of the rights of the Adolescent/Girl Child by undertaking strong legal measures, including punitive ones. These include strict enforcement of relevant legislations along with eradication of the harmful practices of female foeticide/female infanticide, child marriage, child abuse, child labour, child prostitution etc. Also, the long-term developmental measures launched during the Ninth Plan in the name of Balika Samridhi Yojana will be expanded widely during the Tenth Plan to extend incentives not only to the Girl Child but also to the mother of the Girl Child so that the birth of the Girl Child is welcomed and the family is assured of state support for the future of the Girl Child. Similar initiatives which were already proved to be successful in the states of Tamil Nadu, Haryana, Punjab and Madhya Pradesh will be replicated in other parts of the country. Also, special efforts will be made to use all types of mass media to re-orient the mind-set of the people to perceive Girl Child as an asset.

Children in Difficult Circumstances

2.11.159 The National Plans of Action both on Children and the Girl Child have very clearly identified the 'Children in Difficult Circumstances' as street children, working children, child sex workers, child drug-addicts; children in conflict with law; children with disabilities; children with HIV/AIDS; children whose parents are in custody and suffering from HIV/AIDS, Tuberculosis, Leprosy; children affected by various disasters (natural and man-made); children affected by national and international conflicts, viz. political refugees, war victims, internally displaced and children whose families are in crisis, including those belonging to broken families. While recognising the major gap that exists today in reaching the children belonging to these Special Groups who are in urgent need of care and protection, the Tenth Plan will initiate action to assess the size and magnitude of the problem and expand the on-going efforts both in the governmental and non-governmental sectors and launch, if necessary, new programmes to cover the hitherto neglected/unattended groups.

Legislation (Child-specific & Child-related)

2.11.160 The Tenth Plan will make an attempt to make a thorough review of all the existing child-specific and child-related legislations to plug the existing loopholes in their provisions and also in their implementation. Simultaneously, every effort will be made to protect children from all types of exploitation through strict enforcement of the existing legislations viz., the Immoral Traffic (Prevention) Act, 1956 (as amended in 1986) to check child prostitution; the Juvenile Justice (Care and Protection) Act, 2000 to help remove mal-adjustment and ensure rehabilitation of juvenile delinquents in the family and society; the Child Labour (Prohibition & Regulation) Act, 1986 to eliminate child labour; the Hindu Succession Act, 1956 as amended in 1993 to ensure equal rights to the girl child in the property of parents; Compulsory Registration of Births & Deaths Act, 1969; Compulsory Registration of Marriages and The Child Marriage Restraint Act, 1929 (amended in 1979). Enforcement of the Indian Penal Code, 1860 and the Pre-natal Diagnostic Techniques

(Regulation and Prevention of Misuse) Act, 1994 will receive special attention to arrest the increasing incidence of Female Foeticide and Female Infanticide.

Child Development : A Programmatic Approach through ICDS

2.11.161 In the light of the experience gained over 25 years, the task for the ICDS in the Tenth Plan will not be confined only to that of feeding and teaching the young child. It will also involve adopting a synergistic approach to strengthen the capacity of care-givers and communities to provide a conducive physical and social environment for the young child in the family/community and at the Anganwadi Centres. ICDS has already reached a stage where it is essential not only to universalise its expansion, but also to enrich its contents. The spectrum of ICDS services has broadened with interventions related to the empowerment of women and communities and convergence of sectoral services. This emerging profile of ICDS will re-dedicate itself to promoting early childhood care for survival, protection and development during the Tenth Plan. Accordingly, the thrust areas under ICDS during the Tenth Plan period will be as follows:

- i) Address the needs of urban poor - It is estimated that more than 40 per cent of the poor children in the country would be residing mostly in urban slums, during the Tenth Plan period. So far, the order of priority under ICDS has been first on the backward rural areas and followed by urban slums and tribal areas. During the Tenth Plan, first priority will be given to slums in Urban/Semi-Urban areas, followed by tribal areas and the backward rural areas;
- ii) Preventing under-nutrition and malnutrition through ICDS - The scheme of ICDS has the infrastructure for direct intervention to fight rampant under-nutrition and malnutrition amongst children and women. The supplementary nutrition component under ICDS will be strengthened and rejuvenated as one of the priority areas during the Tenth Plan by addressing the issues of both macro and micro-

- nutrient deficiencies across the life-cycle, specifically targeting at the younger children of below 24 months, adolescent girls, expectant and nursing mothers;
- iii) Conversion of Anganwadi Centres into Anganwadi-cum-Creches - The Day Care services under ICDS are available only for a limited period, i.e. upto 12 noon. Because of this, the working and ailing mothers have not been able to make full use of the day-care facilities at AWCs. Therefore, there is a strong need as well as justification for having extended day care facilities at AWCs, especially in areas where the women workforce is in large numbers;
- iv) Child Care facilities for women labourers working at construction sites - During the natural disasters like droughts, floods, cyclones, earthquakes, etc. the vital role of AWCs for providing immediate relief to the people has been recognised. Accordingly, setting up of temporary AWCs even at the construction/work-sites at the cost of Contractor will be taken up during the Tenth Plan. Also, setting up of additional/mini-AWCs will be continued and emphasised during the Tenth Plan with a view to ensuring universal access to the poorest and most deprived/un-reached groups in the covered blocks.
- v) Community involvement/community contribution under ICDS - The basic philosophy of ICDS is to empower the community so that it ultimately takes over/adopts AWCs as people's programme. Efforts will be made to involve actively the PRIs/local governing bodies/NGOs in managing AWCs.
- vi) Universalisation of Kishori Shakti Yojana (KSY) – KSY, a component of ICDS scheme which aims at empowerment and self-development of adolescent girls, will be expanded further during the Tenth Plan. Efforts will also be made to universalise KSY in all ICDS projects, along with necessary linkages with similar schemes in other sectors.
- vii) Fostering innovation under ICDS - To tackle the area/locality specific bottlenecks and problems under ICDS, enhanced support will be provided for initiating and experimenting with new approaches to caring for women and children. This will include local flexibility in setting priorities and attempting implementation of different service components e.g. supplementary feeding options (selective feeding) additional para-teacher model etc. The innovations may also focus on promoting survival, growth and development of younger children under 3 years of age with a special focus on the girl child under ICDS.
- viii) Strengthening of advocacy and communication - A major advocacy, communication and social mobilisation initiative linked to UDISHA to promote young child survival, protection and development with participation, especially that of the girl child, will be undertaken.
- ix) Improving the quality of service delivery and management – The efforts for quality management under ICDS, initiated during the Ninth Plan, will be continued during the Tenth Plan. A synergistic approach involving education, health, family welfare, rural and urban development sectors will be strengthened for the best quality in service delivery.
- x) Strengthening of basic infrastructural facilities - As already indicated by various evaluation studies of ICDS, AWCs having their own infrastructural facilities have proved to have delivered better quality services. Therefore, efforts will be made to develop the required infrastructure through the contributions from DRDAs, Panchayats/local bodies/communities/corporate/private sector during the Tenth Plan.

RESEARCH, EVALUATION AND MONITORING

2.11.162 Diagnostic/Action research on important problems relating to women and children and

evaluation/monitoring of the on-going schemes have been part of the planning process in the women and child development sector through a regular plan scheme of 'Grant-in-Aid to Research and Publications'. Under this scheme, Universities, Women Study Centres, Schools of Social Work and independent research organisations are encouraged to conduct research/evaluation studies. Findings of these studies have led to mid-term corrections in the scope and content of the programmes like Hostels for Working Women, Short Stay Homes, Crèches/Day-Care Centres for Working/Ailing Mothers etc. Besides this, concurrent evaluation of important schemes like ICDS has also been carried out through NCAER, New Delhi. Based on the findings of the study, some strategic changes are being brought into in the content as well as implementation of ICDS during the Tenth Plan. Also, research on the application of science and technology for improvement in the quality of life of women in specific areas like fuel, water, environmental degradation affecting the lives of women, has been a continuous process.

2.11.163 Monitoring of the 27 Beneficiary-Oriented Schemes (BOS) for women identified by the PMO has been continuing since 1986. The half-yearly progress reports and the outcome of the Review Meetings form the base for remedial action, in collaboration with PMO. Efforts of the 15 long years of monitoring the BOS will be reviewed during the Tenth Plan. Further, with emphasis on the collection of gender-specific data, efforts will be made to develop a national level Information Network System for women and children during the Tenth Plan to ensure flow of information, both vertically and horizontally.

INSTITUTIONAL MECHANISMS

2.11.164 The nodal Department of Women and Child Development acts as the national machinery to guide, co-ordinate and review the efforts of both governmental and non-governmental organisations working for the empowerment of women and development of children. The support structures to the nodal Department include - i) the National Commission for Women to safeguard and protect

the women's rights and privileges; ii) the Central Social Welfare Board to act as an umbrella organisation for networking State Welfare Boards and thousands of voluntary organisations; iii) the National Institute of Public Cooperation and Child Development to assist the Department in the areas of research and training relating to women and children. iv) The Rashtriya Mahila Kosh is yet another support structure for extending both 'forward' and 'backward' linkages for women in the informal sector in their entrepreneurial ventures. The Women's Cells set up in the Central Ministries/Departments of Labour, Industry, Rural Development and Science and Technology are expected to develop strong linkages with the national machinery and the women-related line Ministries/Departments.

2.11.165 At the state level, development of women and children still continues to be part of the Department of Social Welfare in most of the States/UTs except in Andhra Pradesh, Assam, Goa, Haryana, Himachal Pradesh, Karnataka, Tamil Nadu, Kerala, Maharashtra, Madhya Pradesh, Punjab, Rajasthan, Sikkim and Uttar Pradesh. These states have already set up exclusive Departments/Directorates to handle the programmes relating to empowerment of women and children.

2.11.166 At the district level, no exclusive machinery exists for women and child development. Therefore, while the institutions at the district-level will be strengthened, women will be assisted in organising themselves into SHGs at the Anganwadi/Village/Town level. The women's groups will be helped to institutionalise themselves into registered societies and to federate at the Panchayat/Municipal level. These societies will bring about synergistic implementation of all the social and economic development programmes by drawing resources made available through Government and Non-Government channels, including banks and financial institutions and by establishing a close interface with the Panchayats/Municipalities. Non-existence of exclusive implementing machinery at the state/district/block levels has been affecting the implementation, supervision and monitoring of various policies and programmes for women and children. This situation also leads to excessive

dependency on other governmental and non-governmental agencies. This problem is getting further aggravated in states where the presence of voluntary organisations is minimal. Therefore, there is an urgent need to expedite setting up of exclusive Departments/Directorates for women and child development in those states where no such set-ups are available. Also, special efforts will need to be made to strengthen/streamline the existing institutional mechanisms at the central and state levels with adequate resources, both human and financial, so that the system could be geared up to carry on the most challenging task of empowering women and development of children.

VOLUNTARY ACTION

2.11.167 Voluntary Organisations being the backbone of the Women and Child Development Sector, most of the schemes meant for women and children, except for ICDS, are being implemented by the voluntary organizations. The innovative experiments and alternative models developed in the voluntary sector are rich and diverse and also worth replicating. These efforts have often demonstrated the success of alternative models in the areas of credit, awareness generation, organising women into SHGs, self-employment, participatory rural appraisal etc. RMK is a success story of reaching micro-credit to the poor and assetless women in the informal sector through the medium of voluntary organisations. The other

important areas where the voluntary sector has proved its credentials, relate to fighting against the atrocities/violence against women and girl children and creating a positive image through various awareness generation and gender sensitisation programmes. A strong network of more than 12,000 voluntary organisations is active in the field of women and child development. While the CSWB supports this network, spread all over the country, the nodal Department of Women and Child Development takes care of those organisations which operate at national and state levels.

PLAN OUTLAYS

2.11.168 An outlay of Rs. 13,780 crore has been earmarked in the Central Budget of the Department of Women and Child Development in the Tenth Plan. In preparation to the Tenth Plan, special efforts were made to ensure effective distribution of the otherwise limited resources through the application of various techniques of Zero Based Budgeting (ZBB), viz. weeding-out, merging, transfer to non-plan/other Central Ministries/Departments/state sector/subordinate organisations etc. A statement reflecting the final outcome of the application of ZBB which has brought down the total number of schemes from 46 to 25 (17 Central and 8 Centrally Sponsored) and their share in the total Tenth Plan outlay of the Department is given in Annexure 2.11.1 and also in the Appendix. Programmes for women and children also receive plan financial support from the state sector.

IN PARTNERSHIP WITH VOLUNTARY ORGANISATIONS

The country-wide network of more than 12,000 Voluntary Organisations have been playing a very significant role in the empowerment of women and development of children as they share the major burden of implementing Governmental policies and programmes, except for ICDS. Their initiatives have often proved to be successful alternatives in the areas of women's literacy, support services, micro-credit for poor women, employment and income-generation, gender sensitisation, organising women into SHGs and fight against atrocities on women and the girl child, etc. Voluntary organisations have established their credentials in providing self-employment and credit services for poor, assetless and women-headed households. The Central Social Welfare Board (CSWB) which is an apex organisation at the national level to promote voluntary action, supports the country-wide network of voluntary organisations at the grassroot level working for both women and children. Besides these, there are many more voluntary organisations working at block/district/state level and national level in the field of women and child development. All these play a big supporting role to the national machinery for the advancement of women and children.

**SCHEME-WISE BREAK-UP OF TENTH PLAN (2002-07) OUTLAY OF DEPARTMENT
OF WOMEN AND CHILD DEVELOPMENT**

(Rs in Crore)

Sl. No.	Name of the Scheme	NINTH PLAN (1997-2002)		Application of ZBB Techniques	Sl. No.	TENTH PLAN (2002-07)	
		Outlay	Act. Exp.			Name of the Scheme (Final outcome of ZBB)	Outlay
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
I.	CENTRAL SECTOR SCHEMES (CS)						
A.	Welfare & Development of Children						
1.	Creches / Day Care Centres for Children of working / Ailing Mothers	36.05	29.50	Retained	1.	Creches / Day Care Centres for Children of working / Ailing Mothers	60.00
2.	National Creche Fund for Child Care Schemes	0.03	0.00	Weeded out (To be an Independent Body)			
3.	Balsevika Training Programme	0.64	0.55	Weeded out		—	—
4.	Training of ICDS Functionaries	329.29	142.63	Retained as CSS (Sl. No. 20)		—	—
5.	National Institute of Public Co-operation & Child Development (NIPCCD)	15.29	11.26	Retained	2.	National Institute of Public Co-operation & Child Development	40.00
6.	Early Childhood Education	1.40	0.67	Weeded out		—	—
7.	Balwadi Nutrition Programme (BNP)	6.50	1.51	Weeded out		—	—
8.	National Commission for Children	5.00	0.00	Retained	3.	National Commission for Children (Being set up)	7.00
	Total (A)	394.20	186.12				107.00
B.	Welfare & Development of Women						
9.	Hostels for Working Women	51.25	34.57	Retained	4.	Hostels for Working Women	85.00
10.	Setting up of Training-cum-Production Centres for Women (NORAD)	88.98	76.50	Retained	5.	Setting up of Training-cum-Production Centres for Women (NORAD)	150.00
11.	Support to Training-cum-Employment Programme (STEP)	88.32	76.84	Retained	6.	Support to Training-cum-Employment Programme (STEP)	150.00
12.	National Commission for Women	16.25	16.17	Retained	7.	National Commission for Women	32.00
13.	National Credit Fund for Women (Rashtriya Mahila Kosh)	46.00	0.00	Retained	8.	Rashtriya Mahila Kosh	148.00
14.	Common Wealth Meeting	1.50	1.10	Weeded out		—	—
15.	Strengthening of WD Bureau	0.00	0.00	Weeded out		—	—
16.	Creation of Office of the Commissioner for Rights of Women	0.03	0.00	Weeded out		—	—
17.	Mahila Samridhi Yojana(MSY)	63.15	42.85	Merged (Merged with CSS Sl.No. 45)		—	—
18.	Women's Empowerment Project	1.27	0.77	Weeded out		—	—

(Rs in Crore)

Sl. No.	Name of the Scheme	NINTH PLAN (1997-2002)		Application of ZBB Techniques	Sl. No.	TENTH PLAN (2002-07)	
		Outlay	Act. Exp.			Name of the Scheme (Final outcome of ZBB)	Outlay
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
19.	GIA to Voluntary Organisations through CSWB and strengthening of its Field Organisations	70.03	53.36	Merged & Retained (As one single Umbrella Scheme 'Grant-in-aid to Central Social Welfare Board')	9.	Grant-in-aid to Central Social Welfare Board (i General Grant-in-Aid : 90.00 ii Condensed Courses : 14.00 iii Awareness Projects : 21.00 iv Short Stay Homes : 75.00 v Family Counselling : 80.00 Centres	280.00
20.	Condensed Courses of Education and Vocational Training for Women	45.60	19.54				
21.	Awareness Generation Project for Rural and Poor Women (AGP)	15.63	10.92				
22.	Education Work for Prevention of Atrocities against Women	1.50	0.81	Merged (Merged with Sl. No. 21 & transferred to CSWB)		—	—
23.	Short Stay Homes (SSH)	55.64	25.53	Transferred to CSWB		—	—
24.	Socio-Economic Programme	26.42	4.92	Weeded out		—	—
25.	Distance Education	3.60	2.81	Retained	10.	Distance Education	1.10
26.	National Resource Centre for Women (NRCW)	3.02	0.00	Weeded out		—	—
27.	Women's Empowerment Year 2001	0.00	12.51	Weeded out		—	—
28.	Scheme for Women in Difficult Circumstances (Swadhar)	0.00	0.08	Retained	11.	Scheme for Women in Difficult Circumstances (Swadhar)	100.00
	Total (B)	578.19	379.28				946.10
C. Grant-in-Aid and Other Schemes							
29.	GIA to Research, Publications & Monitoring	2.95	2.43	Merged & Retained (Merged with Sl.No. 36 and retained as one single umbrella Scheme 'GIA to Research, Publications & Monitoring'.)	12.	Grant-In-Aid to Research, Publications & Monitoring	32.61
30.	Organisational Awareness in the field of Women and Child Development	1.00	0.86				
31.	Programme Monitoring & Evaluation unit	1.20	0.02				
32.	Organisational Assistance to Voluntary Organisation	1.00	0.04	Weeded out		—	—
33.	Information and Mass Media	9.75	8.70	Retained	13.	Information and Mass Media	35.00
34.	NEMA	1.43	0.00	Weeded out		—	—
35.	Information Technology	0.50	1.45	Retained	14.	Information Technology	2.50
	Total (C)	17.83	13.50				70.11
	Total (A+B+C)	990.22	578.90				1123.21
D. Food and Nutrition Board							
36.	Research & Development	0.29	0.07	Merged (Merged with Sl.No. 29)		—	—
37.	Implementation of National Nutrition Policy	4.43	0.31	Merged & Retained (Renamed as 'Implementation of National Nutrition Policy and Nutrition Education'.)	15.	Implementation of National Nutrition Policy and Nutrition Education	10.00
38.	Fortification of Milk with Vitamin A	0.76	0.14				
39.	Capital Expenditure	0.32	0.21				
40.	Nutrition Education	12.51	7.74				

(Rs in Crore)

Sl. No.	Name of the Scheme	NINTH PLAN (1997-2002)		Application of ZBB Techniques	Sl. No.	TENTH PLAN (2002-07)	
		Outlay	Act. Exp.			Name of the Scheme (Final outcome of ZBB)	Outlay
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
41.	Production of Nutritious Food	0.16	0.16	Weeded out		—	—
	Total (D)	18.47	8.63				10.00
	E. New Schemes						
	—	—	—	—	16.	CRÈME	0.01
	—	—	—	—	17.	National Resource Centre for Women	25.00
	Total (E)						25.01
	Total - I (A to E)	1008.69	587.53				1158.22
	II. CENTRALLY SPONSORED SCHEMES (CSS)						
	A. Welfare & Development of Children						
42.	Integrated Child Development Services	4980.00	4556.86	Retained	18.	Integrated Child Development Services	10391.75
43.	World Bank Assisted ICDS Projects	1163.79	883.62	Retained (To be merged with Sl. No. 42 during 2004-05)	19.	World Bank Assisted ICDS Projects	1292.75
	—	—	—	—	20.	Training of ICDS Functionaries	462.26
44.	Balika Samridhi Yojana	390.00	176.64	To be transferred to States	-	Balika Samridhi Yojana (Awaiting NDC's approval)	100.00
	Total (A)	6533.79	5617.12				12246.76
	B. Welfare & Development of Women						
45.	Integrated Women's Empowerment Programme (Swayamsiddha)	165.00	8.95	Retained	21.	Integrated Women's Empowerment Programme (Swayamsiddha)	200.00
46.	Rural Women's Development and Empowerment Project (Swashakti Project)	102.94	36.00	Retained (To be merged with Sl. No. 45 during 2004-05)	22.	Rural Women's Development and Empowerment Project (Swashakti Project)	75.00
	Total (B)	267.94	44.95				275.00
	Total - (A+B)	6801.73	5662.07				12521.76
	C. New Schemes						
	—	—	—	—	23.	National Nutrition Mission	100.00
	—	—	—	—	24.	CIDA Asstt. Programme for Himachal Pradesh	0.01
	—	—	—	—	25.	ICDS IV	0.01
	Total - (C)						100.02
	Total - II (A+B+C)	6801.73	5662.07				12621.78
	Grand Total - I + II	7810.42	6249.60				13780.00

Note : 10% of the total outlay of the Department is earmarked for the North Eastern States.

CHAPTER 2.12

ART AND CULTURE

2.12.1 India's culture is characterised by a unique pluralistic ethos that has evolved over 5,000 years. At the same time, it is constantly evolving through a process of assimilation, providing creative expression, value systems and belief patterns to society. In the present day world, culture is not confined to merely being a manifestation of the urge for self-expression by individuals and communities but is also a vehicle for providing employment opportunities. With a large number of people dependent on the output of this sector, promotion of this sector is necessary to spur economic growth, apart from strengthening its role as an expression of the creative urges of the people.

2.12.2 There are three broad dimensions of culture: National Identity, Mass Media and Tangible and Intangible Heritage. National Identity revolves around questions like: Who are we? What is our national identity as Indians? What is our shared perception or history, lifestyles, values and beliefs? These are not questions of purely academic interest alone but serious questions having a bearing on the well being of the nation and its people. Mass Media comprises cinema, radio, television and print media. Tangible and Intangible Heritage includes, among other things, monuments, sites and archaeology; anthropology and ethnology; folk and tribal art; dance and drama; and visual arts in the form of painting, sculpture and graphics.

2.12.3 The Department of Culture operates Plan schemes of the Government of India for preserving and promoting the country's cultural heritage. It has a network of subordinate and attached offices, besides a number of other autonomous institutions/organisations, such as the Archaeological Survey of India (ASI) Delhi, Anthropological Survey of India Delhi, National Archives of India (NAI), Delhi, museums, libraries, academics, etc. The focus of

the schemes of the Department of Culture has been development of culture from the grassroot level and it has been working towards this in association with a network of institutions.

PROGRESS SINCE INDEPENDENCE

2.12.4 The thrust of the development plan has to be the preservation of the cultural heritage but with a thread of continuity that binds the diversities into a cohesive whole.

2.12.5 The main concentration in the early Five Year Plans, from the First to the Seventh Plan, was the establishment of cultural institutions in the field of archaeology, anthropology, and ethnography, archives, libraries, museums, academies etc. Central conservation laboratories were also established. Serious efforts were made in the Sixth Plan to recognise culture as one of the basic concepts to be integrated with all development activities particularly at all levels in the education sector so as to make it more relevant to day-to-day life. During the Seventh Plan, an added thrust was given to contemporary creativity, preservation, documentation and conservation of the cultural heritage and to established cultural institutions. A large number of programmes for the preservation of monuments and sites of national importance were also taken up on a priority basis. Efforts have also been made for strengthening regional and local museums, the Anthropological Survey of India, the Indira Gandhi Rashtriya Manav Sangrahalaya (IGRMS), Zonal Cultural Centres (ZCCs), Akademies, the Indira Gandhi National Centre for the Arts (IGNCA) and science museums. Emphasis was also laid on promoting tribal and folk culture through systematic documentation by the ASI India and promoting literacy through libraries and associated activities.

Progress in the Ninth Plan

2.12.6 Seven ZCCs were set up in various regions to create cultural awareness among people and to identify, nurture and promote the vanishing folk art traditions in the rural and semi-urban areas. These are: Eastern Zonal Cultural Centre (EZCC), Kolkata; North East Zonal Cultural Centre (NEZCC), Dimapur; West Zone Cultural Centre (WZCC), Udaipur; South Zone Cultural Centre (SZCC), Thanjavur; North Central Zone Cultural Centre (NCZCC), Allahabad, Central ZCC, Nagpur and North ZCC, Patiala. They have been active in organising various programmes in their areas of operation.

2.12.7 During the Ninth Plan period, the ZCCs were assigned two more activities – the Republic Day Folk Dance Festival and Craft Fair and documentation of vanishing folk art forms. The Department of Culture participates in the Republic Day parade every year through the ZCCs. The central theme for the Republic Day Folk Dance Festival in 2001 was 'Resurgent India'. A special programme called 'Umang' was organised on the occasion in which hundreds of handicapped children participated.

2.12.8 The National Cultural Fund (NCF) was constituted in 1996 in order to mobilise funds to preserve and promote Indian art, culture and heritage. All contributions made to it are wholly exempt from income tax. The following projects were implemented in collaboration with NCF during the Ninth Plan.

- i. Renovation of Shanivarwada in Pune.
- ii. Establishment of a cultural centre, 'Jnana Pravaha', in Varanasi to showcase the city's rich heritage.
- iii. Renovation and beautification of Humayun's Tomb in Delhi.

2.12.9 Five projects relating to heritage sites in the country, have been taken up in collaboration with Indian Oil Foundation of the Indian Oil Corporation. Memorandums of understanding (MoUs)

have also been signed with the Taj group of hotels and the Apeejay Surendra Group for the maintenance of the Taj Mahal in Agra and the Jantar Mantar in New Delhi respectively. The initiatives taken through the NCF have helped mobilise resources to the tune of Rs. 30 crore for the conservation and preservation of heritage sites and monuments.

2.12.10 Funds raised through the NCF are project-specific. The NCF, however, needs funds for its activities besides meeting its routine administrative expenses. For this purpose, the Government is committed to provide a corpus of Rs.19.25 crore against which a sum of Rs.6.01 crore has been released so far. There is a need to augment this amount, as the interest accruing on the corpus is insufficient to meet the requirements of the NCF.

2.12.11 Under the scheme for the Development of Cultural Organisations, the Ramakrishna Mission Institute of Culture, Kolkata, which is a branch of the Ramakrishna Mission, has been provided grant-in-aid during the Ninth Plan period.

2.12.12 There are various central schemes through which the Department of Culture is granting fellowships to outstanding artists, scholarships to young artists, and financial assistance to needy persons who are distinguished in the letters and arts etc. Financial assistance is also provided to professional groups and individuals for specific performing art projects and also to voluntary cultural organisations for the construction of buildings and purchase of equipment. There is also a separate scheme for financial assistance to groups and individuals to promote and disseminate the tribal/ folk art and culture. The Department provides grants to organisations engaged in the propagation and scientific development of Buddhist/Tibetan culture, tradition and research in related fields. It also provides funds to autonomous bodies for setting up multi-purpose cultural complexes including those for children.

2.12.13 The activities of the ASI, which is an attached office of the Department, has been expanded. Its existing activities include maintenance, conservation and preservation of centrally

protected monuments/sites, conducting archaeological explorations and excavations, chemical preservation of monuments and antiquities and remains, architectural survey of monuments, archaeological excavation outside India and maintenance of Archaeological Library etc. Over the past three years, the entry fee to various monuments has been increased. As a result, fee revenue has increased from Rs.7 crore a year to an estimated Rs.65 crore. Monuments have been divided into three different categories:- Group A, B and C. There are 26 monuments in Group A, 16 of which are included in the World Heritage List and 11 which have been proposed to the UNESCO for inclusion in the list. Group B consists of the other important 100 centrally protected monuments. The rest of the monuments have been placed in Group C and the ASI requires large amounts not only for refurbishing them but also to provide basic facilities for the tourists. Entry to Groups A and B monuments is ticketed, while it is free for those in Group C.

2.12.14 During the Ninth Plan, the National Museum, a subordinate office of the Department organised several exhibitions including 'Fifty Years of Supreme Court of India and the Indian Legal System', 'Sikh Heritage in Arts', 'Indigenous Chile', 'Medieval Art in Germany', 'Nizam Jewellery', 'Religious and Cultural Traditions of Bhutan' etc. It also undertook modernisation of its permanent galleries like the Harappan Civilisation Gallery. The Museum was also designated as the nodal agency for organising an exhibition on 'Use and Significance of Coral in Indian Jewellery and Handicrafts' at the Banca Di Credit, Naples, Italy. In addition, an exhibition of original works of Pablo Picasso was organised at the Museum premises in Delhi.

2.12.15 The Allahabad Museum and the Salar Jung Museum, Hyderabad, took up several activities ranging from photographic exhibitions, (Glimpses of 53 Himalayan Peaks, Buddhist Shrines), to lectures (The World of Shrijan Parvis, Upendranath Ishq ke Natak, History as a Dialogue between Past and Present) and summer art camps for children, college students and professionals. In these camps, children are trained to draw with different mediums like crayons, watercolours, oil pastels and oils.

2.12.16 Inter-state exhibitions have also been organised at various museums, for example Panorama of Bengal Art at the Salar Jung Museum and one on Bengal paintings at the Bharat Kala Bhawan, Varanasi. Indian museums, in addition, organised various international exhibitions viz. Yogi and Buddha, Glimpse of Indus Valley Civilisation, Life of Buddha and Treasures of Indian Art from Germany. During the Ninth Plan, the National Council of Science Museums set up the Kurukshetra Panorama and Science Centre in Haryana and the Goa Science Centre. Besides, a new gallery, a Hall of Chemistry was inaugurated at the Regional Science Centre, Guwahati.

2.12.17 Repairs to the main building of the Victoria Memorial Hall, Kolkata and remodelling and renovation of five galleries have been entrusted to the ASI. The Victoria Memorial Hall organised a number of exhibitions including two major ones on the 'War of Independence of 1857' and 'Contemporary Art of Bengal'. Son-et-lumiere, a sound and light programme depicting the history of Kolkata, was started during the Ninth Plan.

2.12.18 During Ninth Plan, the NAI carried out the appraisal of 1,64,948 records. Eighty-nine schedules were vetted under its programme of vetting of records retention schedule. A total of 504 Departmental Record Officers (DROs) were appointed from various central government organisations and public sector undertakings and the NAI conducted 22 orientation courses to train 294 DROs.

2.12.19 The National Library, Kolkata, undertook several major initiatives to upgrade and modernise its collection building programme, reader services and conservation of library material. The major activities completed during the Ninth Plan period were automating the circulation system in the lending section, setting up of a local area network, improved reader services and more efficient collection management. The conservation activities in the Library got a major fillip with the purchase of modern equipment to preserve rare books and other materials. Major renovations to the main building were taken up. Besides, the construction of a new building, 'Bhasha Bhawan', by the Central Public

Works Department (CPWD) was expedited. The new building would add 40,000 square metres of space to the National Library. Apart from being a reference centre for research scholars, the National Library provided periodic training to library professionals, particularly in the northeastern region and organised workshops, seminars and exhibitions across the country on relevant themes and issues. The Central Reference Library, Kolkata, which functions as a national bibliographic and documentation facility, computerised various functions during the Ninth Plan. As a result, the publication of the Indian National Bibliography is now up to date. These records are now available in electronic format for online viewing.

2.12.20 Funds were provided to the Delhi Public Library and Central Secretariat Library, Delhi, for acquisition of new material in different languages and media as well as for modernising their infrastructure. The benefits of these efforts can be seen in terms of improved reader services, networking and resource sharing. The Central Secretariat Library organised a number of computer training programmes to meet the emerging needs for resource sharing, standardisation of cataloguing formats and co-operative acquisition.

2.12.21 Funds for modernising and computerisation were also provided from central grants to the Connemara Library, Chennai, Thanjavur Maharaja Serfoji Sarasvati Mahal Library, Thanjavur and the State Central Library, Mumbai. Besides these, the Raja Ram Mohan Roy Library Foundation provided assistance through a number of matching and non-matching schemes to public libraries across the country for developing adequate stock of books and storage facilities, constructing buildings and holding seminars and workshops.

APPROACH AND ACTION PLAN FOR THE TENTH PLAN

2.12.22 The focus of the Tenth Plan has to be on the implementation of a comprehensive Plan for the preservation of the archaeological heritage and development of the monument complexes and museums. Further, efforts must also be made to preserve the archival heritage and promote

classical, folk and tribal art crafts and oral traditions, which are in danger of dying out.

2.12.23 The Department of Culture will continue to execute major schemes and programmes for promoting art and culture. Its Plan programme relating to the promotion, preservation and conservation of the cultural heritage of the country will be implemented through 34 attached/subordinate and autonomous offices/organisations and cultural institutions and through a number of schemes. Its activities and programmes have been organised under 11 broad heads. They are Promotion and Dissemination, Archaeology, Museums, Archives, Anthropology, Performing Arts, Libraries, Buddhist and Tibetan Institutes, IGNC, Activities for the Northeastern Region and Other Expenditure.

2.12.24 Besides continuing its on-going programmes, emphasis will be given to strengthening inter-organisational networks to introduce management-oriented approaches in the administration of cultural institutions. Networking among central museums will be strengthened, enabling these institutions to share their experience and resources in undertaking in-service training, organising exhibitions etc.

2.12.25 There is need to focus on areas like economic management of cultural institutions, scientific/technological principles of conservation, underwater archaeology etc. The scheme of financial assistance for strengthening of regional and local museums has also been revised, widening its scope for assisting smaller museums. Museums should be directed to emphasise more on digitalisation and documentation of works of art as a part of their Plan activities.

2.12.26 The ASI has 3,606 centrally protected monuments under its purview, which include the 16 in the World Heritage List. Apart from the maintenance of these monuments, work relating to structural conservation, chemical preservation and environmental development is also taken up on a regular basis. In the Tenth Plan, emphasis will be given to the formulation of perspective plans for the important monuments in each circle so as to ensure their integrated development. In the Tenth Plan, the

ASI will continue its excavation activities. However, in view of the resource constraints, there is an urgent need to involve the departments of history and archaeology of universities in the survey of heritage sites in a time-bound manner.

2.12.27 Due to industrialisation and the pressures of urban growth, encroachments pose a serious problem for monuments. Consequently, stress has been laid on demarcating the protected limits of monuments and to provide a grill/crimped-mesh fencing around them. In addition, proposals to acquire the vacant land around the monument will also be taken up. These plots will be landscaped in order to provide an aesthetic environment.

2.12.28 The Government of India has signed a MoU with the Cambodian government for the conservation of the Ta Prohm group of temples in Siem Reap in that country. This project, initiated by the Ministry of External Affairs, will be taken up during the Tenth Plan.

2.12.29 The major excavation projects of the ASI presently under way are (a) Dholavira - a Harappan city in Kachchh, Gujarat; (b) Dhalewa - a proto-Harappan settlement in Punjab; (c) Sravasti - an early historical city in Uttar Pradesh; and (d) Kanaganahalli-Sannati - a Buddhist stupa in Karnataka.

2.12.30 More recently, Hathab, a centre of Indo-Roman maritime trade in Saurashtra, Gujarat, has been discovered. Excavations of a rich Buddhist monastery at Udaigiri in Orissa are also going on. Excavations have also been undertaken in Boxanagar in Tripura, and at Karenghar in Sibsagar, Assam. These excavations will continue during the Tenth Plan.

2.12.31 Another major excavation proposed to be taken up is at Arikamedu, the famous Indo-Roman site in Pondicherry. A new Underwater Archaeological Branch has been set up in the ASI for underwater archaeological investigations.

2.12.32 In West Bengal, excavations in Dum Dum next to Lord Clive's house have revealed antiquities

of the pre-Christian era. Similarly, excavations at Bellie Guard, Lucknow have exposed pre-1857 period buildings, identifiable with the British Residency. These excavations will be continued.

2.12.33 In the area of museum activity, the ASI will initiate the process of modernisation of galleries, digital documentation of antiquities, publication of catalogues, museum guides, picture postcards and other informative material. Simultaneously, work on eight new museums, which was started in the closing years of the Ninth Plan period, will be completed. These include the Cooch Behar Palace and Tamruk Museum in West Bengal, Sheik Chilli's museum at Thanesar in Uttar Pradesh and three new museums at Hampi in Karnataka.

2.12.34 In the academic segment, in addition to bringing out regular publications like *Indian Archaeology - A Review*, pending reports on excavations will be published. It is also proposed to revive the publication of *Ancient India*. In the publicity and information sector, 16 guidebooks will be published under the World Heritage Series, apart from posters and publicity literature.

2.12.35 In order to cope with the enhanced activities, infrastructure facilities (both administrative and technical) will be strengthened. Computerisation and modernisation of circle offices of the ASI will also get attention.

2.12.36 The major thrust in the Tenth Plan will be on modernisation of preservation facilities in order to accelerate the pace of repair and rehabilitation of records. Augmentation of facilities to speed up the preparation of microfilms to facilitate easy accessibility of records housed in the NAI will be carried out. It is also proposed to link the NAI and its regional offices, records, centres, state archive departments and departmental records room of all central government organisations through computers. Besides, support for the preservation of the documentary heritage will be continued through financial schemes being operated by the NAI. It is also proposed to develop the Conservation Research Laboratory, Lucknow and equipping it with various modern paper testing equipments.

2.12.37 During the Tenth Plan, the National Museum proposes to undertake computerisation work with the assistance of the National Informatics Centre (NIC). This would include setting up a local area network (LAN) and wide area network (WAN), digitalisation of its collection, microfilming of manuscripts and the introduction of equipment for audio tours, etc.

2.12.38 Eight new galleries are to be set up in the Victoria Memorial Hall during the Tenth Plan. A huge volume of conservation and restoration work remains to be carried out. The work of documentation and creation of a computerised catalogue of art objects is to be completed during the Plan period. Exhibitions on Mughal manuscripts and one on Tipu Sultan is to be organised jointly with the ASI, both at the Victoria Memorial Hall as well as at Srirangapatnam. Seventeen new galleries will be added to the Salar Jung Museum and the construction of the second and third wings of the National Gallery of Modern Art, New Delhi will be taken up.

2.12.39 The problem of time and cost overruns, has to be viewed seriously, in view of the constraint of resources. The pace of construction work by the CPWD needs to be monitored closely.

2.12.40 In the library sector, the Department proposes to give a further push to the modernisation of central and public libraries during the Tenth Plan. A National Bibliographic Database in electronic format would be developed to encourage resource sharing, networking and to improve reader services. Retro-conversion of existing records in electronic formats would be taken up in the National Library, the Central Secretariat Library and the Delhi Public Library. Similar efforts would be extended to the public libraries through the Raja Ram Mohan Roy Library Foundation. It is proposed to upgrade the conservation laboratory in the National Library as well as the Oriental libraries such as Rampur Raza Library, Kolkata and Khuda Baksh Oriental Public Library, Patna. Substantial funds are proposed to be given for the completion of the Bhasha Bhawan building of the National Library. Construction of new buildings and extensive renovations in order to add space is envisaged at the Khuda Baksh Oriental

Public Library and the State Central Library, Thanjavur Maharaja Serofji Sarasvati Mahal Library and Connemara Public Library. Besides, the Department proposes to construct a hostel for readers at the National Library.

2.12.41 Preservation/digitalisation of rare manuscripts, historical document/paintings needs to be done in a time-bound manner to save them from the ravages of time. The Tenth Plan will pay greater attention to modernisation, upgrading of the existing libraries, including private collections.

2.12.42 With a view to making readers services more comprehensive and effective, it is proposed to widen the programme for bibliographic control and documentation. The National Library is expected to act as the ultimate referral centre for various subjects during the Tenth Plan. To keep pace with the latest developments in information technology in public libraries, the upgrading and networking of central and state libraries is also planned.

2.12.43 The Department of Culture had undertaken a zero-based budgeting exercise to find out the efficacy of schemes in operation during the Ninth Plan period. As a result of the exercise, the following Plan schemes were recommended for discontinuation:

- i. Multipurpose Cultural Complexes, Guwahati.
- ii. India Library.
- iii. Strengthening of small libraries.
- iv. Rajiv Gandhi Memorial, Sriperumbudur.
- v. Maintenance of national memorials.
- vi. Celebration of centenaries.
- vii. Celebration of the Golden Jubilee of Independence.

2.12.44 One scheme, Promotion of Literary Books and Magazines, was transferred to the Sahitya Academy and the Developing Library Network scheme was merged with another ongoing scheme, the National Policy on Library and Information System. Nine Plan schemes are thus to be weeded out in 2002-03.

2.12.45 The corpus fund of each ZCC is proposed to be increased by a suitable amount in the Tenth Plan as these centres have been finding it difficult to meet increased administrative and programme expenses, especially given the declining accruals on account of lowering of interest rates.

2.12.46 During the Tenth Plan, the Anthropological Survey of India will undertake study of DNA for property evaluation/assessment of ancient skeleton remains, physical growth of adolescents and study the cultural dimensions of tourism, dormitory system amongst tribes etc. It will also take up work relating to strengthening of infrastructure, training and orientation, publication programme and research in physical anthropology.

THE PATH AHEAD

2.12.47 Efforts are to be made for the preservation of the country's archaeological heritage and development of monument complexes and museums, besides the archival heritage. Efforts will also be made to promote classical, folk and tribal art crafts and oral traditions, which are in danger of dying out.

2.12.48 The publication of pending archaeological excavations reports will be expedited.

2.12.49 Emphasis must be laid on strengthening inter-organisational networks to introduce a management-oriented approach in the administration of cultural institutions. Net-working amongst central museums will be strengthened enabling these institutions to share their experience and resources in undertaking in-service training, organising exhibitions etc.

2.12.50 Formulation of perspective plans for the important monuments in each circle so as to ensure their integrated development.

2.12.51 The ASI will strengthen the process of modernisation of galleries, digital documentation of antiquities, publication of catalogues, museum guides, picture post-cards and other informative material.

2.12.52 The National Museum proposes to undertake computerisation work with assistance of the NIC, including setting up LAN and WAN, digitalisation of its collection, micro-filming of manuscripts and equipment for audio tours, etc.

2.12.53 The Schemewise break up of Tenth Plan outlay of the Department of Art and Culture is given in the Appendix.

CHAPTER 3.1

SECTORAL OVERVIEW

3.1.1 In order to improve the standard of living of the people, availability of gainful employment to the entire labour force is a necessary pre-requisite. The projected 8 per cent gross domestic product (GDP) growth over the Tenth Plan period together with appropriate macro economic policies and promotion of labour intensive sectors, should lead to the creation of employment opportunities in excess of the addition to the labour force. This, in turn, would lead to substantial reduction in the incidence of unemployment. However, it is recognized that the number of poor far exceed the number of the unemployed. This is attributable to the fact that people are working, but at low levels of productivity and wages. Therefore, in the short run, it is necessary to evolve policies and programmes to address the problems of those, who are bypassed in the process of growth. In the era of economic reforms it is even more important for the State to intervene in order to protect the poor and under-employed from the adverse impact of the reform process through a well-conceived social safety net.

3.1.2 Direct State intervention for poverty alleviation is an on-going process with specific programmes for providing employment to those living below the poverty line (BPL), and ensuring access to subsidized foodgrains for the targeted poor, with the objective of food and nutritional security for the people. In addition, the problem of labour force in the informal sector have to be addressed more sharply. This section covers these aspects in some detail.

Anti-Poverty Programmes

3.1.3 The major anti-poverty programmes aimed at providing self-employment and supplementary wage employment to people living below a defined poverty line have been in existence for over two decades. However, these have been restructured periodically in order to improve their efficacy as

instruments of poverty reduction. The Ninth Plan further recognized the need to redesign and rationalize these programmes. The erstwhile Integrated Rural Development Programme (IRDP) and its several sub-schemes have been merged into a single self-employment programme called the Swarnajyanati Gram Swarozgar Yojana (SGSY). The approach is a holistic one, through formation of self-help groups with capacity building, selection of activity clusters, infrastructural support, technology, credit and market access as essential ingredients built into the programme. In the Tenth Plan, the SGSY will be a process oriented programme with a focus on social mobilization and group formation in the first phase, thrift and credit amongst the members of the group augmented by a revolving fund in the second phase, and access to credit from micro finance institutions in the third phase. Micro enterprises would only be taken up when groups acquire the entrepreneurial abilities, know-how and market access in the fourth stage. Local people would be trained as animators and facilitators through a systematic programme especially in areas where Non-government organisations (NGOs) do not exist.

3.1.4 There would be single wage employment programme, namely, the Sampoorna Gramin Rozgar Yojana (SGRY), instead of the Jawahar Rozgar Yojana and Employment Assurance Scheme, wherein the benefits would accrue to the people by way of direct transfer benefits through wage payments with some indirect benefits accruing through the creation of rural infrastructure. Under the SGRY the payment of wages would be partly in foodgrains and partly in the form of cash, which would ensure a minimum level of food security for the poor. At the village level, the works would be largely labour intensive for the creation of rural infrastructure. Further, in selected backward districts, it is envisaged that 100 mandays of employment would be generated per person with an element of guarantee.

Public Distribution System

3.1.5 The public distribution system (PDS) has been in operation for a long time, but it was not perceived as a part of the anti-poverty strategy. The importance of an effective mechanism that ensures availability of food at affordable price at household level for the poor, was reflected in the launch of the Targeted Public Distribution System (TPDS) in 1997. Each poor family was entitled to 10 kgs. of foodgrain per month at specially subsidized prices. The allocation to BPL families was later increased from 10 kgs to 20 kgs at 50 percent of the economic cost. Further, under the Antodaya Anna Yojana 25 kgs of food grain were to be provided to the poorest of the poor families at a highly subsidized rate of Rs.2 per kg of wheat and Rs. 3 per kg for rice. Consequently, the off-take under TPDS improved at the national level. Yet, in some States, the off-take is abysmal despite high levels of poverty. To make the implementation of TPDS more effective, it is desirable to restrict if only & The provision of rice and wheel at subsidised prices and the coverage of TPDS should be limited only to the BPL families. Stability in foodgrain prices could be ensured through maintenance of buffer stocks and open market operations of the Food Corporation of India (FCI).

3.1.6 Further, in order to contain the level of food subsidy, restrictions on inter-state movement of foodgrain should be removed. Instead of issuing ration-cards, food stamps should be distributed to the beneficiaries. This would prevent leakages and reduce cost. While the first best system would be the use of smart cards in the form of a food credit/debit card, this is not feasible immediately.

3.1.7 Given that the stock of foodgrains is well above the buffer stock norms, there is a problem of managing the surplus. There is a need to take a re-look at the Minimum Support Price (MSP) scheme, which has served its purpose. The erstwhile deficit States have started generating surpluses and if procurement is extended to these States, there would be a problem of stocking these surpluses. Yet, it would not be fair if farmers from selected areas corner all the benefits of MSP. Hence, it is necessary to decentralize procurement and distribution. There is need to provide price incentives for increase in production of pulses and oil seeds. There is need

for reforms in the food sector, which would benefit both producers and consumers of food. These would include amendment of the Essential Commodities Act, 1955 competitive grain procurement, delicensing of all agro-based and food processing industries, no restrictions of export of agricultural commodities and lifting of the ban on futures' trading among others.

Food and Nutritional Security

3.1.8 Data from research studies and clinical experience shows that social and economic deprivation lead to under-nutrition and poor health. In spite of huge buffer stocks, and anti-poverty programmes which generate income in the hands of the poor, 8 percent of Indians do not get two square meals a day and there are pockets where severe under-nutrition takes its toll even today. Every third child born is under weight. Low birth weight is associated not only with higher infant mortality but also long-term health consequences including increased risk of non-communicable diseases. In the last five decades the mortality rate has come down by 50 percent and the fertility rate by 40 percent but the reduction in under nutrition is only 20 percent. Around half of the pre-school children suffer from under-nutrition. Micronutrient deficiencies are widespread; more than half the women and children are anaemic; reduction in Vitamin-A deficiency and iodine deficiency disorders (IDD) is sub-optimal. Under nutrition and anaemia adversely affect work capacity and productivity.

3.1.9 During the Tenth Plan there will be focused and comprehensive interventions aimed at improving the nutritional and health status of the individuals. There will be a paradigm shift from household food security and freedom from hunger to nutrition security for the family and the individual. Untargeted food supplementation will be replaced by screening of all the persons from vulnerable groups, identification of those with various grades of under-nutrition and appropriate management.

Labour Welfare

3.1.10 Labour policy (including the measures taken for skill development and social security) has, by and large, remained focused at the organized sector,

which has a very small share in total labour force and has in any case a reasonable level of income for its average worker. However, it is possible to reach out to the entire labour force through the labour market institutions over a period of five to ten years.

3.1.11 As the essential condition for improving the lot of labour is the availability of gainful employment to the entire labour force, the labour policy has to interact closely with the economic policy that concerns growth of labour intensive sectors, such as; agriculture, agro forestry, animal husbandry, livestock, horticulture, fisheries, rural non-farm activities, Khadi and Village Industries Commission (KVIC), road transport and road construction, retail and distributive trade, education and vocational training services. At present, these economic activities are dominated by the informal sector and the small & medium enterprises. In the Tenth Plan, economic infrastructure to support these will be strengthened. Support from micro-credit and

insurance industry will be enhanced to meet the capital needs and to cover risk in such ventures.

3.1.12 To reach out to the entire labour force including those employed in the informal sector, many of the existing institutions, laws and programmes will have to be restructured. These pertain broadly to

- Reform of vocational training system
- Occupational safety and health
- Labour regulations
- Social security of workers

3.1.13 Over a period of five to ten years, it is expected that the labour market institutions for productivity improvement, safety, health and social security of workers will reach bulk of the labour force through simplified procedures, and policies and programmes that are especially designed for the small establishments.

CHAPTER 3.2

POVERTY ALLEVIATION IN RURAL INDIA – STRATEGY AND PROGRAMMES

3.2.1 At the beginning of the new millennium, 260 million people in the country did not have incomes to access a consumption basket which defines the poverty line. Of these, 75 per cent were in the rural areas. India is home to 22 per cent of the world's poor. Such a high incidence of poverty is a matter of concern in view of the fact that poverty eradication has been one of the major objectives of the development planning process. Indeed, poverty is a global issue. Its eradication is considered integral to humanity's quest for sustainable development. Reduction of poverty in India, is, therefore, vital for the attainment of international goals.

3.2.2 Agricultural wage earners, small and marginal farmers and casual workers engaged in non-agricultural activities, constitute the bulk of the rural poor. Small land holdings and their low productivity are the cause of poverty among households dependent on land-based activities for their livelihood. Poor educational base and lack of other vocational skills also perpetuate poverty. Due to the poor physical and social capital base, a large proportion of the people are forced to seek employment in vocations with extremely low levels of productivity and wages. The creation of employment opportunities for the unskilled workforce has been a major challenge for development planners and administrators.

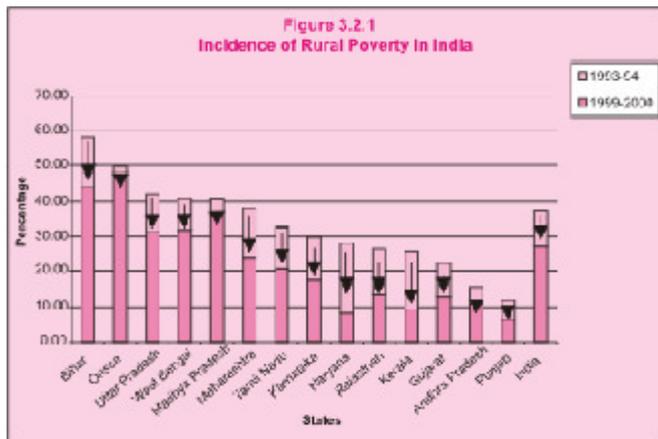
3.2.3 Poverty alleviation has been one of the guiding principles of the planning process in India. The role of economic growth in providing more employment avenues to the population has been clearly recognised. The growth-oriented approach has been reinforced by focusing on specific sectors which provide greater opportunities to the people to participate in the growth process. The various dimensions of poverty relating to health, education and other basic services have been progressively internalised in the planning process. Central and state

governments have considerably enhanced allocations for the provision of education, health, sanitation and other facilities which promote capacity-building and well-being of the poor. Investments in agriculture, area development programmes and afforestation provide avenues for employment and income. Special programmes have been taken up for the welfare of scheduled castes (SCs) and scheduled tribes (STs), the disabled and other vulnerable groups. Anti-poverty programmes that seek to transfer assets and skills to people for self-employment, coupled with public works programmes that enable people to cope with transient poverty, are the third strand of the larger anti-poverty strategy. The targetted public distribution system (TPDS) protects the poor from the adverse effects of a rise in prices and ensures food and nutrition security at affordable prices.

3.2.4 The success of the anti-poverty strategy can be gauged from the decline in poverty levels from 37.27 per cent in 1993-94 to 27.09 per cent in 1999-2000 in the rural areas. In absolute terms, the number of rural poor fell below the 200 million mark for the first time since 1973-74. However, this achievement falls short of the Ninth Plan projections. At the beginning of the Plan, it was projected that, with a growth target of 6.5 per cent per annum during the Plan period, only 18.61 per cent of the population would be below the poverty line by 2001.

3.2.5 This shortfall can be attributed largely to the uneven performance of states in poverty alleviation. The distribution of poor across states is also disparate, with Uttar Pradesh, Bihar, Madhya Pradesh, West Bengal and Orissa accounting for 69 per cent of the poor in 1999-2000. Figure 3.2.1 depicts broad estimation of rural poverty across major states between 1993-94 and 1999-2000.

3.2.6 Kerala, Haryana, Bihar, Himachal Pradesh, Karnataka and Rajasthan experienced a sharp reduction in poverty levels (a drop of more than 12



percentage points between 1993-94 and 1999-2000). Uttar Pradesh, West Bengal and Tamil Nadu also registered significant reduction in poverty (8-12 percentage points). However, Orissa and Madhya Pradesh have shown virtually no reduction in poverty levels. In fact, these are the states where the absolute number of poor has actually gone up between 1993-94 and 1999-2000.

ANTI-POVERTY PROGRAMMES IN THE NINTH PLAN

Integrated Rural Development Programme/ Swarnajayanti Gram Swarozgar Yojana

3.2.7 The Integrated Rural Development Programme (IRDP), introduced in selected blocks in 1978-79 and universalised from 2 October 1980 has provided assistance to rural poor in the form of subsidy and bank credit for productive employment opportunities through successive plan periods. Subsequently, Training of Rural Youth for Self Employment (TRYSEM), Development of Women and Children in Rural Areas (DWCRA), Supply of Improved Tool Kits to Rural Artisans (SITRA) and Ganga Kalyan Yojana (GKY) were introduced as sub-programmes of IRDP to take care of the specific needs of the rural population. These schemes were, however, implemented as 'stand alone programmes', an approach which substantially detracted from their effectiveness. The Mid-Term Appraisal of the Ninth Plan had indicated that these sub-programmes "presented a matrix of multiple programmes without desired linkages". The programme suffered from sub critical investments, lack of bank credit, over-crowding in certain projects,

and lack of market linkages. The programme was basically subsidy driven and ignored the processes of social intermediation necessary for the success of self-employment programmes. A one-time provision of credit without follow-up action and lack of a continuing relationship between borrowers and lenders also undermined the programme's objectives.

3.2.8 The marginal impact of self-employment programmes led to the constitution of a committee by the Planning Commission in 1997 to review self-employment and wage-employment programmes. The committee recommended the merger of all self-employment programmes for the rural poor and a shift from the individual beneficiary approach to a group-based approach. It emphasised the identification of activity clusters in specific areas and strong training and marketing linkages. The committee's recommendations were accepted by the Government.

3.2.9 On 1 April 1999, the IRDP and allied programmes, including the Million Wells Scheme (MWS), were merged into a single programme known as Swarnajayanti Gram Swarozgar Yojana (SGSY). The SGSY is conceived as a holistic programme of micro enterprise development in rural areas with emphasis on organising the rural poor into self-help groups, capacity-building, planning of activity clusters, infrastructure support, technology, credit and marketing linkages. It seeks to promote a network of agencies, namely, the District Rural Development Agencies (DRDAs), line departments of state governments, banks, NGOs and panchayati raj Institutions (PRIs) for implementation of the programme. The SGSY recognises the need to focus on key activities and the importance of activity clusters. The programme has in-built safeguards for the weaker sections. It insists that 50 per cent of the self-help groups must be formed exclusively by women and that 50 per cent of the benefits should flow to SCs and STs. There is also a provision for disabled beneficiaries. The programme is credit driven and subsidy is back-ended. The credit and subsidy ratio is pegged at 3:1. The subsidy is fixed at 30 per cent of the project cost subject to a maximum of Rs. 7,500 per individual beneficiary for those in the general category and 50 per cent of

Box: 3.2.1**Self-Help Groups under Swarnjayanti Gram Swarozgar Yojana (SGSY) in Tamil Nadu**

I. In Mathur village of the Dharmapuri district of Tamil Nadu, 100 women from eight self-help groups were trained in fruit processing by a non-government organisation (NGO). They availed of assistance under SGSY to run a fruit processing unit registered under the name of Sathyamurthi Mahalir Mandram in May 2000. In addition, the unit was provided Rs.8 lakh under the SGSY infrastructure fund for purchasing pouching, shrink pack and other machines. The unit produces fruit squash, jam, ready-to-serve beverages, pickle, etc. made from mango, pineapple, grape, lemon and onion under the brand name of SWARNA. It has been granted a Fruit Products Order (FPO) licence. The unit has engaged the services of a food technologist and emphasis is laid on the quality of the products, proper hygiene and attractive packaging. SWARNA products are sold to local retail shops and in district and state-level exhibitions. The marketing of SWARNA products is done by two NGOs — Sarvodaya Sangam Vellore and Sarvodaya Sangam, Thirupattur. The group members maintain accounts themselves.

Members of the group engaged in processing activities are given employment on rotation basis and the monthly income of a member is not less Rs. 1,000. As a result of the high volume of sales, the group has been able to construct a new building for housing the unit at a cost of Rs. 10 lakh. Apart from raising the economic status of the group members, this venture has made the members more aware and they are actively involved in Government schemes, camps and campaigns. They attend gram sabha meetings and have made representations for provision of basic facilities in their village and overall development of the area.

II. In the Vilpatti village of Dindigul district, 45 below poverty line women from three self-help groups assisted by an NGO and aided under SGSY received training in dry flower arrangement from an art gallery. In November 2000, under the cluster approach, the three groups formed a confederation named BIRIJA and are engaged in the collecting, processing and selling dry flowers. BIRIJA has a marketing tie-up with an art gallery to conduct exhibitions and sell their finished products. Within six months of the commencement of this venture, monthly sales touched to Rs. 70,000. The members receive an average net income of Rs.1500 per month. Apart from improving their living conditions, the members have gained confidence and are actively involved in social work, participating in the movement against illicit arrack and in gram sabha meetings.

(Source: Ministry of Rural Development, Government of India)

the project cost subject to a maximum of Rs. 10,000 in the case of SC/STs. In the case of group projects, the subsidy is 50 per cent of the project cost subject to a ceiling of Rs. 1.25 lakh. Funds under the scheme are shared between the Centre and state governments in the ratio of 75:25. The new approach to self-employment has made significant contribution to the empowerment of beneficiaries as evidence from the evaluation of SGSY in Tamil Nadu shows (Box 3.2.1).

3.2.10 Implementation of the programme between 1999-2000 and 2001-02 has highlighted many areas of concern. While the IRDP concentrated on individual beneficiaries, the SGSY

laid greater emphasis on social mobilisation and group formation. However, the DRDAs responsible for administering the programme did not have the requisite skills in social mobilisation. Linkages with NGOs, which could have facilitated this process, were also not in place. The programme, therefore, suffered in the initial years. Information on the physical and financial performance of IRDP/SGSY during the Eighth and Ninth Plans is given at Annexure-3.2.1. Central releases were substantially lower than the allocation as the field offices were not in a position to organise self-help groups which could be provided financial assistance. Credit mobilisation also suffered in the process. Against a target of Rs. 9,611 crore of credit, the achievement

during the last three years has been only Rs. 3,235 crore, i.e. 33.66 per cent of the target. In the last three years of the Ninth Plan, 7,67,141 self-help groups were formed. While 9,34,000 individuals were assisted in 1999-2000, 10,30,000 individuals were provided support in 2000-01. The coverage was considerably lower than around 2.2 million beneficiaries under IRDP every year during the Eighth Plan period.

Wage Employment Programmes

3.2.11 Wage employment programmes, an important component of the anti-poverty strategy, have sought to achieve multiple objectives. They not only provide employment opportunities during lean agricultural seasons but also in times of floods, droughts and other natural calamities. They create rural infrastructure which supports further economic activity. These programmes also put an upward pressure on market wage rates by attracting people to public works programmes, thereby reducing labour supply and pushing up demand for labour. While public works programmes to provide employment in times of distress have a long history, major thrust to wage employment programmes in the country was provided only after the attainment of self-sufficiency in food grains in the 1970s. The National Rural Employment Programme (NREP) and Rural Landless Employment Guarantee Programmes (RLEGP) were started in the Sixth and Seventh Plans.

Jawahar Rozgar Yojana/Jawahar Gram Samridhi Yojana

3.2.12 The NREP and RLEGP were merged in April 1989 under the Jawahar Rozgar Yojana (JRY). The JRY was meant to generate meaningful employment opportunities for the unemployed and underemployed in rural areas through the creation of economic infrastructure and community and social assets. Initially, the JRY also included the Indira Awas Yojana (IAY) and the MWS. Both these schemes were made into independent schemes in 1996. Under JRY, 73,764.83 lakh mandays of employment were generated till 1998-99. Employment generation progressively declined over the years, partly due to lower central allocations in the Ninth Plan and partly due to the increasing cost of creating employment.

3.2.13 A major proportion of JRY funds was spent on roads and buildings. Over 47 per cent of the employment generated benefited SC/STs. The share of landless labourers among the beneficiaries was 36 per cent. The village community found the assets created under the programme useful. However, against 40 per cent of population in a village panchayat who sought work, only 15 per cent were actually employed.

3.2.14 The JRY was revamped from 1 April 1999 as the Jawahar Gram Samridhi Yojana (JGSY). It now became a programme for the creation of rural economic infrastructure with employment generation as a secondary objective. The 60:40 wage labour/material ratio in the JRY was relaxed. The programme is implemented by the village panchayats and provides for specific benefits to SC/STs, the disabled and the maintenance of community assets created in the past. Since inception it has generated 27 crore mandays of employment each year (on an average), a substantial drop from the 103 crore mandays generated under JRY in the year 1993-94.

3.2.15 The works taken up under JGSY have not been comprehensively evaluated for their quality and employment potential. Initial reports from the states, however, indicates that since every village panchayat has to be covered by the scheme, many panchayats get less than Rs. 10,000 per annum. Except for states like Kerala, West Bengal and Orissa, where village panchayats cover large areas and get substantial funds under the scheme, in other states most panchayats get less than Rs. 50,000 per annum. Benefits to the SC/STs and the disabled have to be earmarked. In addition, the administrative expenses of the panchayat and expenditure on assets already created are to be met from JGSY funds. In effect, panchayats are left with very little money to take up meaningful infrastructure projects.

Employment Assurance Scheme

3.2.16 The Employment Assurance Scheme (EAS) was launched on 2 October 1993 covering 1,778 drought-prone, desert, tribal and hill area blocks. It was later extended to all the blocks in 1997-98. The EAS was designed to provide employment in the form of manual work in the lean

agricultural season. The works taken up under the programme were expected to lead to the creation of durable economic and social infrastructure and address the felt-needs of the people. The scheme prohibited construction of buildings for religious purposes, monuments, memorials, welcome gates, panchayat buildings, government office buildings and buildings for higher secondary schools and colleges. It also provided for maintenance of assets created in the past under the scheme. Initially, the scheme was demand-driven but from 1999, resources were allocated to states based on the incidence of poverty.

3.2.17 The EAS is a centrally-sponsored scheme, with the Centre providing 75 per cent of the funds and the states 25 per cent. The zilla parishads and panchayat samitis were the implementing agencies. Annexure 3.2.1 provides details of the physical and financial performance of the scheme during the Eighth and Ninth Plan periods. While 10,719.59 lakh mandays of employment were generated during the Eighth Plan, 4,717.74 lakh mandays of employment were generated in the first year of the Ninth Plan. Employment generation went down in subsequent years. The allocations between 1999-2000 and 2001-02 were also lower than the first two years of the Ninth Plan because watershed projects taken up for implementation under the EAS before April 1999 were transferred to Integrated Wasteland Development Programme (IWDP).

3.2.18 Though the creation of community assets has important spin offs for rural poverty and development, the impact of these programmes on employment and income has been limited. The universalisation of the scheme severely eroded its basic objective of providing assured employment in areas of extreme poverty and chronic unemployment. Allocations were based on a fixed criterion that did not specifically provide for regionally differentiated needs. This led to a very thin spread of resources across the country. As a result, even in the poorer regions, employment was provided for only 31 days (Programme Evaluation Organisation Study-2001). In many states, the works taken up were not labour-intensive. Cases of bogus reporting and fudged muster rolls have been reported. The efficacy of the programme was also affected by faulty project selection and the

absence of a coherent plan which integrated EAS projects in a long-term development strategy.

3.2.19 In spite of their many shortcomings, wage employment schemes have proved beneficial in some respects. They created much-needed rural infrastructure. The programmes are self-targeting in nature since only the poor come to work at minimum wage rates. The various works undertaken created demand for unskilled labour and exerted upward pressure on wage rates. The programmes have played a major role in protecting consumption patterns of the rural poor during natural calamities. A study conducted in four drought-affected districts of Rajasthan found that the consumption of foodgrains was higher in the drought years compared to normal years due to the wage employment programmes. Since PRIs were associated with the implementation of JRY /JGSY and EAS, government financing of panchayats strengthened these institutions and promoted better coordination between the village community and government departments. Box 3.2.2 summarises the findings of evaluation studies of EAS/JRY conducted in Rajasthan and Uttar Pradesh.

Food for Work Programme

3.2.20 The Food for Work programme was started in 2000-01 as a component of the EAS in eight notified drought-affected states of Chattisgarh, Gujarat, Himachal Pradesh, Madhya Pradesh, Orissa, Rajasthan, Maharashtra and Uttaranchal. The programme aims at augmenting food security through wage employment. Food grains are supplied to states free of cost. However, lifting of food grains for the scheme from Food Corporation of India (FCI) godowns has been slow. Against an allocation of 35.31 lakh tonnes of foodgrains, only 21.26 lakh tonnes were lifted by the target states up to January 2002.

Sampoorna Gramin Rozgar Yojana (SGRY)

3.2.21 Given the complementarity of the JGSY, EAS and Food for Work Programme, all of which aim at the creation of employment opportunities in the rural areas, they were revamped and merged

Box : 3.2.2**Impact of rural infrastructure/wage employment programmes.**

A study conducted in Ajmer, Udaipur, Pali and Jaisalmer in Rajasthan for the period 1995-2001 observed that, Employment Assurance Scheme (EAS), Jawahar Rozgar Yojana (JRY) and Jawahar Gram Samridhi Yojana (JGSY) funds were utilised mainly to create school buildings, health infrastructure or economic infrastructure such as roads shops etc. The facilities created in the villages contributed to increased economic activities. School buildings have helped in human capital formation especially for girls. Soil and moisture conservation works had an impact on the availability of work as they increased the irrigation potential and land productivity in the village. While the villagers expressed satisfaction on the construction of such works and their usefulness, it was felt that these schemes have not addressed some basic needs like availability of drinking water. Employment opportunities generated under wage employment programmes were limited, with only five to six persons in the village getting employment for around 30 days. The area development programmes viz, the Desert Development Programme(DDP) and the Border Area Development Programme (BADP) in Pali and Jaisalmer districts have helped in meeting some of the basic needs like water. However, different works have been undertaken by different departments ignoring the advantages of complementarity of works.

In Uttar Pradesh a study was conducted in 20 villages in 10 districts viz., Bareilly, Aligarh, Meerut/ Baghpat, Deoria, Jaunpur, Allahabad/Kaushambi, Fatehpur, Unnao, Hamirpur and Pithoragarh. The study revealed that during 1999-2000, some work was found to have been done in each of the villages under the employment generation programmes although the quantum varied. The most common work undertaken was earth work or *kharanja* (brick path) within the village or the construction of link roads. Panchayat buildings were constructed in some villages. Other works included installing of hand pumps, repairing of old wells for drinking water and school buildings and construction of drains. While the improvement in infrastructure enhances the development potential of the region, a very small percentage of casual labourers had benefited from the programmes. The average number of the days of employment available to the sample beneficiaries was 14.7 days only.

Source :

- (i) Countering Uncertainties – Strategies for Sustainable Livelihood : An assessment of the impact of poverty reduction programmes on the poor in Rajasthan – Institute of Development Studies, Jaipur.
- (ii) Anti-Poverty Programmes in Uttar Pradesh : An Evaluation – Institute of Human Development, New Delhi.

under the new Sampoorna Gramin Rozgar Yojana (SGRY) scheme from September 2001. The basic aim of the scheme continues to be generation of wage employment, creation of durable economic infrastructure in rural areas and provision of food and nutrition security to the poor. The amalgamation of the earlier schemes has led to an augmentation of resources for this programme. The works taken up under the programme are labour-intensive and the workers are paid the minimum wages notified by the states. Payment of wages is done partly in cash and partly in kind - 5 kg of foodgrains and the balance in cash. The Centre and the states share the cost of the cash component of the scheme in the ratio of 75:25. An

allocation of Rs. 3750 crore was made for the programme in 2001-02.

3.2.22 A review of various wage employment programmes during the Ninth Plan shows that there has been a considerable reduction in terms of allocation as well as in employment generation. This was largely due to changes in allocation for rural development schemes during the Plan period. The allocation by both the Centre and the states under JRY went down from Rs. 18,691 crore in the Eighth Plan to Rs. 11,688 crore in the Ninth Plan. As the EAS was launched only in 1993-94 and was initially a demand driven scheme, it would be difficult to compare EAS allocations in the Eighth

and Ninth Plan periods. However, even here it is seen that the allocations have fallen in the later half of the Ninth Plan period.

3.2.23 The allocation for wage employment programmes, at current prices, in the Ninth Plan was only 88 per cent of what they were in the Eighth Plan. In real terms, the allocations were much lower. A decline in allocation coupled with the increased cost of providing employment meant that as against 513 crore mandays of employment generated under JRY and EAS in the Eighth Plan, only 286 crore mandays of employment were generated under JRY/JGSY and EAS in the Ninth Plan.

3.2.24 The reduction in allocation for wage employment was compensated by increased allocation for some programmes and initiation of new schemes. For example, there was a substantial increase in allocation for IAY. Many other programmes taken up during the Plan period have generated employment in the rural areas. The construction of houses under IAY, programmes of rural connectivity and watershed development have fairly high employment elasticities. However, it is difficult to estimate whether these programmes were able to offset the reduction in employment generated through specific wage employment programmes.

Rural Housing

3.2.25 Initiated in 1985-86, the IAY is the core programme for providing free housing to BPL families in rural areas and targets SC/STs households and freed bonded labourers. It was first merged with the JRY in 1989 and then spun off into a separate housing scheme for the rural poor in 1996. The Ninth Plan Housing Programme under IAY was framed in the light of the National Housing and Habitat Policy 1998, which set an ambitious target of providing shelter for all in the rural areas by the end of the Plan period. The allocations by the central and state governments for the programme during the Ninth Plan were substantially higher than in the Eighth Plan. In spite of this, the housing programme under IAY has not achieved the stated objectives. As against a requirement of 109.53 lakh new and upgraded houses between 1997-98 to 2001-02, the actual construction during the period is estimated at 45

lakh houses. This, however, is a quantum jump over the Eighth Plan achievement of 26 lakh houses.

3.2.26 An evaluation of the IAY shows that while the programme has certainly enabled many BPL families to acquire *pucca* houses, the coverage of the beneficiaries is limited given the resource constraints. In addition, there have also been high level of leakages with a large number of non-eligible beneficiaries getting houses. The fact that houses are provided free of cost under IAY has meant that there has been virtually no progress in the other sub-schemes of IAY such as credit-cum-subsidy scheme for rural housing. This scheme, introduced in 1999-2000 to provide assistance for construction of a house to people below double the poverty line income, provides a subsidy of Rs. 10,000 and a construction loan of up to Rs. 40,000 per household. However, it failed to pick up and only 42,000 houses were constructed under the scheme between 1999 and 2001. The Samagra Awas Yojana (SAY) was taken up in 25 blocks to ensure convergence of housing, provision of safe drinking water, sanitation and common drainage facilities. The achievements under this scheme were equally unsatisfactory. A mere 30 projects have been sanctioned since the inception of the scheme and only Rs. 7.07 crore disbursed. Similarly, progress under various innovative schemes for rural housing and habitat development, which seek to encourage the use of cost-effective, environment-friendly modern designs have been equally dismal.

3.2.27 The Housing and Urban Development Corporation (HUDCO) has extended its activities to the rural areas, providing loans at a concessional rate of interest to economically weaker sections and low-income group households for construction of houses. HUDCO's rural housing programme was given a major boost in the Ninth Plan. The Government provided equity support for the construction of rural houses and a sum of Rs.350 crore was released to the Corporation. In the 1997-2002 period, HUDCO sanctioned 799 schemes for the construction of 50.97 lakh dwelling units at a total cost of Rs. 3991.73 crore. The regional spread of HUDCO's sanctions indicates that only Andhra Pradesh, Tamil Nadu, Karnataka, Kerala, Orissa and West Bengal took advantage of the scheme. States like Bihar, Uttar Pradesh, Madhya Pradesh, Rajasthan and Assam were not covered under the programme. One of the reasons for the lukewarm

response to the scheme could be the IAY itself, which is a 100 per cent subsidy programme. Besides, HUDCO's rural housing scheme consists of a loan component and a grant component. State governments prefer the grant-based programme to the loan-based programme.

Social Security Programmes

3.2.28 Democratic decentralisation and centrally-supported Social Assistance Programmes were two major initiatives of the government in the 1990s. The National Social Assistance Programme (NSAP), launched in August 1995 marks a significant step towards fulfillment of the Directive Principles of State Policy. The NSAP has three components:

- National Old Age Pension Scheme (NOAPS);
- National Family Benefit Scheme (NFBS);
- National Maternity Benefit Scheme (NMBS).

3.2.29 The NSAP is a centrally-sponsored programme that aims at ensuring a minimum national standard of social assistance over and above the assistance that states provide from their own resources. The NOAPS provides a monthly pension of Rs. 75 to destitute BPL persons above the age of 65. The NFBS is a scheme for BPL families who are given Rs. 10,000 in the event of the death of the breadwinner. The NMBS provides Rs. 500 to support nutritional intake for pregnant women. Table 3.2.1 provides details of expenditure and the number of beneficiaries covered under the scheme since inception.

3.2.30 The coverage under NSAP is limited due to resource constraints. For example, against the target of 8.71 million eligible beneficiaries for old-age pension in 1999-2000, only about 5 million beneficiaries were provided assistance from central funds. Many states implement the pension scheme from their own resources. However, in the states that do not have their own scheme, a central pension of Rs. 75 per month is clearly inadequate to provide relief to old, indigent persons. A redeeming feature of the scheme, though, is that the benefits have indeed reached the poor and leakages under the scheme are low compared to many other government programmes.

3.2.31 In addition to NSAP, the Annapurna scheme was launched from 1 April 2000 to provide food security to senior citizens who were eligible for pension under NOAPS but could not receive it due to budget constraints. The scheme seeks to cover 20 per cent of persons eligible for NOAPS. These beneficiaries are given 10 kg of foodgrains per month free of cost. However, there have been major problems in the implementation of the Annapurna scheme. Haryana, Karnataka and Tamil Nadu did not agree to implement the scheme in its present form. Many other states wanted modifications before implementing it. During 2000-01, only 19,000 metric tonnes (mt) of foodgrains was lifted by ten states. As against an allocation of Rs. 99.05 crore in 2000-01, actual expenditure was only Rs. 17.44 crore. The performance in 2001-02 was equally unsatisfactory. Against a targetted coverage of 1.34 million persons, the actual

Table: 3.2.1
Financial and Physical Performance under the National Social Assistance Programme

Sl.	Year	NOAPS		NFBS		NMBS	
		Expend. (Rs. crore)	No. of Beneficiaries	Expend. (Rs. crore)	No. of Beneficiaries	Expend. (Rs. crore)	No. of Beneficiaries
1	1995-96	109.88	2,937,677	43.44	2,84,260	24.50	6,57,891
2	1996-97	319.55	4,760,327	92.00	1,66,090	52.63	1,282,025
3	1997-98	365.19	5,087,830	130.56	2,18,456	54.70	1,557,292
4	1998-99	467.15	5,080,821	188.02	2,66,411	70.43	1,562,072
5	1999-00	456.25	5,017,542	194.98	2,15,815	73.40	1,299,719
6	2000-01	476.66	5,148,226	200.93	2,02,999	83.90	1,456,079
7	2001-02 (P)	362.08	5,052,568	97.96	1,04,298	Transferred to Ministry of Health and Family Welfare	

Note : (P) = Provisional

Source: Ministry of Rural Development

coverage was only 203,000 —15 per cent of the target.

Land Reforms

3.2.32 In an economy where over 60 per cent of the population is dependent on agriculture, the structure of land ownership is central to the well-being of the people. The government has strived to change the ownership pattern of cultivable land, but has had limited success. The abolition of intermediaries immediately after Independence, in spite of its many well-documented shortcomings and lack of implementation in certain parts of the country, was a significant achievement and covered close to 40 per cent of the cultivated area.

3.2.33 These achievements notwithstanding, the lack of progress in the other components of the land reforms programme, viz., implementation of land ceiling laws, security of tenure to tenants and consolidation of land holdings, remains a matter of serious concern. Agricultural workers did not benefit from the abolition of *zamindari*. The SC/STs, who constitute the bulk of the labour force, do not have either the assets or the skills to participate in the limited but emerging employment opportunities in different sectors of the economy. The problem is further compounded by the fact that though the contribution of agriculture to GDP has nearly halved from over 50 per cent in 1951 to around 25 per cent in 2000-01, a similar transformation of employment opportunities has not taken place. The number of people dependent on agriculture and allied activities has fallen only 12 percentage points — from 71 per cent of the population in 1951 to 59 per cent in 2001.

3.2.34 Land reforms seem to have been relegated to the background in the 1990s. More recently, initiatives of state governments have related to liberalisation of land laws in order to promote large-scale corporate farming. This is in sharp contrast to the policy environment soon after Independence when land reforms were meant to provide ownership rights to small and marginal farmers on equity considerations. Though the pressure of population has led to sub-division and fragmentation of land holdings, thereby considerably weakening the case for further lowering of land ceilings, the need for effective implementation of the existing land ceiling

laws cannot be over-emphasised. The Ninth Plan had laid strong emphasis on agrarian restructuring to make agriculture more efficient leading to increased “output and employment”. However, progress on different components of the land reforms package during the Plan has been extremely limited. At the end of the Eighth Plan, 74.9 lakh acres was declared as ceiling surplus and 52.13 lakh acres was distributed among 5.5 million beneficiaries. By the end of the Ninth Plan, the position was virtually the same. There has been no progress in the detection of concealed land and its distribution to the landless rural poor.

3.2.35 The case of tenancy reforms is equally unsatisfactory. Tenancy laws in the states follow different patterns, as land is a state subject. Several states, including Uttar Pradesh, Bihar and Orissa have either banned tenancy completely or have imposed such restrictive conditions that land leases are virtually impossible. Studies by the Lal Bahadur Shastri National Academy of Administration indicate that this has only resulted in concealed tenancy. It is estimated that over 34 per cent of land is operated under concealed tenancy in Bihar. The ban on tenancy, which was meant to protect tenants, has only ended up hurting the economic interests of the tenants as they are not even recognised as tenants. As a result, they are denied the benefits of laws that provide security of tenure and regulate rent.

3.2.36 The progress on the consolidation of land holdings has also been slow. Consolidation has to be a continuing process, but most states have stopped consolidation proceedings. As on 31 March, 2002, consolidation of holdings has taken place only in an area of 66.10 million hectares against a total cultivable area of 142 million hectares.

3.2.37 Alienation of tribals from their land is a major issue in tribal areas. States have passed legislation to restore alienated land to the tribal landholders. The progress in this regard, however, has been limited. The restoration proceedings have been challenged in courts, thwarting the restoration of land to tribals. During the Ninth Plan period, 1.63 lakh cases were decided by the courts in favour of the tribals and 1,75,286 hectares (ha) was restored

as a result of the governmental action. However, as on 31 March 2002, 57,521 cases were still pending in courts with 58,260 ha being under dispute in these cases.

3.2.38 A land record management system is a pre-condition for an effective land reform programme. In 1987-88, a centrally-sponsored scheme for Strengthening of Revenue Administration and Updating of Land Records (SRA & ULR) was introduced in Orissa and Bihar. The scheme was extended to other states in 1989-90. Survey and re-settlement operations, pre-service and in-service training to revenue and settlement staff, facilities for modernisation of survey and settlement operations and strengthening of revenue machinery at the village level are funded under the scheme. During the Eighth Plan, Rs. 8.23 crore was released to the states under the scheme, while Rs. 92.60 crore was allocated during the Ninth Plan under the Programme of SRA & ULR against which Rs. 85.74 crore were released to states/ Union Territories.

3.2.39 In addition to SRA&ULR, a centrally-sponsored scheme of Computerisation of Land Records (CLR) provides assistance to states for modernisation of record keeping operations. Activities funded under the programme include the screening and digitalisation of existing cadastral maps, computer processing of agricultural land holdings records for the purpose of consolidation of holdings and preparation of consolidated revenue settlement and installation of computer networks at the headquarters of states/Union Territories for revenue administration. During the Eighth Plan period, Rs. 9.42 crore was released to the state governments for covering 238 districts. In the Ninth Plan, 333 more districts were brought under the scheme, thus taking the total districts covered under CLR to 571 districts. A total of 2705 talukas/tehsils/blocks were taken up for computerisation. Against a total allocation of Rs. 178 crore, a sum of Rs. 167.52 crore was released. The resources provided under SRA & ULR and CLR programmes meet a small part of the total resources required for the modernisation of revenue administration. The states have to undertake modernisation of the land records management system on a much larger scale.

STRATEGY FOR THE TENTH PLAN

3.2.40 The Approach Paper to the Tenth Plan has set a target for reduction of poverty and creation of high quality gainful employment during the Plan period. The projected GDP growth rate of 8 per cent for the period 2002-07, if achieved, would lead to reduction of incidence of poverty by 5 percentage points by 2007. Compared to 1999-2000, poverty is expected to decline by 15 percentage points by 2011-12. Effective implementation of anti-poverty programmes would be central to achieving the planned reductions in poverty. The challenge before the State is to provide employment opportunities which provide enhanced incomes. This becomes more important in view of the fact that substantial additions to labour force are expected to take place during the next five years. Enlargement of self and wage-employment programmes and their effective delivery becomes an imperative in such a scenario.

Self Employment Programmes

3.2.41 The coverage of beneficiaries in the Ninth Plan was considerably lower than the coverage under SGSY. The formation of self-help groups by itself contributes to the empowerment and economic well-being of the poor by improving their collective bargaining position. The group formation also emphasises social capital and enables the poor to interact with other social groups from a position of strength. Group formation would continue to be the focus under the SGSY. The self-help groups move through various stages: social mobilisation and formation of groups (initial phase); savings and internal lending among the members of the group on their own, augmented by revolving fund grants from the government and linkages with banks and other credit agencies (second phase); obtaining micro finance (third phase) and setting up of micro enterprises (fourth phase). This is a long process and groups require time to mature as cohesive units.

3.2.42 Savings by members and internal lending help the group members to improve their economic position. A strong group acts as collateral for banks to provide micro finance to these groups. They get access to credit for a variety of consumption needs, seasonal activities and for undertaking petty production and trading activities. Setting up of a micro enterprise could be the objective of every

group. However, only those groups which possess special skills, technical know-how, establish marketing linkages and have access to the essential infrastructure needed for success of that particular activity can reach the stage of micro enterprise. The IRDP's approach of fixing targets and timeframes was given up under the SGSY in the Ninth Plan itself. This approach would continue in the Tenth Plan too.

3.2.43 The SGSY programme is intended to provide benefits to SCs and STs, disabled and women-headed households form the bulk of the rural poor. However, these sections would be excluded from the ambit of the programme if they are not listed in the below poverty line (BPL) census conducted at the beginning of every Five-Year Plan for inclusion of beneficiaries under different government programmes. Greater attention would, therefore, be given to identification of BPL families by clearly specifying exclusion and inclusion criteria. These would be published and subjected to periodic social audit in a transparent manner by the gram sabhas.

3.2.44 Self-help groups become cohesive in the long run only if they are homogenous. Social mobilisation is an important step in the formation of self-help groups. It requires a high degree of motivation, morale, expertise, management skills, time and pro-poor orientation on the part of the person who acts as a catalyst for group formation. SGSY is implemented through the DRDAs. These organisations would have to be supported by NGOs, PRIs and other community-based organisations in the formation of the self-help groups. The Small Industries Development Bank of India (SIDBI), National Bank of Agriculture and Rural Development (NABARD), Rashtriya Mahila Kosh (RMK) and many zilla parishads have emerged as important players in the promotion of self-help groups. Strong networks and linkages would be established with such institutions under SGSY. These organisations would act as self-help promotion institutions and would ensure a continuing relationship with self-help groups.

3.2.45 Successful experiments in the promotion of micro finance and micro enterprise have revealed a strong partnership between NGOs and financial

institutions. NGOs have an inherent advantage in reaching the poor due to their proximity, the trust they generate by working in the area, their commitment, flexibility in approach, responsiveness and cost effectiveness. They have played a dynamic role as social animators and organisers in rural areas. Many NGOs have not only been instrumental in the formation of self-help groups but have also nurtured them over the years. Such NGOs have a strong presence in many states. However, voluntary and non-governmental action is weak in some of the poorer states. These are also the states where the spirit of cooperation and collaboration may be lacking because of poverty itself. Training of social animators would have to be promoted in such states. Departments of social sciences, social work, agriculture and rural development in universities and colleges could be engaged as facilitators in the process of group formation so that every rural habitation has at least one self-help group by the end of 2004. The institutions which promote self-help groups could be provided remuneration at different stages of the evolution of the groups so that they have an incentive in the formation of cohesive groups and in ensuring their success.

3.2.46 Micro enterprises succeed only if they cater to the specific needs of an area. The identification of key activities and planning of activity clusters is an important component of SGSY though it has been a weak link so far. It is necessary to identify livelihood opportunities, the constraints in the realisation of these opportunities and the investments that would have to be made to remove these constraints. The micro-level planning process would have to be strengthened in the districts for the programme to succeed. In this endeavour, the involvement of PRIs, banks, micro finance institutions, NGOs and district-level officers of different departments would have to be ensured. They would have to work in close coordination in the preparation of a District Plan for activities under SGSY.

3.2.47 Economic activities require high degree of skills. After the identification of key activities, it would be necessary to organise training programmes for upgrading skills of beneficiaries selected under the programme. Skill acquisition is a long-drawn

process; this requires not only short-term training in campus-based programmes, but also on-the-job training in existing enterprises. Campus-based training programmes under SGSY would only be a beginning of the process. The design of the curricula and method of training would have to correspond to the activities chosen. A basic foundation course to expose trainees to accounting procedures, management techniques, banking and marketing would be a part of the training programme. The training institutions would be expected to arrange for practical on-the-job training programmes and upgrade their syllabi in tune with changing market conditions. They would be continuously appraised to ensure that their faculty is well qualified and imparts training which is relevant and of high quality. They would also be expected to monitor the progress of their trainees in the trades that they pursue.

3.2.48 It would be necessary for training institutions to forge partnerships with technical and management institutes to facilitate greater interaction and learning. In the coming years, the corporate sector is expected to play a larger role in the rural areas. Industry associations have indicated their willingness to adopt villages and regions. The corporate sector could associate itself with training institutes, enabling the latter to keep abreast of the market requirements and revise their curricula. The trainees could also set up ancillary units to supply components to industry.

3.2.49 The SGSY programme would be credit driven. The outreach of the credit delivery system in the country continues to be limited, despite several measures to streamline it. The legitimate demands for credit remain unfulfilled as a vast majority of the poor remain outside the purview of the formal credit system. The mismatch between demand and supply of credit arises out of an inadequate and inefficient delivery system. The policies of direct lending, administered pricing of credit and lack of freedom in the selection of borrowers have resulted in the high cost of credit delivery for the formal credit institutions and, consequently, to the borrowers. A system would have to be put in place which is flexible and responsive to the financial needs of the poor and is capable of supplying timely and adequate credit.

3.2.50 The inadequacies of formal credit institutions could be overcome by combining the strength of commercial banks with the intermediation capabilities of NGOs to effectively link the poor with the commercial banking channels. This would be a cost-effective alternative for providing credit to the poor as banks would be able to reach a larger number of small borrowers with lower transaction costs. The risk of default on loans would be lower due to group pressure and the groups would also monitor the end use of credit. Access to banks through self-help groups would reduce the transaction cost of the borrowers. In the credit delivery system under SGSY, financial intermediation by NGOs would be encouraged. The experience of Self Employed Women's Association (SEWA) and other organisations would be replicated on a larger scale.

3.2.51 Since the commercial banking network has its limitations in reaching the rural poor in every part of the country, other formal institutions that cater to the specific credit needs of the rural population could be integrated into the credit delivery structure for self-employment programmes. Primary Agriculture Credit Cooperative Societies (PACS) have an extensive network in the country and possess detailed knowledge of the borrowers. Regional Rural Banks (RRBs) and other credit organisations, presently outside the purview of micro finance activities, could be associated with self-employment programmes.

3.2.52 It would be the Government's endeavour to leverage funds under different self-employment programmes to enable the rural poor to diversify into non-agricultural activities. Different government agencies have, in the past, attempted to promote rural non-farm employment. Khadi and Village Industries Commission (KVIC) and District Industries Centres (DICs) were set up to promote non-farm activities. In spite of this, the rural non-farm sector continues to lag behind. Only 16 per cent of the rural population is engaged in non-farm activities and that too largely in village or cottage enterprises. Economic census data shows that 77 per cent of rural enterprises are own account enterprises that do not engage hired labour. These enterprises are unable to attract capital and technology since they are small, family-based

enterprises. Many of these enterprises use obsolete technology and are highly vulnerable to market fluctuations and competition from the organised sector.

3.2.53 The inadequate availability of micro infrastructure relevant to the service or trade has been a major constraint in the rapid development of the rural non-farm sector. For example, dairy activity was one of the main activities financed under IRDP. Often the beneficiaries were constrained by the absence of small equipment like milk cans and fat testing machines. Provision of milk collection vans, bulk coolers, chilling plants and pasteurisation facilities were also not a part of the programme. There is, therefore, a need to identify the type of infrastructure required for a particular activity while planning an activity cluster. Provision would have to be made for the creation of infrastructure either under SGSY or by convergence with the other sectoral programmes and to ensure that the missing infrastructure is provided at the planning stage itself.

3.2.54 Marketing strategy is an integral part of every self-employment venture. Market intelligence has to be developed. Survey of local and urban markets to understand product demand is necessary. Rural *haats* or village markets have to be set up to position the products of self-help groups. Such *haats* would also be promoted at the taluka level, district centres and other larger towns. The construction of permanent spaces and pucca sheds along with the provision of storage facilities/godowns would be taken up under SGSY and transport links provided to such centres. Metropolitan cities and export markets are important from the point of view of higher value realisation. Linkages to these would have to be developed largely through private channels, industrial enterprises and export houses. This model was successfully demonstrated in Andhra Pradesh where Phillips India and Hindustan Lever had forged links with DWCRAs groups for marketing their products. Intermediate aggregate mechanisms like producer cooperatives and marketing agencies could facilitate the transaction between dispersed producers and industrial enterprises/export houses.

3.2.55 Products would be positioned through KVIC outlets, State Emporia and Handlooms and Handicrafts Trade Fairs. SGSY groups from a

cluster of villages could also form a federation. Such federations, producing a single product, can take advantage of the economies of scale, undertaking collective purchase of raw materials to reduce the cost of production. They could ensure better marketing, quality control and promote their brand name through aggressive advertisement campaigns. Greater attention to quality control, standardisation and packaging would be required for products of rural areas to find a market in the urban centres. Efforts would be made to create a market niche for rural products that require specialised skills.

3.2.56 Rural enterprises need technology support for product development, quality improvement and standardisation. India has large research and development facilities in national laboratories, universities and other specialised institutions. Suitable linkages between the rural enterprises and these institutions would be developed so that technological assistance can be extended to the self-help groups. Advances in information technology and communication would be harnessed to benefit the self-help groups.

3.2.57 Self-employment programmes are likely to have an uneven regional spread, succeeding in areas that have a tradition of artisanship, developed road and rail infrastructure, banking facilities and a skilled human resource base. The negative relationship between the incidence of rural poverty and land access is well-established. The landless face the greatest risk of poverty. Access to even small pieces of land which may not be sufficient for providing income to a family for subsistence can significantly reduce poverty and food insecurity by providing an essential component in a diversified livelihood system. Their impact may be less visible in under-developed, backward and tribal regions. The SGSY programme would continue to promote land-based activities for individual and group beneficiaries in the backward regions. Diversification into other land-based activities such as sericulture, aquaculture, horticulture and floriculture would be encouraged. The programme would, therefore, support the purchase of land and its distribution to the landless rural poor. Women *swarozgaris* would be sole owners or joint owners of redistributed land. The *swarozgaris* provided land would be organised to access inputs and credit

facilities that enhance productivity of land. In addition to the provision for purchase and redistribution of land, self-help groups will be encouraged to explore prospects of leasing or purchasing land in joint ownership. Schemes that give subsidised credit for land purchase and leasing would be converged with the SGSY programme in these areas. Convergence would also be attempted with schemes that provide subsidised credit for farm equipment such as tractors, tube-wells, fertilisers, seeds and other inputs. The Government would make special efforts to provide information and give financial and infrastructural support to SGSY groups engaged in land-based activities in such areas.

3.2.58 In the Ninth Plan, both IRDP and SGSY were subsidy-driven programmes. This subsidy itself has become a major obstacle in the promotion of self-employment ventures. The experience of institutions providing micro finance shows that the poor are capable and also willing to pay for the credit and other financial services rendered by NGOs and financial institutions without depending on the government for subsidy. Financial resources in the Tenth Plan, therefore, would be directed towards providing infrastructure and other support facilities which increase the returns to households and reduce their risks. It would be used in innovative ways to lower the transaction cost for both the *swarozgaris* and the lenders and to create a strong and viable partnership with NGOs and other organisations working for the economic well-being of the rural poor.

Wage Employment Programme

3.2.59 The SGRY would be the single wage employment programme. Allocations to the programme would be stepped up. The programme would seek to provide productive employment opportunities in employment-intensive sectors. The Government would endeavour to generate a shelf of projects for execution under SGRY that fits into the overall development plan of an area.

3.2.60 The SGRY would have three streams. One to address the need for rural infrastructure in all states; the other to provide focused attention to areas facing endemic poverty while the third would respond to natural calamities. The general stream

universalised across states would be for the creation of local infrastructure. Water tanks, *anganwadis*, primary school buildings, sanitation facilities, primary health centres, multi-purpose community halls and other projects that are required in the village would be taken up under the universal stream. In agriculturally developed areas, it may be necessary to allow upward adjustments in wages to attract unskilled labour. Village communities could augment the resources under the universal stream by mobilising contributions from within the community.

3.2.61 The second stream would seek to provide an employment guarantee of at least 100 days for areas facing chronic unemployment and poverty. The districts and blocks would be selected on the basis of an objective criterion and efforts would be made to create at least minimum infrastructure in these areas by ensuring convergence of other government programmes. Thus, the second stream would, in essence, correspond to the EAS, which was started with the objective of providing employment for 100 days in drought-prone, desert-prone, hilly and flood-prone blocks of the country. Such an assurance would ensure a minimum level of employment and stability to the incomes of the poor and give them an opportunity to develop their collective strength. It would improve their economic position, reduce vulnerability and discourage migration to facilitate their continued access to health, education and welfare facilities available in the village. The allocation under this second stream would be enhanced to meet the target of 100 days of employment for every able-bodied person willing and seeking work.

3.2.62 The third stream would be an enabling mechanism for the Government to respond to natural calamities such as floods, droughts, earthquakes and other contingencies that require quick response to mitigate the hardships faced by people.

3.2.63 The wage employment programmes provide only short-term relief to the poor. Long-term sustainable poverty reduction in the under-developed regions can come about only if other sectors of the economy grow rapidly. It is imperative, therefore, to ensure that the growth process is

inclusive and pro-poor. Agricultural growth still holds the key to poverty alleviation in the Indian context. There is considerable scope for increasing agricultural productivity through expansion of irrigation, better land and water management practices and infrastructure support. The planning of works under the SGRY would be undertaken keeping this in mind.

3.2.64 A large number of rural facilities have been built under various programmes over successive Plan periods. However, they have degenerated either due to their initial faulty design and construction, or lack of maintenance. Therefore, a specific proportion of allocations under SGRY would be used for the maintenance of assets.

3.2.65 PRIs would play a major role in the planning, implementation and monitoring of wage employment programmes and allocations under the SGRY would be routed through them. A rational criterion would have to be evolved for distribution of funds between the three tiers of the PRIs to ensure balanced development of villages, blocks and districts.

Rural Housing

3.2.66 As noted earlier, though the IAY is one of the successful programmes being implemented by the Ministry of Rural Development, it has certain weaknesses. The provision of free houses has meant that other loan-based schemes have not been able to take off. The scheme has also been open to misuse. Public funds have to be utilised for the promotion of economic activity and growth. The creation of employment opportunities, both self-employment and wage-employment, has to receive a higher priority than provision of free houses. During the Tenth Plan period, free houses under IAY would be provided largely to SC/ST BPL families. For other BPL families, there would be a gradual shift to a credit-linked housing programme.

3.2.67 There is a need to create institutional capability in the rural housing sector with reference to designing of houses, supply of raw materials and construction. The rural communities have to be involved in the layout and design of the houses. The houses should have provisions for rain water harvesting, water supply and sanitation.

Social Security Schemes

3.2.68 While the NSAP and state-level welfare schemes have provided some succour to the poor in the form of assistance to the old and the bereaved, a large section of people have not been covered under the schemes because of limited resources. The NSAP needs to be enlarged in scope to cover all eligible beneficiaries. The content and coverage of the social welfare scheme would have to be strengthened during the Plan period to provide meaningful protection to the poor. There are a plethora of welfare schemes in both the central and state sectors. They lead to avoidable overlap and confusion and need to be rationalised. Since welfare is basically a state subject, these schemes are best administered by state governments. The NSAP has been transferred to states with earmarked funds in the Tenth Plan.

Land Reforms

3.2.69 Successive Five-Year Plans have addressed the issue of secure rights in land for increased agricultural productivity under the land reforms programme. Land reform legislations, besides abolishing intermediaries and providing ownership rights to farmers, also provided for security of tenure to tenants and regulation of rent. Actual cultivators were brought into a direct relationship with the State. The abolition of intermediaries succeeded in providing ownership rights to a large number of tenants. The advent of the green revolution technology coupled with schemes of asset transfer under IRDP have contributed significantly to the increased incomes not only from agricultural operations but also on account of diversification into animal husbandry.

3.2.70 Agricultural workers, however, did not gain from *zamindari* abolition. Scheduled Castes and Scheduled Tribes constitute bulk of the agricultural labour force. These people have neither assets nor skills to participate in the limited but emerging employment opportunities in different sectors of the economy. The problem is further compounded by the fact that employment opportunities in non-farm sector have not increased over time to absorb the rural labour force.

3.2.71 Ownership of even a small plot of land enables a family to raise its income, improve its nutritional status, have access to credit facilities and lead a more dignified life. Studies of economies of scale in farm operations show that modern agricultural technology is scale neutral in the case of a majority of food and cereal crops which the poor tend to grow. Horticulture, floriculture and vegetable cultivation on small plots of land, including homestead lands, have proved beneficial for the poor. Agricultural labourers, therefore, need to be provided access to land to improve their economic and social well-being.

3.2.72 The scope for lowering land ceilings, which were fixed in 1972, and redistribution of surplus land is limited. The total area declared ceiling surplus after 1972 was less than 2 per cent of the net sown area. National Sample Survey Organisation (NSSO) data for 1992 shows that 72 per cent of rural households had less than one hectare of land. Therefore, further reduction in land ceilings and acquisition of land for distribution to the poor is not a credible policy option any more. However, this is not to underplay the need to acquire the land declared ceiling surplus. The record of most states in implementing the existing laws is dismal. Concealment of land is widespread. Land acquisitions have been disputed, with cases piled up in courts for years without resolution. During the Tenth Plan period, states have to concentrate on the detection of concealed land and strive for the speedy disposal of cases so that the land acquired under ceiling laws becomes available for distribution to the poor.

3.2.73 The reform of tenancy in the post-Independence period was taken up as a part of the land reforms agenda. Its basic thrust was to stop eviction of tenants and fixation of rent. Conferment of ownership rights to the tenants was the ultimate goal of tenancy laws. The policy attempted to reconcile twin objectives of protection to existing tenants and resumption of land for personal cultivation by the medium, small and marginal farmers. However, the prohibition of tenancy has not really ended the practice. On the other hand, it has resulted in agricultural practices that are not conducive to increased production. This, in turn, also depresses employment opportunities for the

landless agricultural labourers. Mechanisation of agriculture has enabled families to keep land under personal cultivation even in the absence of able-bodied persons to take care of agricultural operations. The fear of tenant eventually taking possession of the land in these areas has resulted in agricultural practices which are not conducive to increased agricultural production. This, in turn depresses employment opportunities for the landless agricultural labourers.

3.2.74 The changes in the agrarian economy over the past three decades warrant a fresh look at tenancy laws. States are at different stages of agricultural transformation. Patterns of semi-feudal agriculture in some states co-exist with corporate and commercial farming practices in others. Where agriculture has reached the commercial farming stage, middle and large farmers lease land from small and marginal farmers. NSSO surveys show that area owned by the marginal and small farmers is greater than the area they cultivate. These developments indicate the need to revisit the tenancy laws.

3.2.75 One option could be to completely free tenancy laws of all restrictive conditions. Farmers owning land below the ceiling limit may be provided a guarantee that their land would not be taken away. The fixation of rent could be left to the market forces. Given the extent of concealed tenancy in states that have banned tenancy, it is not likely to increase area under tenancy dramatically in the short run. However, in the medium to long run, more land would be expected to come on the land lease market which can be accessed by the rural poor.

3.2.76 Civil society organisations have attempted innovative experiments to rectify inequities of land ownership in the rural areas. Access to land for the landless has been built into their programmes. The Pani Panchayat in Ralegaon Siddhi in Maharashtra is a case in point. Every member of the village has a proprietary right over the harvested water. Every member, irrespective of the size of his land holding, has a share in the harvested water for irrigation. As the water available to each member is limited, members with large land holdings have been persuaded to lease their land to small and marginal

farmers and agricultural labourers who have water rights but no land. The arrangement has allowed landless access to land. The large landholders have also benefited as they receive rent for land which would otherwise have remained fallow for lack of irrigation.

3.2.77 Another variant of this approach has been adopted in a few watersheds. While the landholders get water for irrigation, the non-land owning families get a larger share of output from the Common Property Resources (CPRs) which get rejuvenated after the successful completion of the project. This has enabled many families to take up animal husbandry as an occupation and meet their fodder and fuel requirements from the CPRs. Fishing rights on ponds constructed as part of the watershed project are only given to self-help groups of the

landless. These arrangements effectively increase the access of the poor to the land and other sources of livelihood and improve their standard of living.

3.2.78 Successful projects change the nature of agricultural land from un-irrigated to irrigated. In such cases, the ceiling laws of the state could come into force and the ceiling surplus land could be distributed to the landless poor. Alternatively, the guidelines for watershed development projects could be modified to give priority to those watershed projects where the village community, through a resolution, agrees to provide land access to the landless labourers on a continuing basis.

3.2.79 In addition, outright purchase of land from farmers willing to sell their holdings also needs to be explored. In many parts of the country, families

Box 3.2.3 :

Land Purchase Scheme

The NSFDC, set up in 1989, has emerged as a major promoter of economic activities for SC/ST families living below double the poverty line limits. The Corporation finances state agencies working for the development of the SC/STs. It also finances individuals for setting up enterprises. The Corporation financed the Land Purchase Scheme for the first time in Tamil Nadu in 1991. The driving force behind the scheme were two NGOs – Land For Tillers Freedom (LAFTI) and Dr. Ambedkar Peoples' Society (DAPSY) – which organised people in the Thanjavur district to secure land to the tillers through democratic means.

The two organisations identified land owners willing to sell land as well as SC/ST families who were to be provided land after acquisition. The project was appraised and sanctioned by the NSFDC which released money through the Tamil Nadu Adi Dravidar Housing and Development Corporation (TADHCO). Part of the project cost was funded by the IRDP subsidy.

LAFTI purchased 951.33 acres of land and distributed it to 1,018 landless SC/STs families at a total cost of Rs. 71.29 lakh. DAPSY purchased 556.64 acres of land and distributed it to 550 families. A subsidy of Rs. 28.03 lakh was provided under IRDP for LAFTI beneficiaries. Subsidy was made available to DAPSY beneficiaries also. The land rights were given either solely to women or jointly with their husbands. The land was mortgaged to TADHCO for an initial period of 10 years and TADHCO charged 6 per cent interest for the loan provided to the beneficiaries. Ownership rights were to be restored after the loan was repaid.

The scheme was later appraised by the Agricultural Finance Corporation Ltd (AFCL). It concluded that the status of the beneficiaries had improved after they acquired land. The project had a far-reaching social impact. The average income of the beneficiaries increased considerably, with family incomes almost doubling. As a result, 45 per cent of the beneficiary families had crossed the poverty line. The asset retention was close to 98 per cent. The families were able to take up dairy activity as a result of their access to land. There were, however, some problems in the repayment of loans, especially in the case of DAPSY beneficiaries since their loan amount was higher than that of LAFTI beneficiaries.

The NSFDC has sanctioned similar projects in Andhra Pradesh and Karnataka. Though it has sanctioned schemes in other states, the coverage of beneficiaries is extremely limited. Given the changes that are taking place in the agrarian sector and the migration of people to urban centres in search of better opportunities, land purchase could emerge as an attractive proposition for providing land to the landless.

Source :- National Scheduled Caste Finance and Development Corporation.

have migrated to urban areas but continue to hold on to their land holdings in the absence of an efficient land market due to restrictions on the lease, sale and mortgage of agricultural land. The Government could create an enabling environment for the emergence of land markets or itself enter the land market as a major player. The National Scheduled Castes and Scheduled Tribes Finance and Development Corporation (NSFDC) has a scheme for providing assistance to SC/ST families to purchase land. The scheme received an enthusiastic response in Tamil Nadu, Andhra Pradesh and Karnataka (Box 3.2.3).

3.2.80 While the provision for purchase of land in the erstwhile IRDP continues in the revamped SGSY, the main focus of the scheme is on the creation of self-help groups and setting up of micro enterprises. Land could be purchased and distributed to landless under SGSY and they could be organised under a cooperative society to provide other support services for agricultural operations.

3.2.81 There has been an increasing feminisation of the agricultural labour force in the country. NSSO (50th round) estimates for 1993-94 show that 75.3 per cent of women workers were engaged in agriculture compared to only 58 per cent of male workers. In the rural labour force, 84.7 per cent of women were engaged in agriculture as compared to 73.8 per cent male workers. Data on incremental additions to the rural labour force show that the rural male worker has a greater chance of getting absorbed into non-agriculture pursuits than the rural female worker. Besides, migration of able-bodied men to urban areas in search of employment, break-up of the joint family system and other social factors such as death of husbands and desertion by husbands have resulted in an increase in the number of female-headed households. However, in the case of land holding families headed by women, if male descendants are present, the ownership right does not devolve on the women. Protecting social cohesion and prevention of fragmentation of land holdings are some of the major arguments advanced against allowing women to inherit land. These gender-biased land laws put women-headed households at a disadvantage. Without proper title to land, they are denied access to credit and other facilities available to farming communities. This not only affects the income

generating capacity of the households but also impacts adversely on agricultural production. Therefore, both on grounds of equity and efficiency, land Inheritance laws need to be gender neutral.

Alienation of Tribal Lands

3.2.82 The influx of non-tribals into tribal areas as a result of various developmental projects, exploitation of natural resources and industrial activities has led to the alienation of tribal land. It is extremely paradoxical that while outsiders/non-tribals have come into the Scheduled areas in the name of development, the local tribal population gets displaced and migrate to urban areas in search of employment. This has given rise to severe discontent in the tribal areas.

3.2.83 The process of alienation has taken place because of lack of legal awareness about land rights among both tribals and government officials and ineffective administrative structures. Inherent deficiencies in legal provisions such as the absence of any machinery to initiate *suo motu* action, general period of limitation for adverse possession, lack of provision against trespass and against fraudulent and collusive transfer of land to non-tribals continue to exist. Alienation has also been facilitated by improper land records. An in-depth scrutiny of the methods for preparation of land records, and the maintenance and updating of such records must, therefore, be carried out at the earliest. Computerisation of land records in tribal areas should also be accorded the highest priority.

3.2.84 The Panchayats (Extension of Scheduled Areas) Act (PESA), 1996 extended the provisions of 73rd Constitutional Amendment Act, 1992, to the Scheduled Areas in the states of Andhra Pradesh, Chattisgarh, Gujarat, Himachal Pradesh, Jharkhand, Madhya Pradesh, Maharashtra, Orissa and Rajasthan. The PESA enables tribals to assume control over their own destiny and to preserve and conserve their traditional rights over natural resources, including land. However, the stringent provisions of this law have remained only on paper and have not been operationalised by state governments. PESA would be effectively implemented during the Tenth Plan period to resolve the issues of tribal exploitation and alienation.

3.2.85 One of the main reasons for the concealment of land, which has hampered the land reforms programme, has been the lack of a comprehensive land rights database. The CLR and SRA&ULR schemes have placed emphasis on modernisation of cadastral survey procedures and strengthening of training facilities for revenue, survey and settlement staff. Provision of computers and other infrastructure has been made under these schemes. This process will be carried forward more vigorously in the Tenth Plan not only to detect concealment of land but also to reduce scope for litigation in rural areas.

Delivery Mechanism

3.2.86 Poverty alleviation programmes have been designed to address different facets of rural poverty. Micro credit-linked programmes provide a package of services including credit and subsidy to set up micro enterprises. Wage employment programmes address the issue of transient poverty. Besides, schemes for infrastructure development and provision of basic services contribute to the well-being of the rural people. Successful implementation of these programmes requires an appropriate policy framework, adequate funds, and an effective delivery mechanism. Past experience shows that the mere availability of funds is not likely to eradicate rural poverty. Nor is the design of the rural development programmes, no matter how refined, a sufficient condition. The success of these programmes ultimately depends on the capability of the delivery system to absorb and utilise the funds in a cost-effective manner. An effective and responsive district-level field machinery with a high degree of commitment, motivation, professional competence and, above all, integrity has been recognised as one of the prerequisites for successful implementation of anti-poverty programmes.

3.2.87 An effective delivery system has to ensure people's participation at various stages of the formulation and implementation of the programmes, transparency in the operation of the schemes and adequate monitoring. International experience shows that greater functional and financial devolution to local governments results in higher allocation of resources for social sectors and more

efficient use of resources. Such trends in social spending have been witnessed in many Indian states as well.

3.2.88 The increasing integration of India in the global economy, the budget constraints faced by both central and state governments and inefficiencies in the administrative structure led to the development of a consensus to devolve powers to local institutions to enable people's participation in administration. The 73rd and 74th Constitutional Amendments that conferred statutory status on PRIs and urban local bodies did not have only democratic decentralisation as their objective. These institutions were also seen as a process for harnessing and channelising the people's innate abilities to bring about rural transformation in a way that every individual acquired his/her rightful place in the social, economic and political arena.

3.2.89 The Ninth Plan had called for the devolution of functional responsibilities, administrative control on government functionaries dealing with subjects listed in the Eleventh Schedule of the Constitution and financial resources for taking up developmental programmes to the PRIs. There has been mixed progress on this front. Political devolution has taken place. Elections have been held and women, SC/STs and other marginalised groups have got political representation in the rural areas. Problems encountered in the process of evolution of panchayats has been taken care of with the intervention of courts, civil society organisations and increased public awareness. The strengthening of forces that facilitate political empowerment of rural communities would be an important area of action in the Tenth Plan period. Issues of transparency, accountability and development would require greater attention. States which have lagged behind in devolving functions and finances to panchayats would have to be encouraged to empower the panchayats.

3.2.90 The gram sabhas in most states have been entrusted with only ceremonial functions. The power and functions of gram sabhas need to be enlarged by giving them effective powers of implementation and monitoring of developmental plans. Social audit of all development programmes by the gram sabha would be made mandatory. The committee system

adopted in many states to facilitate a more participative decision-making process in the panchayats should be incorporated in the State Panchayat Acts. The powers entrusted to a gram sabha in a Scheduled V area could be extended to gram sabhas in non-scheduled areas as well.

3.2.91 Administrative and financial devolution by the states to the PRIs remains an area of major concern. The Constitution has placed onerous responsibilities on PRIs. They require financial resources to discharge the tasks assigned to them and emerge as viable institutions of self-government. Financial devolution is also desirable as the control of investment decisions by local communities leads to better utilisation of scarce resources. Panchayats would need greater powers of taxation and avenues for non-tax revenue. States could provide matching grants to panchayats to take up specific projects. Apart from the funds that flow to panchayats for centrally sponsored and state sector schemes, untied grants could also be provided to the PRIs. The PRIs need to raise resources from the local community and end their dependence on government funds. The functional domain of the PRIs can be enlarged only if they pay adequate attention to their resource base.

3.2.92 The onus for devolving functions, functionaries and financial resources to the PRIs rests with the state governments. Though the states have, slowly, transferred functions and finances to the PRIs, these institutions are hampered by lack of administrative support. PRIs have to be adequately staffed and the functionaries must be trained in planning, budgeting and accounting tasks. An elaborate system for auditing of panchayat finances has to be put in place. At present, adequate safeguards against the misuse of resources by elected functionaries do not exist in many states. These issues need to be tackled on a priority basis.

3.2.93 The 74th Constitutional Amendment Act provided for the constitution of District Planning Committees (DPCs). However, the Constitutional provision on DPCs is rather weak as it provides for the preparation of only draft Plans by the DPCs. State governments have not given adequate attention to the DPCs and the Government of India's

guidelines on district planning have not been fully operationalised. DPCs should be set up and its functionaries must be trained in the basics of planning. The gram sabha/panchayat should be associated with the preparation of village development Plans based on the felt needs of the people. These Plans should be integrated with the panchayat samiti and district-level plans to make the grassroot planning process a reality in the Tenth Plan period.

3.2.94 The voluntary sector has witnessed a phenomenal growth in the country in the last 20 years. These institutions have played an important role in community mobilisation, providing technical support to the community for developmental projects, especially in the areas of health and education. It has been clearly established that where panchayats, community organisations and user groups have worked in close cooperation, people have benefited immensely from developmental projects initiated either by the government or the communities themselves. People's organisations, whether in the form of an NGO or a group of experts, provide expertise and competence to the panchayats that they otherwise may not possess. However, in many places, the emergence of Constitutionally-mandated PRIs has led to a conflict of interest as both voluntary organisations and these institutions occupy the same space. The voluntary agencies have to recognise that PRIs are institutions of governance and must work in close cooperation with them. The PRIs, for their part, have to recognise the critical role that voluntary organisations can play in enhancing their capabilities.

3.2.95 The delivery of programmes would improve only if the PRIs emerge as strong players in the social and economic life of the country. NGOs and other civil society organisations can facilitate the evolution of PRIs as institutions geared to promote the well-being of the rural poor.

3.2.96 The preceding paragraphs have described the content and direction of anti-poverty programmes in the Tenth Plan period. The financial allocations for the Tenth Plan period for these programmes have been stepped up considerably. As against a total expenditure of Rs. 35,866 crore in the Ninth Plan,

the allocation for the Tenth Plan period has been increased to Rs. 56,748 crore, the schemewise break-up of which is given in the Appendix. Resources for the SGRY and for rural connectivity under Pradhan Mantri Gram Sadak Yojana (PMGSY) have been substantially enhanced. These are expected to provide assured wage-employment, enhance incomes and ensure nutritional security. The allocations for direct anti-poverty alleviation programmes would be complemented by investments in other sectors which have a strong bearing on the incidence of poverty.

THE PATH AHEAD

3.2.97 Rural poverty alleviation programmes were revamped and re-focused during the Ninth Plan to increase their effectiveness. Programmes that provide self-employment and wage employment to the poor would be implemented with greater vigour during the Tenth Plan.

- Social mobilisation for formation of self help groups;
 - Savings among the group and internal lending among its members and Provision of a revolving fund;
 - Micro finance; and
 - Micro-enterprise development.
 - Access to land will be an important element in the poverty alleviation strategy. Tenancy reforms, record of rights of land owners and tenants, computerisation of land records, prevention of alienation of tribal lands, and issue of land rights for women will be the major tenets of the land reform agenda.
 - The promotion of a movement which enhances social capital and forges linkages with other formal and informal stakeholders engaged in developmental activities would be a major thrust during the Plan. PRIs have created a space for the involvement of the community in governance. There is a need to provide greater attention to effective empowerment of PRIs. The Government recognises the necessity of building capabilities at the local levels for planning, implementation and monitoring of development programmes. These would be undertaken on a large scale during the Plan period.
- Special attention would be paid to provide technical support for upgrading technology and standardisation of products. Use of information and communication technology would be promoted during the plan period in this regard.
 - The SGRY would be the single wage-employment programme. The programme would have three streams which would seek to address the need of rural infrastructure at the village level, ensure guaranteed employment of at least 100 days in areas facing chronic unemployment/migration and provide relief in natural calamities such as floods, droughts, earthquakes and other contingencies. The projects under SGRY would be chosen with a view to taking up schemes that enlarge the scope for increased economic activity.
- Network of institutions that promote the self-help movement would be created during the Plan period. Partnership would be forged between NGOs and other community-based organisations, government agencies and other financial institutions. There would be a system of identifying and training local facilitators.
 - Key activities would be planned to respond to the needs of the area. Training programmes for beneficial linkages with training institutions would be forged.
 - Greater attention would be paid to marketing. Rural haats/markets at the taluka/district level would be set up for display of products. Linkages will be developed with private channels, industrial enterprises and export houses for higher value realisation for SGSY groups.

Financial & Physical Performance under Poverty Alleviation Programmes IRDP / SGSY, JRY / JGSY and EAS during Eighth and Ninth Plan - Yearwise

(Rs. Crores)

SI	Years	IRDP/SGSY			JRY/JGSY			EAS		
		Total Allocation (Centre+State)	Total Expenditure	Lakh Families Swarozgaris	Total Allocation (Centre+State)	Total Expenditure	Employment in Lakh Mandays	Total Allocation (Centre+State)	Total Expenditure	Employment in Lakh Mandays
1	2	3	4	5	6	7	8	9	10	11
Eighth Plan										
1	1992-93	662.22	693.88	20.69	3169.05	2709.59	7821.02	0.00	-	
2	1993-94	1093.43	956.65	25.39	4059.42	3878.71	10258.4	0.00	183.75	494.74
3	1994-95	1098.22	1008.31	22.15	4376.92	4268.33	9517.07	0.00	1235.45	2729.56
4	1995-96	1097.21	1077.16	20.89	4848.70	4466.91	8958.25	0.00	1720.61	3465.27
5	1996-97	1097.21	1131.68	19.24	2236.79	2163.98	4006.32	0.00	2160.41	4030.02
	Total	5048.29	4867.68	108.36	18690.88	17487.52	40561.06	0.00	5300.22	10719.6
Ninth Plan										
1	1997-98	1133.51	1109.54	17.07	2499.21	2439.38	3955.89	2460.48	2904.97	4717.74
2	1998-99	1456.28	1162.28	16.77	2597.03	2525.48	3766.41	2485.15	2882.18	4279.36
3	1999-2000	1472.34	959.86	9.34	2205.58	2032.45	2683.08	2431.46	2182.61	2786.17
4	2000-2001	1332.50	1116.27	10.30	2192.96	1929.23	2683.17	2082.27	1861.11	2183.92
5	2001-2002	774.50	555.15	6.25	2493.01	699.07	860.79	1730.92	530.92	666.27
	Total	6169.13	4716.17	56.92	11687.93	9625.61	13949.34	11190.28	10361.79	14633.5

Note : 2001-02 - SGSY - upto January, 2002
2001-02 - JGSY - upto October, 2001
2001-02 - EAS - upto September, 2001

Source : Ministry of Rural Development

CHAPTER 3.3

FOOD AND NUTRITION SECURITY

INTRODUCTION

3.3.1 The importance of optimal nutrition for health and human development is well recognised. At the time of Independence the country faced two major nutritional problems. One was the threat of famine and the resultant acute starvation due to low agricultural production and the lack of an appropriate food distribution system. The other was chronic energy deficiency due to:

- ☒ low dietary intake because of poverty and low purchasing power;
- ☒ high prevalence of infection because of poor access to safe-drinking water, sanitation and health care;
- ☒ poor utilisation of available facilities due to low literacy and lack of awareness.

3.3.2 The major public health problems were chronic energy deficiency (CED), kwashiorkor, marasmus and micronutrient deficiencies such as goitre, beriberi, blindness due to Vitamin-A deficiency and anaemia.

3.3.3 The country adopted multi-sectoral, multi-pronged strategy to combat these problems and to improve the nutritional status of the population. Article 47 of the Constitution of India states that "the State shall regard raising the level of nutrition and standard of living of its people and improvement in public health among its primary duties". Successive Five-Year Plans laid down the policies and strategies for achieving these goals.

3.3.4 The Green Revolution ensured that the increase in food production stayed ahead of the increase in population. The country has moved from chronic shortages to an era of surplus and export in most food items. The country is self sufficient in food grain production and currently there is a buffer stock of over 60 million tonnes. Along with the steps

to achieve adequate production, initiatives were taken to reach foodstuffs of the right quality and quantity to the right places and persons at the right time and at an affordable cost.

Initiatives to improve nutritional status of the population during the last five decades include:

- ☒ Increasing food production- building buffer stocks
- ☒ Improving food distribution- building up the Public Distribution System (PDS)
- ☒ Improving household food security through
 - ↳ Improving purchasing power
 - ↳ Food for work programme
 - ↳ Direct or indirect food subsidy
- ☒ Food supplementation to address special needs of the vulnerable groups-Integrated Child Development Services (ICDS), Mid-Day Meals
- ☒ Nutrition education especially through Food and Nutrition Board (FNB) and ICDS
- ☒ Efforts of the health sector to tackle
 - ↳ Adverse health consequences of undernutrition
 - ↳ Adverse effects of infection and unwanted fertility on the nutritional status
 - ↳ Micronutrient deficiencies and their health consequences

3.3.5 Over the years, there has been improvement in access to food through the PDS; the food for work programme has addressed the needs of the vulnerable out-of-work persons. The ICDS programme aimed at providing food supplementation for pre-school children, pregnant and lactating women, nearly covers all blocks in the

country. The Mid-day-meal programme aimed at improving the dietary intake of primary school children and reduction in the school drop out rates has been operationalised. There has been substantial improvement in access to health care. National programmes for tackling anaemia, iodine deficiency disorders and Vitamin-A deficiency are being implemented. As a result of all these interventions, there has been a substantial reduction in severe grades of under-nutrition in children and some improvement in the nutritional status of all the segments of population. Kwashiorkor, marasmus, pellagra, lathyrism, beriberi and blindness due to severe Vitamin-A deficiency have become rare.

3.3.6 However, several challenges remain. To meet all the nutritional needs of the growing population, the country will have to produce an extra five million tonnes of food grains annually and increase the production of livestock, fish and horticultural products. This has to be achieved in the face of shrinking arable land and farm size, low productivity, growing regional disparities in productivity and depletion of the natural resource base. Appropriate steps have to be taken to minimise the potential adverse consequences of globalisation on domestic production, employment and price stability of food commodities. In spite of huge buffer stocks, 8 per cent of Indians do not get two square meals a day and there are pockets where severe under-nutrition takes its toll even today. Every third child born is under weight. Low birth weight is associated not only with higher infant mortality but also long-term health consequences including increased risk of non-communicable diseases. In the last five decades, the mortality rate has come down by 50 percent and the fertility rate by 40 percent but the reduction in under nutrition is only 20 percent. Around half of the pre-school children suffer from under-nutrition. Micronutrient deficiencies are widespread; more than half the women and children are anaemic; reduction in Vitamin-A deficiency and iodine deficiency disorders (IDD) is sub-optimal. Under-nutrition associated with HIV/AIDS will soon emerge as a public health problem. Alterations in lifestyles and dietary intake have led to the increasing prevalence of obesity and associated non-communicable diseases. The country will have to gear itself up to prevent and

combat the dual burden of under-nutrition and over-nutrition and associated health problems.

Major nutrition-related public health problems

- ☒ Chronic energy deficiency and undernutrition
- ☒ Micro-nutrient deficiencies
 - ↳ Anaemia due to iron and folate deficiency
 - ↳ Vitamin A deficiency
 - ↳ Iodine Deficiency Disorders
- ☒ Chronic energy excess and obesity

Initiatives in the Tenth Plan

3.3.7 During the Tenth Plan there will be focused and comprehensive interventions aimed at improving the nutritional and health status of the individuals.

3.3.8 There will be a paradigm shift from:

- ☒ household food security and freedom from hunger to nutrition security for the family and the individual;
- ☒ untargeted food supplementation to screening of all the persons from vulnerable groups, identification of those with various grades of under-nutrition and appropriate management;
- ☒ lack of focused interventions on the prevention of over-nutrition to the promotion of appropriate lifestyles and dietary intakes for the prevention and management of over-nutrition and obesity.

Interventions will be initiated to achieve:

Adequate availability of foodstuffs by:

- ☒ ensuring production of cereals, pulses and seasonal vegetables to meet the nutritional needs;
- ☒ making them available throughout the year at affordable cost through reduction in post harvest losses and appropriate processing;
- ☒ more cost-effective and efficient targeting of the PDS to address macro and micronutrient deficiencies. This may include providing coarse grains, pulses and iodised/ double fortified salt

to below poverty line (BPL) families through the targeted PDS (TPDS);

- ☒ improving people's purchasing power through appropriate programmes including food for work schemes.

Prevention of under-nutrition through nutrition education aimed at:

- ☒ ensuring appropriate infant feeding practices (universal colostrum feeding, exclusive breast feeding up to six months, introduction of semisolids at six months);
- ☒ promoting appropriate intra-family distribution of food based on requirements;
- ☒ dietary diversification to meet the nutritional needs of the family

Operationalising universal screening of all pregnant women, infants, preschool and school children for under-nutrition.

Operationalisation of nutrition interventions for the management of under-nutrition through:

- ☒ targeted food supplementation and health care for those with under-nutrition;
- ☒ effective monitoring of these individuals and their families;
- ☒ utilisation of the panchayati raj institutions (PRIs) for effective inter-sectoral coordination and convergence of services and improving community participation in planning and monitoring of the ongoing interventions.

Prevention, early detection and appropriate management of micronutrient deficiencies and associated health hazards through:

- ☒ nutrition education to promote dietary diversification to achieve a balanced intake of all micronutrients;
- ☒ universal access to iodised/double fortified salt;
- ☒ early detection of micronutrient deficiencies through screening of all children with severe

under-nutrition, pregnant women and school children;

- ☒ timely treatment of micronutrient deficiencies.

Promotion of appropriate dietary intake and lifestyles for the prevention and management of obesity and diet-related chronic diseases

Nutrition monitoring and surveillance to enable the country to track changes in the nutritional and health status of the population to ensure that:

- ☒ the existing opportunities for improving nutritional status are fully utilized; and
- ☒ emerging problems are identified early and corrected expeditiously.

Research efforts will be directed towards:

- ☒ review of the recommended dietary intake of Indians;
- ☒ building up of epidemiological data on:
 - ☒ relationship between birth weight, survival, growth and development in childhood and adolescence;
 - ☒ body mass index norms of Indians and health consequences of deviation from these norms.

3.3.9 In view of the massive inter-state (and, perhaps even inter-district) variations in the access to nutrition related services and nutritional status, state specific goals to be achieved by 2007 have been worked out taking the current status into account. National goals have been drawn taking into account the state specific goals (Annexure 3.3.1).

SUSTAINABLE FOOD PRODUCTION TO MEET NUTRITIONAL NEEDS

3.3.10 One of the major achievements in the last 50 years has been the green revolution and self-sufficiency in food production. Food grain production has increased four-fold (Figure 3.3.1).

Food Production

Progress achieved:

- ☒ the country has achieved self-sufficiency in food grains to meet the needs of the growing population;
- ☒ there are ample food grain stocks.

Current Problems:

- ☒ 'Green Revolution Fatigue' in some areas;
- ☒ productivity remains low;
- ☒ improved food grain availability has not resulted in eradication of hunger or reduction in under-nutrition especially in vulnerable groups.
- ☒ very little attention is being paid to achieve integrated farming systems that will ensure sustainable evergreen revolution essential for appropriate dietary diversification to achieve nutrition security.

Paradigm shift needed:

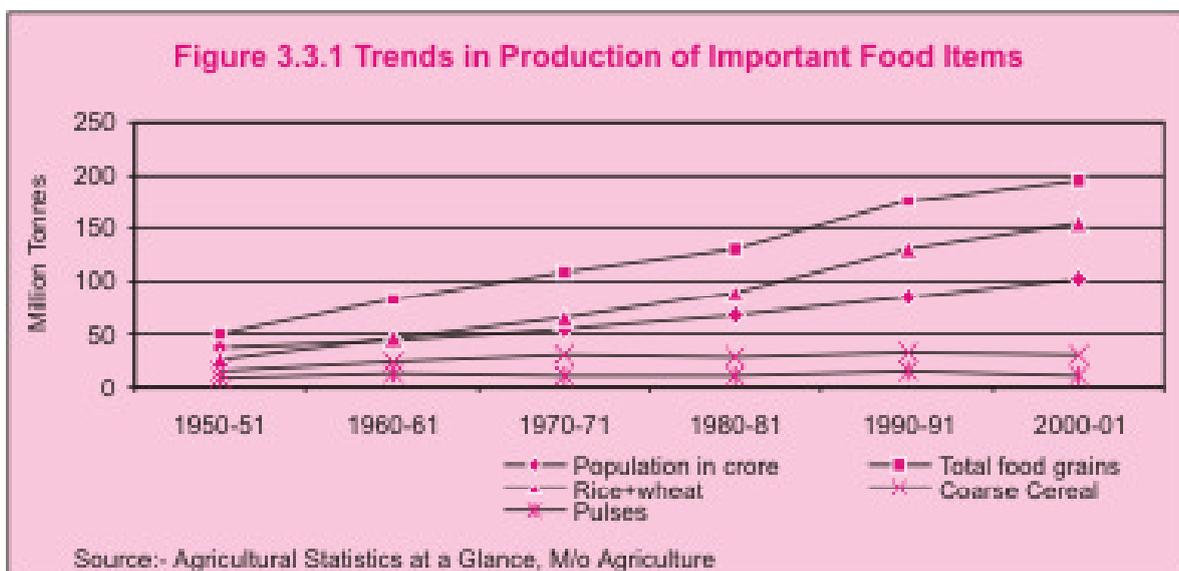
- ☒ from self sufficiency in food grains to meet energy needs to providing food items needed for meeting all the nutritional needs;
- ☒ from production alone to reduction in post harvest losses and value addition through appropriate processing;
- ☒ from food security at the state level to nutrition security at the individual level.

Challenges:

- ☒ continue to improve food grain production to meet the needs of the growing population;
- ☒ increase production of coarse grains to meet the energy requirements of the BPL families at a lower cost;
- ☒ increase production of pulses and make them affordable to increase consumption;
- ☒ improve the availability of vegetables at an affordable cost throughout the year in urban and rural areas.

Opportunities:

- ☒ achieve substantial improvement in nutrition security;
- ☒ achieve decline in macro and micronutrient under-nutrition.



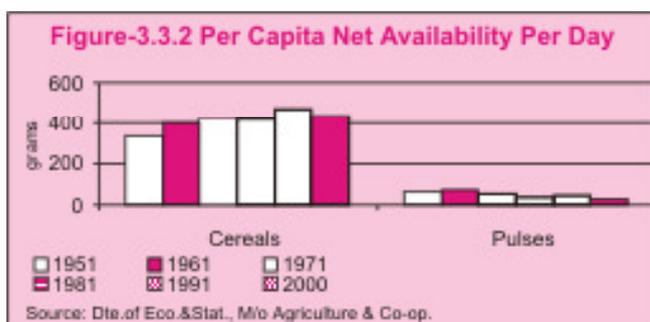
Interventions to Improve Food Production to Meet the Nutrient Needs

Food grain production

3.3.11 Inputs needed to achieve a sustainable increase in food grain production to meet the needs of the growing population have to be provided. Locally produced and procured coarse grains made available through the TPDS at a subsidised rate may substantially bring down the subsidy cost without any reduction in calories provided. This will also improve targeting as only the most needy are likely to buy these coarse grains. Millets are rich in minerals and micronutrients and hence increased consumption will improve the intake of these vital nutrients by the poor.

Pulse production

3.3.12 In the last two decades, there has been a progressive decline in pulse consumption, especially among the poorer segments of the population (Fig. 3.3.2). This is due to stagnant production and the rising cost of pulses. This trend has to be reversed. Measures to improve pulse production may include reactivation of the pulse component of the Oil Seed and Pulse Mission, a major thrust on research and development and innovative community-based efforts similar to the M.S. Swaminathan Research Foundation's efforts in Tamil Nadu to improve pulse production.



Horticultural production

3.3.13 Available data on the current production of fruits and vegetables and the projected demand for 2006 are shown in Table-3.3.1. Per capita consumption of these in the country is very low. Consumption of adequate quantities of vegetables,

especially green leafy ones, is essential for meeting the dietary requirement of vital micronutrients. Besides, vegetables also provide several phytochemicals and fibre.

Table -3.3.1 Fruits and vegetables (in million tons)

	Demand 2006	Production 1997/98
Fruit	50	40.05
Vegetables	130	72.83

Source :Dr.M.S.Bamji: Background paper for the Subgroup on Dietary Diversification

3.3.14 At present, there is insufficient focus on the cultivation and marketing of low-cost, locally-acceptable green leafy vegetables, yellow vegetables and fruits. As a result, these vegetables are not available at affordable cost throughout the year. Health and nutrition education emphasising the importance of consuming these inexpensive but rich sources of micronutrients will not result in any change in food habits unless the horticultural resources in the country are harnessed and managed effectively to meet the growing needs of the people at an affordable cost. Horticultural products provide higher yields per hectare and sell at higher prices. The processing, storage and transportation of horticultural products in a manner so that there is no glut and distress sales will make their production economically attractive to farmers and improve availability to the consumers.

Homestead production for dietary diversification

3.3.15 Homestead production is another method of increasing consumption of vegetables, milk and animal products and reduces the gap in consumption.

3.3.16 Strategies can be worked out for using degraded lands for vegetable production. Farm wastes as well as food grains unfit for human consumption can be used to feed backyard poultry in order to increase homestead production of eggs and chicken and also increase consumption of these at home (Table 3.3.2).

Table-3.3.2
Per capita availability and deficit

Food Items	Per capita availability	ICMR dietary guidelines for Indians	Per capita deficit
Milk	216 g**/day	300 ml*/day	34 g/day
Egg	30 eggs/annum	180 eggs/annum	150 eggs/annum
Meat	3.24 kg/annum	10.95 kg/annum	7.71 kg/annum

Source: Dr.M.S.Bamji: Background paper for the Sub-group on Dietary Diversification

* milli litre ** grams

Food Processing and Preservation

3.3.17 Post harvest losses especially in vegetables and fruits are presently in the range of 20 to 30 percent and contribute directly to higher costs and reduce availability of these commodities. Precision farming and food processing based on science and technology are both intellectually stimulating and economically rewarding, they can increase farmers' income and rural employment considerably. This will not only help in retaining educated youth in the farm sector but would also enable the micro-nutrient needs of the population to be met through a sustainable food-based approach.

EQUITABLE DISTRIBUTION OF FOODSTUFFS

3.3.18 Achievement of food adequacy at the national level is a necessary, though not sufficient, precondition to ensure the achievement of household nutrition security. Buffer stocks do help to combat acute transient food scarcity, caused by natural disasters like floods and droughts. Early warning systems are in place and food can be rushed to areas of threatened distress fairly rapidly. What is proving more difficult is the task of combating chronic mild/moderate under-nutrition in a large number of poor households. Inequitable distribution of available food among different segments of the population and even within the family is one of the major factors responsible for under-nutrition/over-nutrition. Good governance and health and nutrition education hold the key to improving equitable distribution of food based on need.

3.3.19 The TPDS was introduced in June 1997 in an attempt to limit the mounting cost of subsidy, and at the same time, ensure that the BPL

population does get subsidised food grains. Under this system subsidised foodgrains are provided only to people below the poverty line. Taking the average household size as 5.51 (1991 Census), the monthly requirement of food grain for a household is 73 kg. TPDS meets only a part of the total requirement of food grains for the family.

3.3.20 Apart from TPDS, other initiatives to improve food security of families include:

- ☒ allocation of food grains to institutions where indigent people live at rates similar to that for BPL population;
- ☒ Annapoorna Scheme (1998) to provide foodgrains to indigent old persons;
- ☒ Antyodaya Anna Yojana (2000) to provide food grains to the poorest of the poor families among the BPL population at the rate of Rs.2 per kg for wheat and Rs.3 per kg for rice;
- ☒ Sampoorna Grameen Rozgar Yojana (2001) for rural poor in need of wage employment; preference is given to scheduled castes, scheduled tribes and parents of children withdrawn from hazardous jobs.

Role of the Community

3.3.21 Innovative local efforts can go a long way in improving nutrition security especially for the poorer segments of the population living in vulnerable areas. Formation of local food grain banks under the supervision of the PRIs to help in achieving nutrition security for all and insulating the economically and socially deprived sections of the community from seasonal food insecurity

Community Food bank

Main features of the proposed food bank are:

- ☒ one bank for every village or cluster of villages with population ranging from 2000 to 5000;
- ☒ supervised by a society or council chosen by the gram sabha;
- ☒ managed by a stakeholder council, with different operations assigned to different self-help groups;
- ☒ to be implemented with honesty, political neutrality, fairness, absence of discrimination based on religion, caste, class, gender and political belief



Entitlement	Ecology and employment (Food for Work)	Ethics	Emergencies
To overcome chronic hunger among under-privileged	Water Banks Watershed Development Afforestation	Supplementary Nutrition Pregnant and nursing mothers, infants and old, infirm persons	Transient hunger (Seasonal Slide) Droughts, Floods Cyclones Earthquakes

has been suggested. A diagrammatic representation of the proposed Community Food Security System suggested by the M.S. Swaminathan Research Foundation, Chennai is shown in the Text Box.

During the Tenth Plan period every effort will be made to:

- ☒ identify vulnerable groups/families, undernourished individuals and provide them with well-targeted subsidised food items through TPDS. In addition to the supply of rice and wheat, locally procured coarse grains, pulses and iodised salt may be provided;
- ☒ test and evaluate various modalities of improving the efficiency of the systems currently in operation to improve household nutrition security;
- ☒ choose appropriate modalities for making optimal use of available subsidies to meet the needs of the vulnerable segments of the population; and

- ☒ ensure that there is no duplication of schemes for improving nutrition security to vulnerable groups.

MANAGEMENT OF TRANSIENT FOOD SCARCITY DUE TO DROUGHT

3.3.22 Though the country has averted large-scale severe under-nutrition or famine in the past five decades, droughts do pose a major threat to food security. Over the years, the country has developed a system for the early recognition and management of transient food scarcity in times of drought. During the Ninth Plan period, Rajasthan, Andhra Pradesh and Gujarat were affected by drought. Of the various relief measures, Andhra Pradesh benefited only from additional ration through PDS. In the other two states, additional measures such as food for work, supply of drinking water, essential medicines and cattle feed were also in operation.

3.3.23 The National Institute of Nutrition (NIN), Hyderabad conducted a survey in the drought-affected districts in these three states to assess the impact of drought and the ongoing intervention

programmes on the diet and nutritional status of the population. In Rajasthan, there was no increase in prevalence of CED in adults (Body Mass Index <18.5) as compared to the non-drought period. However, there was an increase in the prevalence of under-nutrition in pre-school children (64.8 per cent) as compared to non-drought period (46.7 per cent). In Gujarat and Andhra Pradesh, prevalence of CED in children and adults was not more in the drought-affected districts. These data suggest that except in the case of children in Rajasthan, the adverse consequences of drought on the nutritional status were prevented due to intervention programmes.

3.3.24 **During the Tenth Plan period**, efforts will be made to monitor rainfall data to provide early warning of drought. Monitoring agricultural production will provide information about impending food insecurity. In drought-prone areas intensive monitoring of the nutritional status of pre-school children based on ICDS reporting system will help to assess the severity of the problem at block level. Timely relief measures can be organised based on these data. Apart from other process indicators for monitoring the relief operations, monitoring the nutritional status of pre-school children through the ICDS system will be used for assessing the out reach, adequacy and impact of relief measures.

NUTRITIONAL STATUS OF TRIBAL POPULATION

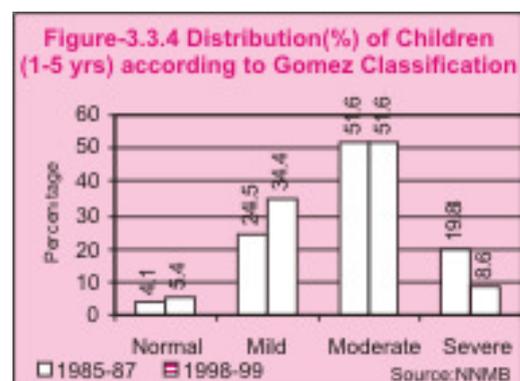
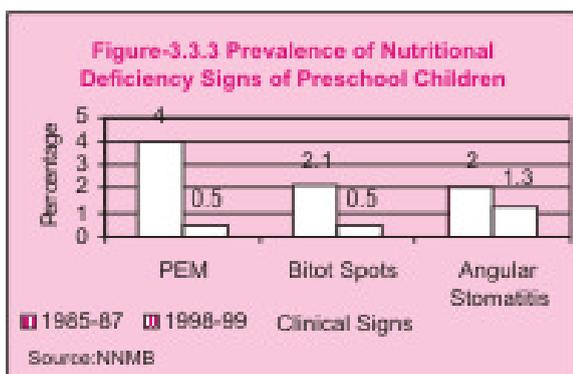
3.3.25 The tribal population is not a homogeneous group. There are wide variations among the groups in nutritional status and access to and utilisation of nutrition and health services. The tribal populations in the north-eastern states have high literacy levels; they access available facilities, and hence their

Higher prevalence of under-nutrition in tribal population is due to

- ☒ poverty and consequent under-nutrition
- ☒ lack of awareness about, access to and utilisation of the available nutrition supplementation programmes;
- ☒ social barriers preventing the utilisation of available nutrition supplementation programme and services.
- ☒ poor environmental sanitation and lack of safe drinking water, leading to increased morbidity from water-borne infections;
- ☒ environmental conditions that favour vector-borne diseases;
- ☒ lack of access to health care facilities resulting in increased severity and /or duration of illnesses.

nutritional and health status is better than the national level. On the other hand, primitive tribes such as the Onges in the Andamans have very little awareness or access to either nutrition or health care. Differential area-specific need assessment, strategies and programmes to improve access and utilisation of nutrition services have to be developed for each of the tribal areas.

3.3.26 The tribal population is recognised as socially and economically vulnerable. Their lifestyles and food habits are different from that of their rural neighbours. They depend on minor forest produce, are employed in manual labour and may not have adequate income. Their food consumption pattern is dependent on the vagaries of nature and varies from extreme deprivation (in the lean seasons) to high intakes (in the post-harvest period).



3.3.27 Several focused interventions for tribal development and improvement in their health and nutritional status have been initiated in the last three decades. In order to assess the impact of these, the National Nutrition Monitoring Bureau (NNMB) carried out a repeat diet and nutrition surveys of the tribal populations living in the Integrated Tribal Development Project (ITDP) areas in 1998-99. These covered the states of Kerala, Tamil Nadu, Karnataka, Andhra Pradesh, Maharashtra, Gujarat, Orissa and West Bengal, where the NNMB had carried out an earlier survey in 1985-87. Comparison of data of the two surveys showed that there has not been any improvement in the food and nutrient intake. However, there has been some reduction in the prevalence of severe forms of under-nutrition and in nutritional deficiency signs (Figures 3.3.3 and 3.3.4). The tribal population is more under-nourished than their rural counterparts.

3.3.28 There were substantial differences in the food and nutrient intake and nutritional status between tribal populations living in different states (Table-3.3.3). In some population groups, there was adequate intake of minerals and some micronutrients even though the diet was inadequate in terms of meeting energy and protein needs. The nutritional status of women and children in some of the northeastern states with a predominantly tribal population is better than the national average (Table 3.3.4).

Table-3.3.3 Inter-State Differences in Nutrient Intake

Nutrient Intake	State with	
	Lowest	Highest
<u>1-3 age-group</u>		
Protein	10g	24.5g
Energy	466 k cal	1000 k cal
Vit. A	34 µ g	264 µ g
<u>4-6 age-group</u>		
Protein	19.8 g	36.3 g
Energy	756 k cal	1524 k cal
Vit. A	51.2 µ g	502.7 µ g
<u>>18 years males</u>		
Protein	47.0g	59.5g
Energy	1932k cal	2503k cal
Vit. A	82µ g	575µ g

Source: NNMB (2000)

3.3.29 **During the Tenth Plan**, monitoring nutritional status of the tribal population, especially of those who have poor access to services, will be continued. Monitoring of the ICDS reporting will provide early warning of any deterioration in the nutritional status in pre-school children so that appropriate intervention can be initiated. Research studies on dietary habits that contribute to good nutritional status as well as those that make the tribal population vulnerable to diseases will be carried out. Based on the data, specific intervention programmes will be taken up to improve nutritional status and to eliminate dietary habits that are likely to cause ill health.

Table- 3.3.4 Nutritional Status in North Eastern States

State	% Tribal population as per 1991 Census	Weight-for-age (% below -3SD) in children < 3 years	% ever married women with		
			Height below 145 cm	BMI < 18.5 kg/m ²	BMI > 25 kg/m ²
Arunachal Pradesh	63.7	7.8	11.9	10.7	5.1
Meghalaya	85.5	11.3	10.3	18.8	10.8
Mizoram	94.8	5.0	21.1	25.8	5.8
Nagaland	87.7	7.4	10.7	22.6	5.3
All-India	8.1	18.0	13.2	20.3	10.6

Source : NFHS 2 - 1998-99

ENERGY REQUIREMENTS OF INDIANS

3.3.30 Energy requirement is defined as the amount that will balance the energy expenditure of the individual (as determined by body size and composition and level of physical activity) consistent with long-term good health. This intake will allow for the maintenance of economically necessary and socially desirable physical activity. In children and pregnant/ lactating women, the energy requirement will include energy needed for deposition of tissue and secretion of milk at the rate consistent with good health. All estimates of requirement are based on habitual intakes and though these are expressed as daily intake, it is not implied that these amounts must be consumed on a daily basis. Estimates of requirement are derived from actual data of individuals on intake and expenditure. Actual intakes and expenditure of people of the same age, sex, similar body size and performing similar physical activity are used to compute average energy requirement for the groups.

3.3.31 The recommended intake of energy of a group is equal to the average energy requirement of individuals of the group because both lower and higher energy intake are associated with health hazards. This is in contrast to other nutrients. For example, the recommended safe level of protein intake is the mean +2 SD value of the group because with this over 97 per cent of the persons in the group would get their requirements.

3.3.32 The energy needs of men and women for different activity levels computed on the basis of recommendations made by a Joint Expert Consultation of the World Health Organisation (WHO)/Food and Agricultural Organisation (FAO)/United Nations University (UNU) in 1985 and by an Expert Committee constituted in 1988

by the Indian Council of Medical Research (ICMR) are shown in Figures 3.3.5 and 3.3.6 The ICMR's RDA is higher than those recommended by the WHO/FAO/UNU.

3.3.33 Studies have shown that Indians have about 5 per cent lower Basal Metabolic Rate (BMR) than those predicted on the basis of WHO/FAO/UNU equations. The possible causes of lower BMR among Indian include:

- ☒ under-nutrition with low body weight and low BMI (weight in kg/ height in metre²);
- ☒ under-nutrition resulting in lower protein turn-over (which accounts for 20 per cent of BMR);
- ☒ difference in proportion of muscle and viscera;
- ☒ lower oxygen supply to the muscle;

However, the energy cost of work done computed in terms of basal energy cost or physical activity ratios are similar.

3.3.34 For computing RDA, the ICMR has taken body weight of 'reference man' as 60 kg and that of 'woman' as 50 kg. Average weight of Indian men is 52 kg and women 44 Kg. For children and adolescents, weight for age from NCHS / well-to-do Indian children have been utilised by ICMR for deriving the RDA so that energy intake enables optimum growth. However, as in adults, majority of children and adolescents weigh substantially less and hence their energy requirement is lower. In view of these, it is likely that the energy requirement of Indians is likely to be substantially lower than the current ICMR recommendations (Table 3.3.5). Over the last few decades there has been a reduction in the physical activity and hence reduction in the energy needs in all the age and weight categories.

Figure-3.3.5 Daily Average Energy Requirement in men aged 30-60 years

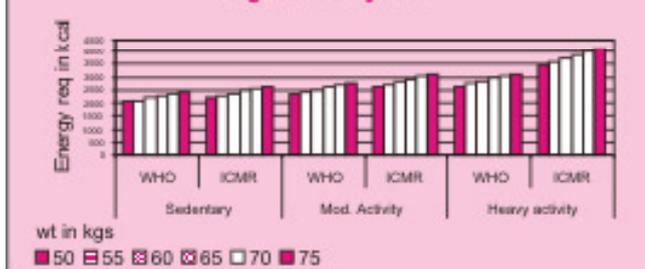


Figure-3.3.6 Daily Average Energy Requirement in women aged 30-60 years

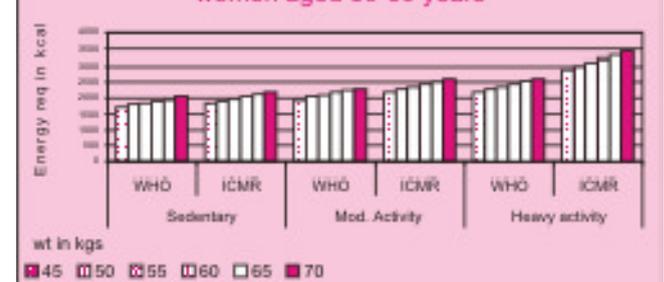


Table-3.3.5 ICMR's RDA for Energy (reference body weights and actual body weights)

Sex	Ref.Body weight	Actual body weight	Energy RDA			
			Activity category	For Ref. Body Weight	For Actual body weight	Percent difference
Man	60.0	52.0	Sedentary	2425	2115	13
			Moderate	2875	2492	13
			Heavy	3800	3293	13
Woman	50.0	44.0	Sedentary	1875	1740	12
			Moderate	2225	1958	12
			Heavy	2925	2594	11

Source: Dr.B.S.Narasinga Rao-Gopalan Oration 2001

Obesity rates in all age groups are increasing mainly because of the reduction in physical activity without concomitant reduction in energy intake. In view of the known adverse health consequences of both excess and deficient energy intake, it is essential that appropriate recommendation for the RDA for Indians is evolved. This has to be done quickly as the country is entering an era of dual disease burden of CED and infections on the one hand and that of obesity and non-communicable diseases on the other.

3.3.35 **During the Tenth Plan**, review of the RDA for Indians will be taken up on a priority basis. The ICMR has reconstituted its Expert Committee on RDA which will take all the above factors into consideration and come up with an appropriate recommendation regarding the dietary intake of Indians. One of the priority areas of research during the Tenth Plan will be studies to define the BMR and energy requirement of healthy adult Indian men and women, adolescents, children and the elderly. Simultaneously studies will be taken up to define the dietary intake needed to correct the chronic energy deficiency or obesity in each of these groups.

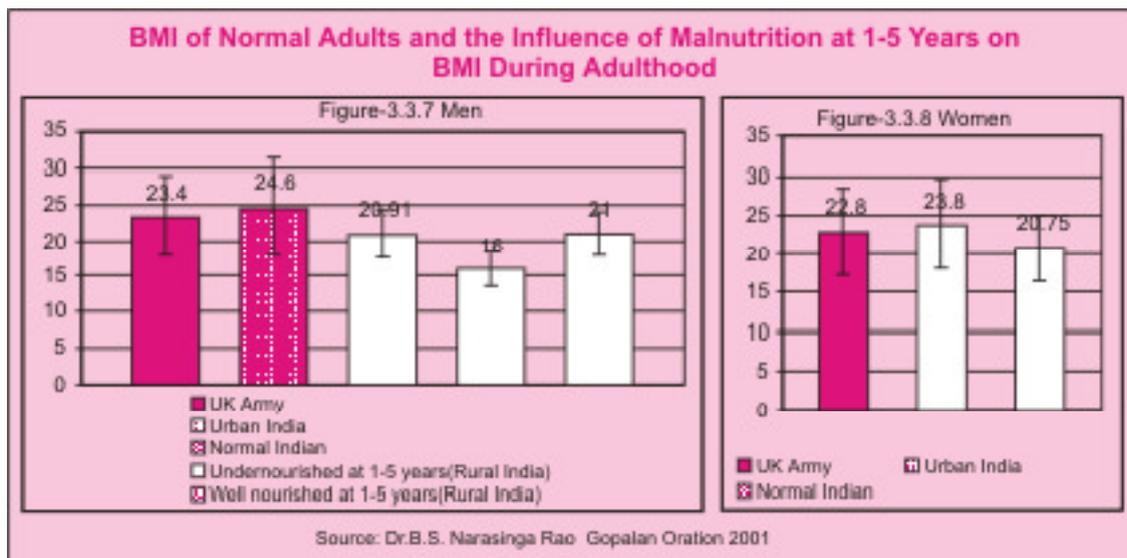
ASSESSMENT OF NUTRITIONAL STATUS

3.3.36 Anthropometric indices (height, weight and BMI) are widely used for the assessment of the adequacy of energy intake. Body weights and heights of children reflect their nutritional and growth status; weights and heights of adults represent the cumulative effect of dietary intake over a long period. The BMI is the most widely used anthropometric index for the assessment of the nutritional status in adults as it reflects the effect of both acute and chronic energy deficiency/excess. BMI, however, does not clearly bring out the entire extent of chronic under-nutrition. For instance those who are stunted and have low body weight may have normal BMI. An increase in energy intake will result in improvement in BMI both in adults and in children, but in adults and children with severe stunting, improvement in dietary intake will not result in an improvement in height. Continued over-consumption of energy especially in stunted individuals could lead to over-nutrition, obesity and increased risk of non-communicable diseases. It has also been reported that the body fat content for a given BMI is different not only between men and women but also among countries (Table-3.3.6).

Table-3.3.6 Variability of body fat at BMI 20 among rural population of three countries

Country	% Body fat	Fat mass (kg)		Assuming fat = 0 then BMI
		Male	Female	
Papua New Guinea	1	1	6	19.7
Ethiopia	7	4	8	18.0
India	12	6	8	16.9

Source: Dr.B.S. Narasinga Rao - Gopalan Oration 2001



3.3.37 BMI has been used to assess energy deficiency as well as energy excess. The currently used norms (<18.5 - undernutrition and >25 overweight) were evolved on the basis of data from the developed countries where adverse health consequences of under-nutrition have been shown to be associated with BMI values below 18.5 and the health hazards of over-nutrition have been reported with BMI of over 25. The mean and frequency distribution of BMI of Indians are substantially different from developed countries. It is, therefore, possible that the currently used classification may be satisfactory for developed countries but not for India.

3.3.38 There are wide variations in height, weight, body composition and BMI right from birth through childhood and adolescence between countries and different income groups in the same country (Figures 3.3.7 and 3.3.8). Birth weight and growth of Indian children from well-to-do segments of the population are similar to United States National Center of Health Statistics (NCHS) standards but adult heights and weights in India are lower. The functional significance of inter-country variations in stature are not yet clearly understood. However, the existing gap between the stature of Indians from well-to-do families where there are no nutritional constraints and under-nourished persons from poorer segments of the population is clearly due to poor nutrition and health care. The short-term nutritional goal of the country is to identify individuals and families, who are under-nourished and provide them

with adequate nutrition and health care so that they do not incur health hazard associated with under-nutrition.

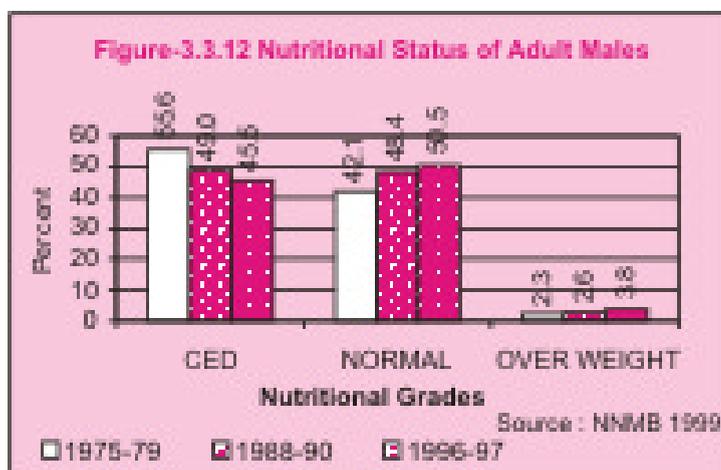
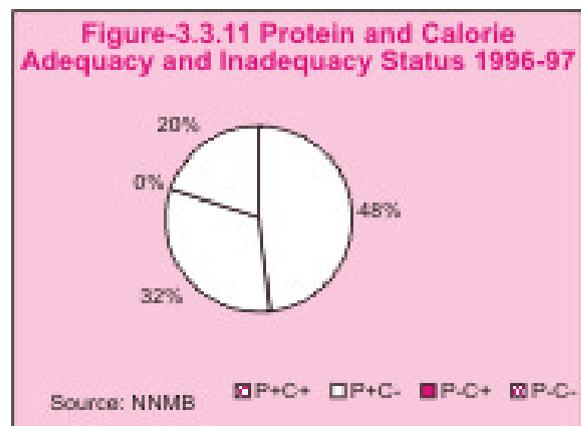
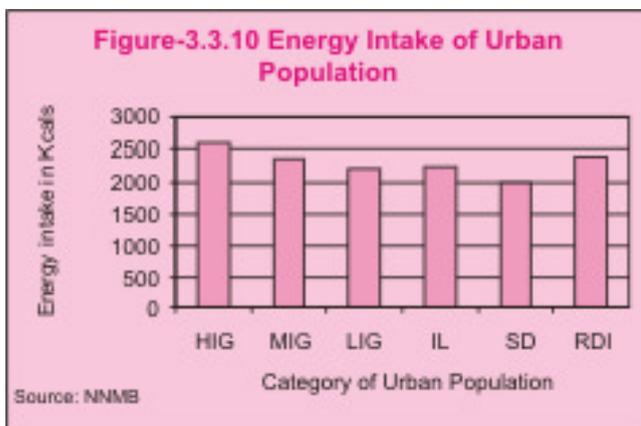
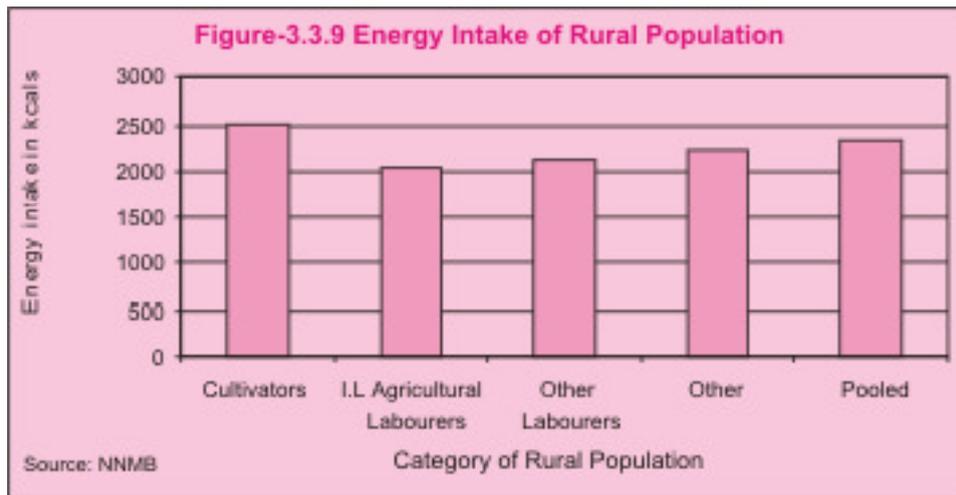
3.3.39 As both CED and obesity are associated with adverse health consequences, it has been suggested that each country should develop its own norms for BMI and cut-off points indicative of various degrees of under-nutrition and over-nutrition based on their own data on health problems in persons with varying BMI levels. In view of the profound implications of these suggestions it is essential that research studies are taken up during the Tenth Plan period to examine the usefulness of currently used cut-off points of BMI as indicators of CED, metabolic functions, work capacity and health indices. It is also important to collect data on BMI of well-nourished Indians in different regions and the health profile of adults with different BMI. Epidemiological data on the risk of non-communicable diseases among different BMI groups in India will have to be collected to evolve appropriate cut-off points for BMI in Indians so that those at risk can be identified and appropriate interventions undertaken.

Dietary Intake and Nutritional Status of Adults

3.3.40 Over the last three decades, there have been substantial changes in the socio-economic status of people, some increase in the dietary intake of men and women especially of the affluent segments in rural and urban areas, ready availability of fast foods, ice creams and other energy rich food items at affordable costs have resulted in increased

energy consumption (Figures 3.3.9 and 3.3.10). The distribution of households according to protein-energy adequacy status is presented in Figure-3.3.11. About 48 per cent of the households consumed more than adequate amount of both proteins and calories, while 20 per cent of households consumed inadequate amounts of both the nutrients. With increasing access to cooking

gas, piped water supply, labour-saving gadgets and transport, there has been a substantial reduction in the physical activity pattern and energy expenditure, especially in the middle and upper income groups. Data from NNMB repeat surveys indicate that there has been some reduction in under-nutrition and some increase in obesity over the last two decades (Figure-3.3.12). Data from National Family Health



Survey-2 (NFHS) confirms that currently both under-nutrition and over-nutrition are problems in women (Table 3.3.6) and that there are massive

Table-3.3.6 Nutritional Status of ever married women aged 15-49

	BMI < 18.5 (kg/m ²)	BMI > 25 (kg/m ²)
All India	35.8%	10.6%

Source: NFHS- 2, 1998-99

inter-state differences. The percentage of women with under- nutrition varies from 10.7 in Arunachal Pradesh to 48 in Orissa and those who are over-weight from 3.7 in Bihar to 33.8 in Delhi. The country will, therefore, have to gear up to prevent, detect and tackle the problems of both under-nutrition and over-nutrition in the next two decades.

3.3.41 Over the last two decades there have been a growing number of reports that Indians are a very high-risk group for cardiovascular diseases and diabetes. A majority of them are not obese and do not have risk factors associated with non-communicable diseases in the developed countries. The higher prevalence of non-communicable diseases among persons whose birth weights were low has been documented. It has been hypothesised that people who have lived under nutritional constraints over millennia have 'thrifty genes' which enable them to survive and sustain themselves with lower energy intake. In such a population, any rapid increase in energy intake may result in increased risk of non-communicable diseases. This is an area where further research studies need to be done.

3.3.42 The amount by which the dietary intake should be increased or decreased to correct CED/ obesity in adults will depend upon the rate at which the desirable weight is to be achieved and the extent to which the deficit or excess in weight is due to lean and fat tissue. Since adults cannot grow, the appropriate weight for actual height is to be calculated and the appropriate dietary intake to correct under-nutrition or over-nutrition computed. In adults who are seriously under-weight for their height, there will generally be a loss of both fat stores and lean body mass.

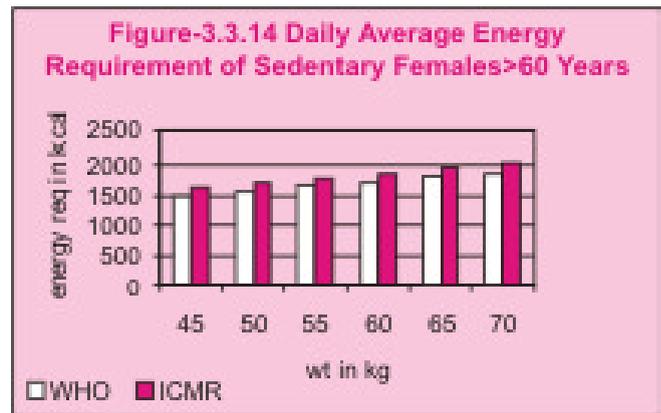
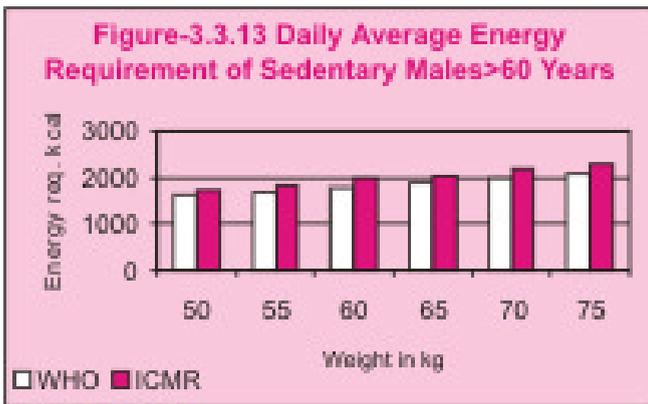
Therefore, bringing their weight into the normal range requires additional amounts of both energy and protein. Clinical experiences suggested that under-weight adults who are free from disease could be rehabilitated fairly rapidly if they eat to appetite. For correction of obesity, a low energy diet coupled with adequate exercise will be needed. If low energy diet is to be continued for a long period to achieve desired reduction in weight, it is essential to ensure adequate amounts of protein and micronutrients intake. For sedentary adults food low in energy density, rich in fibre containing lot of vegetables and adequate exercise would go a long way in terms of providing satiety and preventing obesity.

3.3.43 During the Tenth Plan, the major thrust would be to undertake massive health and nutrition education to encourage appropriate dietary intake and healthy life styles among all segments of the population. Epidemiological studies will be initiated to obtain data on dietary intake, nutritional and health status to define levels at which functional impairment in health status occur.

Geriatric Nutrition

3.3.44 With increasing longevity, the proportion and number of persons in the age group of 60 years and beyond is rapidly increasing, with women out- numbering men. The population of elderly has been projected to double from 6.23 crore in 1996 to 11.29 crore in 2016. With increasing age, there are metabolic changes and also reduction in physical activity and, as a result, their energy requirement is substantially lower than younger adults (Figures 3.3.13 and 3.3.14).

3.3.45 Elderly individuals face problems in ensuring appropriate dietary intake because of alteration in taste with increasing age and loss of teeth. The reduction in physical activity with increasing age, not accompanied by a concurrent reduction in energy intake, makes the elderly prone to obesity. Due to low intake of vegetables, food rich in micronutrients and increased susceptibility to infection, anaemia and Vitamin B complex deficiency may be more common in the elderly. Adequate dietary calcium intake from birth to 30

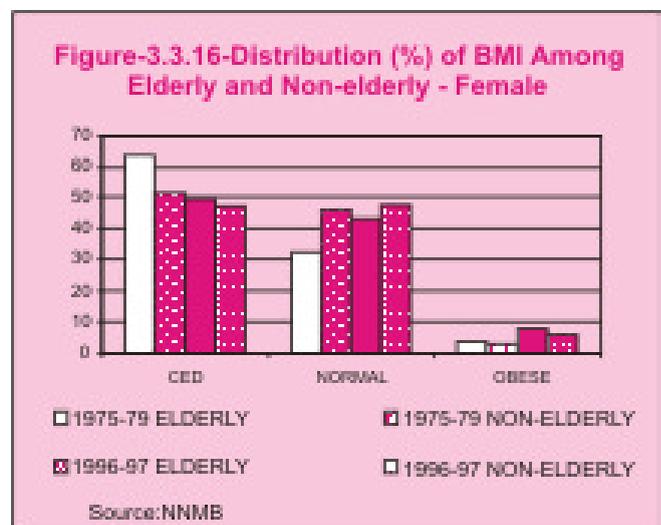
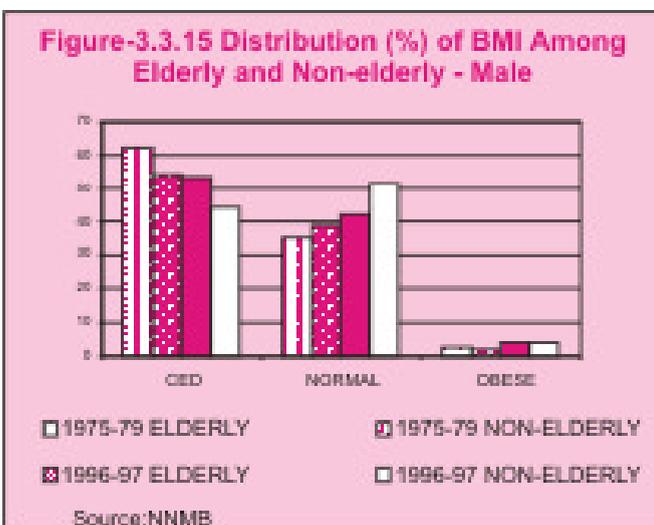


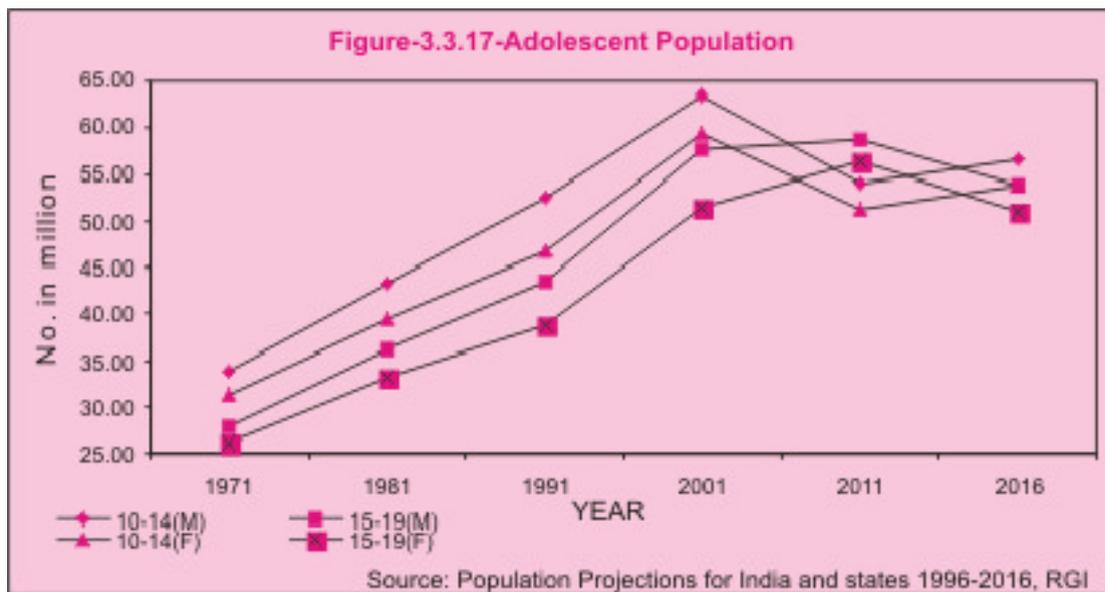
years is critical for the development of peak bone mass. Osteoporosis occurs more commonly in women than in men as bone loss occurs earlier and more rapidly in women as compared to men. With increasing longevity, there will be an increase in the number of persons with osteoporosis. There is very little data on the incidence of osteoporosis in India.

regions. Successful models for improving quality of life will have to be replicated.

3.3.46 Lack of social support, breaking up of the joint family system, changing lifestyles all aggravate the health and nutritional problems of the elderly. Available data from nutrition surveys indicate that the dual problem of chronic energy and micronutrient deficiency on the one hand and obesity on the other are seen among the elderly (Figures 3.3.15 and 3.3.16). Innovative efforts to provide societal support, health care and nutrition services to the elderly are currently being taken up by several agencies. Simultaneously, there are efforts to improve family and societal support to elderly within the existing cultural ethos in different

3.3.47 In many states elderly persons who are without any financial support get old age pension. The amount as well as coverage varies between states but, on the whole, the amount provided is too low to meet the nutritional needs of the elderly person. Following reports of severe under-nutrition among the elderly and destitute persons in several states, the central and the state governments initiated steps to improve the access of these segments to food-grains. The National Policy on Older Persons announced in January 1999 provides a framework for welfare of the elderly persons including improved financial security and increased access to health and nutrition services. It is envisaged that National Plan of Action for the implementation of the policy will be drawn up. The policy also recommends research to expand the knowledge base on nutritional needs of the elderly.



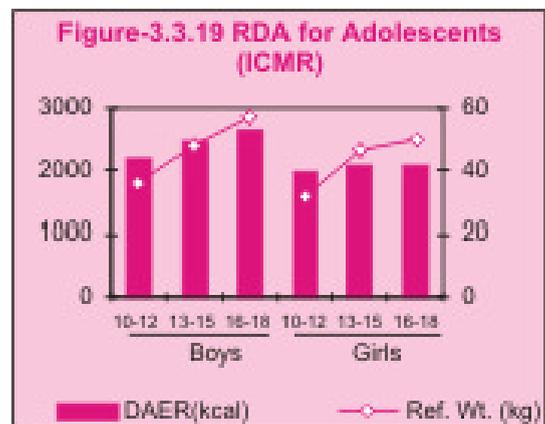
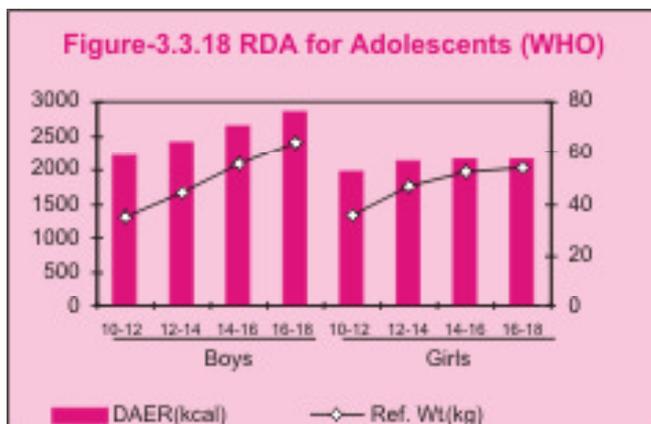


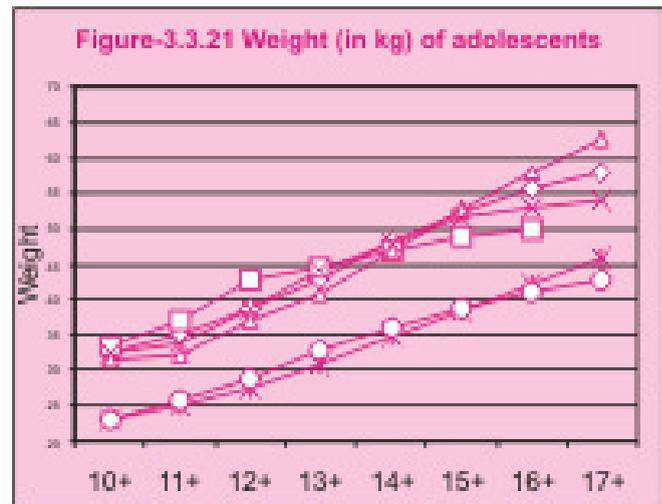
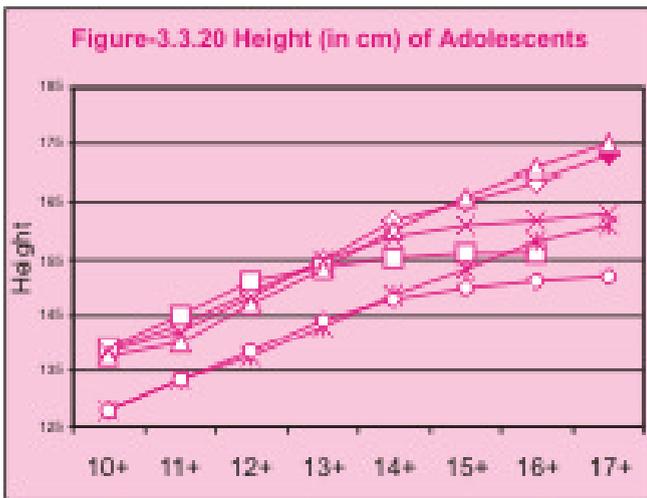
3.3.48 **During the Tenth Plan**, a database on the magnitude of the nutritional problems in the elderly (under-nutrition, micronutrient deficiency and obesity) will have to be created through the ongoing diet and nutrition surveys. Based on the data appropriate area-specific intervention programmes can be drawn up. While the technical inputs will come from the nutritionists, implementation of the programme will largely rest with the families, community and the PRIs.

Nutritional Status of Adolescents

3.3.49 Projections made by the Technical Group on Population Projections (Figure 3.3.17) indicate that the number of adolescents (in the 10-19 age group) will increase from 200 million in 1996 to 215.3 million in 2016. Adolescents, who are undergoing rapid growth and development, are

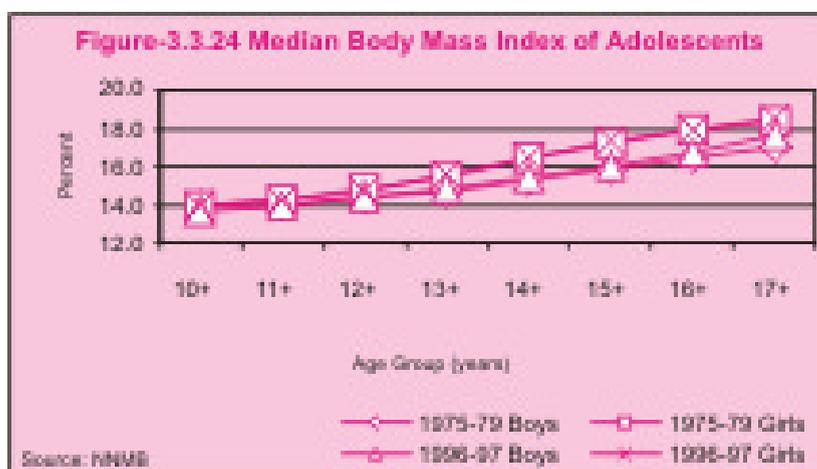
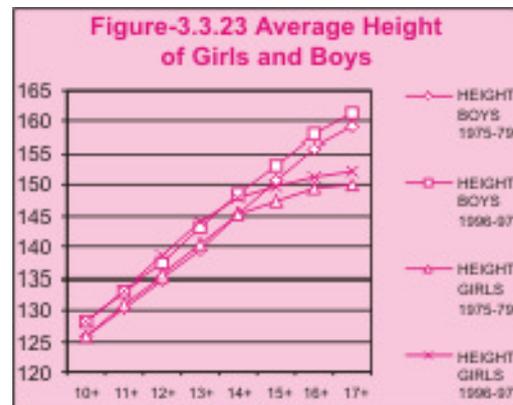
one of the nutritionally vulnerable groups who have not received the attention they deserve. Adolescents gain 30 per cent of their adult weight and more than 20 per cent of their adult height between 10 and 19 years. Taking into account, the desirability of achieving full potential for growth, ICMR has used NCHS/well-to-do Indian children's body weight for computing RDA for adolescents (Figures 3.3.18 and 3.3.19). However, children from the poorer segments of the population in India are shorter and weigh less (Figures 3.3.20 and 3.3.21). It is unlikely that any extra food at this stage can accelerate or extend the duration of physical growth. Additional dietary intake at this period can only lead to adolescent obesity. The ICMR Expert Committee for RDA may have to take all these into account and evolve appropriate recommendations for dietary intake in Indian adolescents.





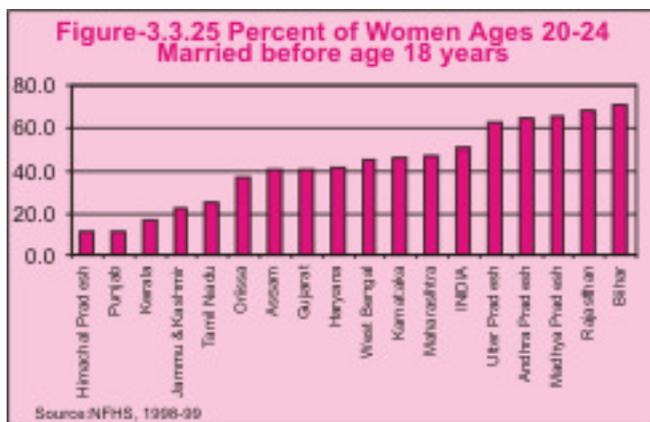
3.3.50 Data from the NNMB repeat surveys have shown that there has not been any substantial increase in the dietary intake of adolescents; but

there has been some improvement in height (2.5-3.5 cms), weight (1-1.5 kg) and BMI between 1975-79 and 1995-97 (Figure 3.3.22,23,24).



3.3.51 Data from NNMB also shows that over this period there has been some increase in obesity among adolescents especially for those from the affluent groups both in the urban and rural areas. The prevalence of micronutrient deficiencies are high. With the onset of menstruation, girls in this age group are vulnerable to anaemia and all its adverse consequences.

3.3.52 Data from NFHS-2 indicate that the median age at marriage of girls in India is 16 years and 61 per cent of all girls were married before the age of 18. There are large inter-state variations in age at marriage (Figure-3.3.25). The mean age at first birth



is 19.2. Under-nutrition, anaemia and poor ante-natal care inevitably lead not only to increased maternal morbidity but also to higher incidence of low birth weight and peri-natal mortality. Poor childrearing practices of these girls will add to infant morbidity and under-nutrition, thus perpetuating the intergenerational cycle of under nutrition. Appropriate education, nutrition and health interventions, delay in age at marriage, optimum health and nutrition interventions during pregnancy are some of the inter-sectoral initiatives to break this vicious cycle.

3.3.53 With a view to minimising these adverse effects, appropriate nutritional and health interventions for adolescents are being taken up under the ICDS and Reproductive and Child Health (RCH) Programmes. The Department of Women and Child Development has launched Kishori Shakti Yojana (2000). The details of these initiatives are given in respective sections. Prime Minister in his Independence day address in 2001 stated that food grains will be provided to combat under-nutrition in adolescent girls and pregnant and lactating women.

A pilot project is being initiated to operationalise the announcement of the Prime Minister. The project, initially for a period of two years, will be taken up in two of the backward districts in each of the major states and most populous district (excluding the capital district) in the remaining smaller states/Union Territories. The funds for 2002-03 is being given as special additional central assistance to the states so that they can provide food grains through TPDS totally free of cost to the families of identified under-nourished persons. The programme will be operationalised through the Department of Women and Child Development in the centre and in the states.

3.3.54 During the Tenth Plan, studies to improve the understanding of the relationship between energy requirements, body composition, endocrine changes and micronutrient status in children and adolescents will be taken up so that appropriate focused interventions can be initiated. Programmes to improve the nutrition and health status of adolescents will be effectively implemented.

3.3.55 Adolescent girls fall into two categories --- those who are in school and those who are not. The focus of efforts to improve the health and nutritional status of those who are in school will have to be through the school health system. Efforts will be made to screen all for anaemia and under-nutrition and provide appropriate management. Screening will also enable the identification of obese adolescents and the initiation of appropriate remedial measures. Appropriate information, education, communication and motivation (IECM) to delay marriage until at least the age of 18 and postpone child-bearing till the age of 20 will be vigorously taken up.

3.3.56 A majority of the girls in the out-of-school category marry during their early teens and conceive soon after. The focus of any strategy will be to get these girls to the anganwadi so that the anganwadi worker, in collaboration with the auxiliary nurse midwife (ANM), can undertake the following activities:

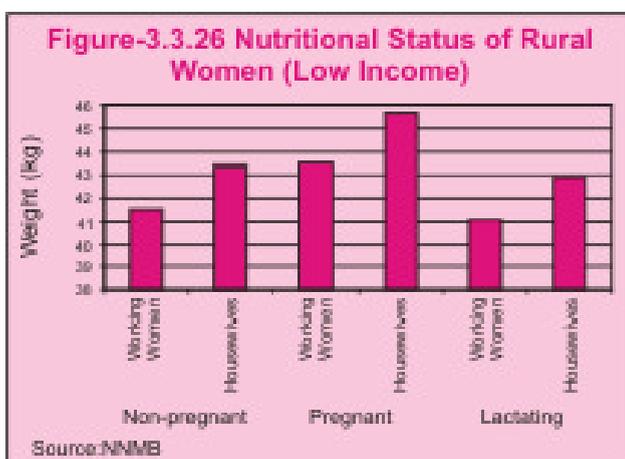
- screening for under-/over-nutrition and micronutrient deficiencies;
- targeted interventions to tackle the nutritional problems of adolescents, especially girls;

- ☒ introduction of community-supported supplementary nutrition programmes using community food and food prepared by women's groups using locally-available commodities and given on a priority basis to adolescent girls who are under-nourished or pregnant;
- ☒ IEC to improve awareness;
- ☒ health and nutrition education to prevent early pregnancies and under-nutrition; and
- ☒ appropriate antenatal and intrapartum care and contraceptive care when needed

Nutritional Status of Pregnant and Lactating Women

3.3.57 Traditional belief was that pregnant and lactating women require additional dietary intake as they have to meet their own nutritional requirements and also supply nutrients to the foetus and the infants. Some available data indicated that a low dietary intake, especially in already chronically undernourished women, had adverse effects on the health and nutritional status of the mother, the course and outcome of pregnancy and the birth weight of the offspring.

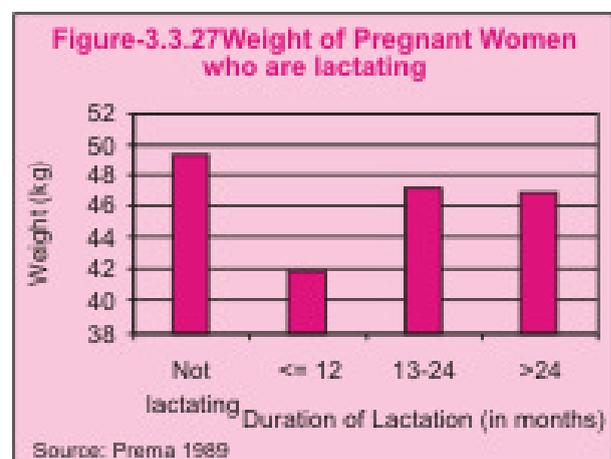
3.3.58 Both the ICMR and the WHO Expert Groups recommended additional intake for pregnant and lactating women. The WHO had recommended an additional 300 kilo calories (Kcal) throughout pregnancy and 500 additional Kcal during the first year of lactation. The ICMR has recommended an additional intake of 300 Kcal during the second and third trimester of pregnancy, 550 Kcal during the first six months of lactation and 400 Kcal during 7- 12 months of lactation.



3.3.59 Epidemiological data from the developed and developing countries, however, indicate that there is no increase in dietary intake during pregnancy and lactation among habitually well-nourished women who eat to appetite. This did not have any adverse effect either on their own nutritional status or on the course and outcome of pregnancy. Studies undertaken during the 1980s have shown that there are adaptive changes during pregnancy. There is a reduction in BMR and physical activity and there might be some improvement in the as yet unmeasured efficiency of energy utilisation. The energy and nutrients saved due to these adaptive processes are sufficient to meet the increased requirements for nutrients during pregnancy. So long as there is no reduction in the habitual dietary intake, there is no deterioration in the maternal nutritional status either during pregnancy or during lactation. In well-nourished individuals, additional intake during pregnancy and lactation results in excessive weight gain and this may lead to obesity.

3.3.60 However, there are limits to adaptations. Studies from developing countries have shown that reduction in dietary intake below habitual levels and increased workload above the habitual levels are associated with deterioration in maternal nutritional status and reduction in birth weight. Some such readily identifiable situations are:

- ☒ reduction in habitual dietary intake during drought and the pre-harvest season;
- ☒ increase in work (Figure 3.3.26) e.g., newly inducted manual laborers;
- ☒ combination of both the above (food for work programmes);



- ☒ adolescent pregnancy;
- ☒ pregnancy in a lactating woman (Figure 3.3.27); and
- ☒ pregnancy occurring within two years after last delivery.

3.3.61 Research studies in India and elsewhere have shown if pregnant women in whom there has been a reduction in habitual dietary intake or excess energy expenditure or whose body weight is less than 40 kg are identified and given adequate continuous food supplementation and antenatal care there is substantial improvement in outcome of pregnancy, birth weight and neonatal mortality. Encouraged by such data, almost all developing countries embarked on food supplementation programmes for pregnant and lactating women. None of these programmes screen pregnant women or provide supplements only to those with energy gap or those with moderate/severe undernutrition. When food supplements are provided without screening, targeting supplementation and monitoring the programme, the improvement in maternal nutrition, and birth weight, if any, is very limited.

3.3.62 One of the major problems is to reach food supplements to the under-nourished women. Even when the logistics of reaching the food to women is meticulously worked out and efficiently carried out, food sharing patterns within the family results in the 'target' women not getting the supplements in significant quantities. Obviously this is one of the factors responsible for the demonstrated lack of beneficial effect. The lack of adequate antenatal care and continued physical work during pregnancy are two other factors responsible for the lack of impact.

3.3.63 Under the ICDS programme, food supplements are being provided to pregnant and lactating women who come to anganwadis. The reported coverage is between 15 and 20 per cent in most blocks. The women who receive supplements are not being chosen on the basis of their nutritional status and may not be the most needy ones. There has not been any evaluation studies on this component of the ICDS. However, data from nutrition surveys indicate that there has

not been any significant decline in maternal under-nutrition over the last decade.

3.3.64 **During the Tenth Plan** efforts will be made to weigh all women as early in pregnancy as possible and to monitor their weight gain. Well-nourished women will be advised not to increase their dietary intake to prevent over nutrition and obesity. Women who weigh less than 40 kg will be identified and

- ☒ given food supplements consistently throughout pregnancy;
- ☒ given adequate antenatal care;
- ☒ monitored for weight gain during pregnancy and, if weight gain is sub-optimal, identify the causes and attempt remedial measures; and
- ☒ given appropriate antenatal, intrapartum and postpartum care.

3.3.65 Effective intersectoral coordination between ANMs and anganwadi workers will enable the identification of and provision of appropriate care to undernourished pregnant women. The PRIs can play an important role by ensuring that these women receive food supplement throughout pregnancy.

3.3.66 The methods by which food supplements can be provided to identified undernourished pregnant and lactating women may vary. In some cases the food may be provided at the work site. In yet other cases, it might be possible to link antenatal care and the provision of free food-grains for pregnant and lactating women on lines similar to the Mid-day-meals scheme to increase enrolment. With the empowerment of the PRIs and nagar palikas, it might be possible to monitor these programmes at the local level and consequently achieve better coverage. If well-targeted intervention to identify undernourished women and provide them health and nutrition education and ante-natal care are implemented effectively, there can be substantial reduction in severe under-nutrition in pregnant women and low birth weight. The feasibility, utilisation, cost and impact of such well-directed, innovative strategies involving close local monitoring need to be assessed.

Maternal Nutrition and Birth Weight

Table-3.3.7 Birth Weight and Socio-economic Status

	Poor Income	Middle Income	High Income
Age (years)	24.1	24.3	27.8
Parity	2.41	1.96	1.61
Height (cm)	151.5	154.2	156.3
Weight (kg)	45.7	49.9	56.2
Hb (g/dl)	10.9	11.1	12.4
Birh weight (kg)	2.70	2.90	3.13

Source : Prema 1987

3.3.67 It is estimated that one-third of Indian neonates weigh less than 2.5 kg at birth. There are substantial differences in the maternal body weight and birth weight between income groups, which are partly due to differences in the nutritional status and partly due to differences in health care (Table-3.3.7). Efforts to improve these through appropriate health and nutrition interventions are dealt with in the section under Family Welfare. A majority of deliveries occur at home. Identification of infants weighing less than 2.2 kg and referring them to hospitals where a paediatrician is available will substantially reduce neonatal mortality.

3.3.68 During the Tenth Plan, efforts will be made to ensure that the anganwadi workers report all births in the village, weigh all neonates delivered at home soon after birth and refer those weighing less than 2.2 kg to a hospital with a pediatrician. This will enable development of referral services, reduce neonatal mortality and generate nation-wide data on birth weight and prevalence of low birth weight.

Growth During Infancy

3.3.69 Energy requirements during infancy are very high because this is one of the periods of very rapid growth. The energy cost of growth in infants and children include two components: the energy value for the tissue and the energy cost of synthesising the tissue. This has to be taken into account along with the basal energy

needs and energy needs for activity in infants and children. Available data suggest that energy needs are highest during the first three months and then fall over the next six months when the growth rates are lower. It rises again after nine months as the child becomes physically more active. The RDA for infants drawn up both by WHO and by ICMR takes this phenomenon into account (Tables 3.3.8 and 3.3.9).

3.3.70 Growth during infancy and childhood depend upon birth weight, adequacy of infant

Table-3.3.8 RDA of infants and children

	Energy (kcal)	weight(kg)
3-6 months	700	7
6-9 months	810	8.5
9-12 months	950	9.5

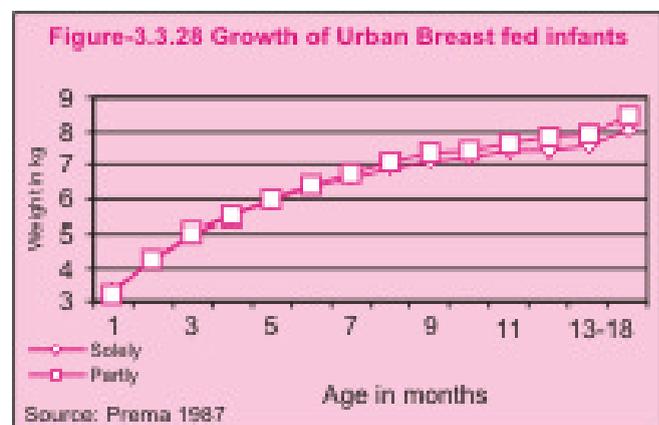
Source : WHO/FAO/UNO - 1985

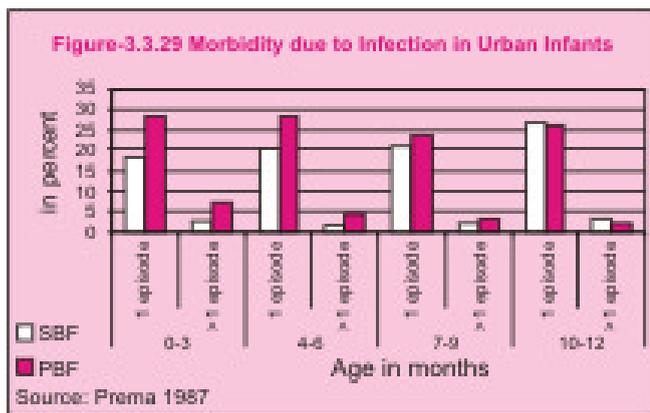
Table-3.3.9 RDA of infants and children

	Energy(kcal)	weight(kg)
<6 months	583	5.4
6-12 months	844	8.6

Source : ICMR - 1988

feeding and absence of infection. Available data clearly indicate that in India exclusively breast-fed infants thrive normally during the first six months of life (Figure 3.3.28) and have lower morbidity episodes than those receiving supplements in addition to breast milk (Figure-3.3.29). In view of this, promotion of universal exclusive breast-feeding for the first six months



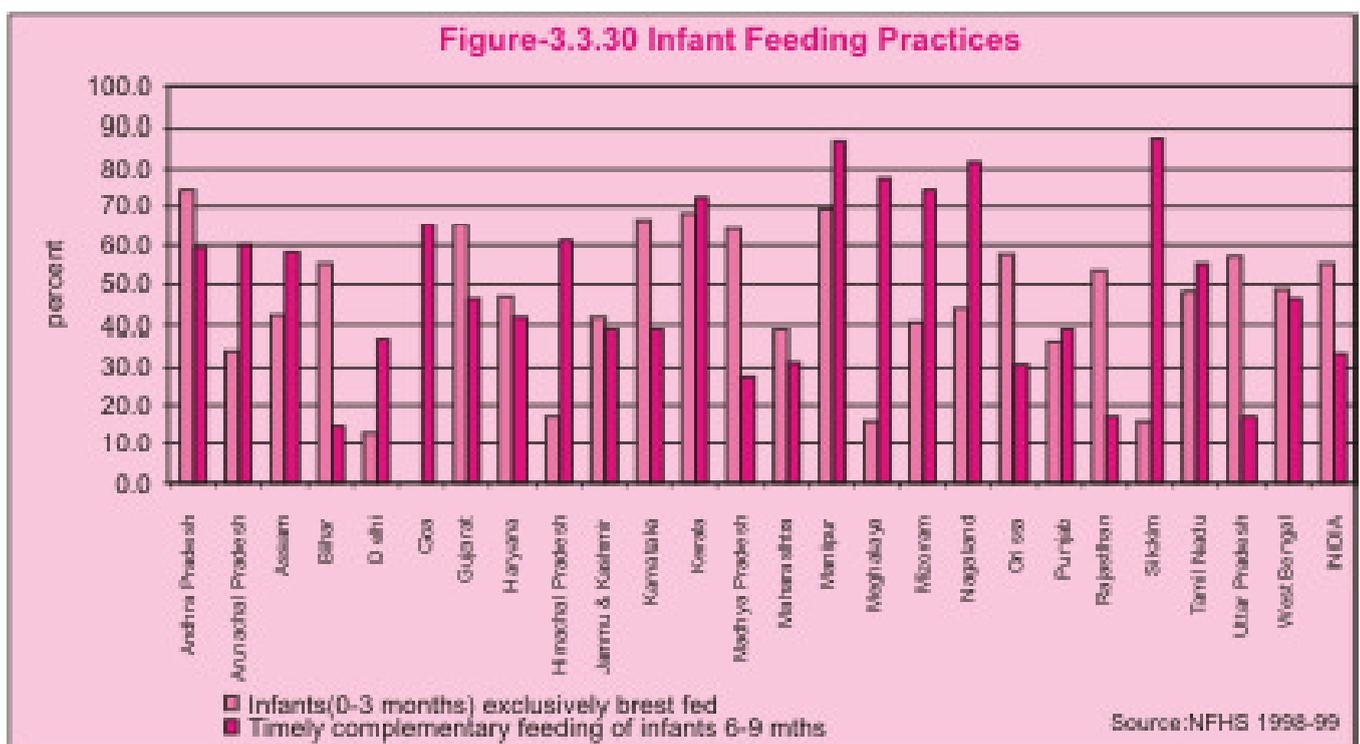


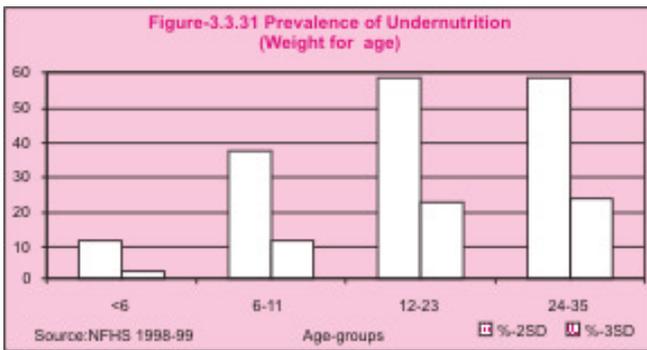
of life has been the national policy. Breast milk alone is insufficient to meet the growing baby's needs after six months and appropriate semi-solid complementary foods have to be introduced to enable them to meet their nutrient needs. Care should be taken to reduce the chances of infection by providing freshly prepared food.

3.3.71 In India, steps taken for the protection and promotion of the practice of breast-feeding have been effective and breast feeding is almost universal. However, the message that exclusive breast feeding up to six months and gradual introduction of semisolids after that are critical for the prevention of

under-nutrition in infancy has not been as effectively communicated. Data from NFHS-2 indicated that exclusive breast-feeding among infants in the age group of 0-3 months was only 55.2 percent. In spite of the emphasis on the need for timely introduction of complementary food only 33.5 per cent of the infants in the age group of 6-9 months received breast milk and semi- solid food.

3.3.72 There are substantial inter-state differences in exclusive breast feeding and timely introduction of semi-solid food (Figure 3.3.30). While Andhra Pradesh and Kerala fare well in terms of appropriate infant feeding practices, the too early introduction of supplements is a major problem in states like Delhi, Himachal Pradesh and Punjab and too late introduction of supplements is a big problem in Bihar, Uttar Pradesh, Madhya Pradesh, Rajasthan, and Orissa. Both these practices are associated with increased risk of under-nutrition and infection. As a result of these faulty infant feeding habits, there is a steep increase in the prevalence of under-nutrition from 11.9 per cent at less than 6 months to 58.5 per cent in the 12- 23 months age group (Figure 3.3.31). Correction of these faulty infant feeding practices through nutrition education will prevent the steep increase in under-nutrition in the 6-24 months age group.





During the Tenth Plan the major focus will be on

- ☒ promotion of exclusive breast feeding in the first six months;
- ☒ nutrition education for the introduction of appropriate low-cost, energy dense complementary food at six months of age;
- ☒ three-monthly monitoring of weight in infancy and childhood; and
- ☒ detection of infants with faltering growth and initiating appropriate steps to improve their nutritional status.

3.3.73 Studies carried out at the NIN had shown that if roasted coarsely ground cereals, pulses and oil seeds mixture is provided to households free of cost, the mothers were willing and able to give this to young children three to four times a day; as a result there was improvement in timely introduction of complementary food. In an effort to find out if this could be replicated at the national level, Additional Central Assistance is being given since 2000-01 under the nutrition component of PMGY

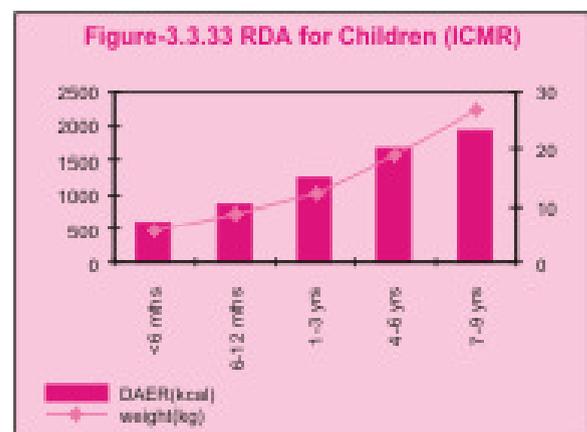
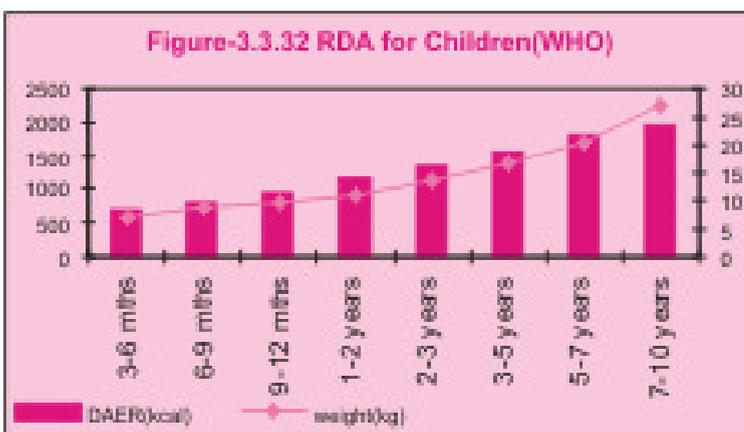
to provide such a mixture once a week to BPL families totally free of cost. The progress and impact of this will be assessed during the Tenth Plan period.

The goals for the Tenth Plan are to

- ☒ enhance early initiation of breast-feeding (colostrum feeding) from the current level of 15.8 per cent (as per NFHS 2) to 50 per cent;
- ☒ enhance the exclusive breast-feeding rate for children up to the age of six months from the current rate of 55.2 per cent (as per NFHS 2) to 80 per cent; and
- ☒ enhance the complementary feeding rate at six months from the current level of 33.5 percent (as per NFHS 2) to 75 per cent.

Growth During Childhood

3.3.74 The WHO/FAO/ UNU and the ICMR Expert Committee took note of the fact that Indian children are smaller at birth, infancy, childhood and adolescence but suggested that it is desirable that the growth potential of children should be fully expressed and that the estimates of energy and protein requirement should allow for this (Figures 3.3.32 and 3.3.33). However, as the normal Indian children are smaller and they weigh less, the actual energy requirements may be substantially lower. It is a matter of concern that even this small amount is not fully met. Low dietary intake is associated with short and long term metabolic, biological, genetic, social and behavioural adaptations. Reduction in physical activity could be behavioural



adaptation in children to low energy intake. While this could be considered as a protective adaptation to ensure continuing growth, it may impair the child's curiosity, exploration or play and hence have adverse consequences on intellectual and social development. Research studies are needed to define adaptation to low dietary intake and its functional consequences .

3.3.75 Even though, Indian children have lower birth weight, dietary intake, growth trajectories and body size than their counterparts from developed countries, those with mild under-nutrition do not have any major functional or intellectual impairment. However, those with severe under-nutrition incur health hazards such as increased susceptibility to infections. The vicious self-perpetuating cycle of under-nutrition rendering them susceptible to infection and infections aggravating under-nutrition can at times result in death. Efforts are, therefore, directed towards screening all under five children for under-nutrition and initiating appropriate health and nutrition intervention to combat adverse health consequences of under-nutrition.

Catch up growth in children

3.3.76 In order to enable children with under-nutrition to 'catch up' with those who are well-nourished, it is essential to provide them with additional food and excellent health care. Quantitative estimates of the dietary requirements for catch up growth in children are very difficult because the targeted body weight in a growing child is not fixed but increases with time; the longer the

period of rehabilitation, the greater is the gap to be filled. Milder form of CED of short duration in a child leads to low weight (wasting) but does not affect the height. This can be easily corrected with adequate dietary intake. More severe or prolonged CED can result in stunting and wasting. Adequate dietary intake at this stage may reverse wasting but the child may not be able to catch up with the deficit in height. The relative contributions of these two factors and their severity will vary in different communities. It is impossible to make generalisations about the amounts of additional energy and protein needed for catch up growth in children who have become under-nourished as a result of prolonged inadequate dietary intake. Clinical monitoring is critical to achieve optimal results.

3.3.77 Diets consumed by Indians from low-income group families are predominantly cereal-based, have low fat content and are not energy dense; young children share the food from the family pot. Infants and young children require more energy per kg weight than adults but they have a relatively small stomach capacity. As a result, unlike adults who, with their larger stomach capacity, can readily meet their energy needs through the cereal pulse diet taken as three meals, the children have problems in meeting their energy needs unless fed five to six times a day (Table 3.3.10). It is, therefore, imperative that nutrition education should clearly focus on the need to ensure that children are fed more often - at least once in four hours - so that their nutritional needs are met from even this type of food. Wherever feasible, efforts may be made to

Table-3.3.10 Energy intake in relation to stomach capacity and total volume of diet

Group	Body weight (kg)	Energy requirement Kcal/d	Observed energy intake Kcal/d	Total volume of diet (ml)	Stomach capacity (ml)
Pre-school children					
Urban middle income	12.4	1,240	1,346	1301	245 ^a
Urban low middle income	12.4	1,240	1,115	975	245 ^a
Rural poor	9.9	1,240	714	1015	203 ^a
Rural adult male (moderate activity)	52	2,664	2,418	3565	1040 ^b
a : Stomach capacity 20.4 ml/kg; b: 20 ml/kg					

Source : Dr.B.S.Narasinga Rao - Gopalan Oration, 2001

increase the energy density of the food provided to them by adding sugar/jaggery and oil seeds/oil to their food. Because of the low stomach volume, pre-school children can consume a cereal-pulse mix providing only about 150-200 calories in one meal. This has to be kept in mind when food supplementation programmes are planned for these children. Food supplements aimed at providing adequate nutrients needed for catch up growth in undernourished children must compromise energy-dense food and these have to be fed at least once in four to five hours to the child daily. It is not possible to provide the needed amount of food for catch up growth in undernourished children through on-the-spot feeding at anganwadis.

Health - Nutrition Interactions

3.3.78 Dietary intake is a critical, but not the sole, determinant of the nutritional status of the population. Low birth weight, poor infant feeding practices, infections due to poor sanitation, lack of safe drinking water and poor access to health care are other major factors responsible for under-nutrition. In spite of low dietary intake, the prevalence of severe under-nutrition and under-five mortality is lower in Kerala because of more equitable distribution of food between income groups and within families and better access to and utilisation of health care facilities. However, in Uttar Pradesh, Madhya Pradesh and Orissa, under-nutrition and under-five mortality rates are higher, in spite of higher average dietary intake, because of the lack of equitable distribution of food and access to health care. Identification and appropriate nutrition and health interventions among 'at risk' groups and under-nourished children are essential for optimal results. Equally important are interventions from related sectors to provide safe drinking water and improve environmental sanitation so that morbidity due to infections is reduced. In spite of high per capita income, dietary intake and access to health care, both under-nutrition and infant mortality rates (IMR) are relatively high in Punjab. It is imperative that health and nutrition programmes are co-ordinated to achieve optimal synergy between the two interventions so that there is improvement in the nutritional and health status in all states.

Nutrition-Fertility Interactions

3.3.79 The association between low birth weight, under-nutrition during infancy and childhood and high infant mortality on the one hand and high parity and low inter birth intervals on the other have been well documented by research studies. Currently, birth order of three or more form over 50 per cent of all births in Uttar Pradesh, Madhya Pradesh and Bihar. In Kerala and Tamil Nadu, birth order of three or more constitute less than 30 percent of all births. Efforts to meet all unmet needs for contraception in the poorly performing states in order to reduce the high order of births would indirectly have a beneficial effect on child nutritional status, especially in terms of reduction in severe grades of undernutrition. Coordination between ICDS and health functionaries to achieve optimal synergy between the interventions is critical for improving the nutritional and health status of women.

3.3.80 In the last two decades, there have been reports on the health status and growth performance of Indian children from the low-income group who have been adopted and grew up without nutritional constraints during childhood. Data from these studies suggest that these children have a substantially higher prevalence of obesity during childhood, adolescence and in adult life. Girls have higher body weight and body fat and, compared to their counterparts, attain menarche one or two years earlier. This, in turn, may result in their being shorter than their counterparts as skeletal growth ceases after menarche. In view of the changing dietary habits and life styles and the increase in obesity, research studies may have to be taken up to document the growth pattern of Indian children living not only under nutritional constraints but also among affluent groups and their impact on adult stature and reproductive function.

Time Trends in the Dietary Intake and Nutritional Status of Pre-School Children

3.3.81 Pre-school children constitute one of the most nutritionally vulnerable segment of the population and their nutritional status is considered to be a sensitive indicator of community health and nutrition. There has not

Table-3.3.11 Average Nutrient Intakes Among Pre-school Children

	1-3 years			4-6 years		
	1975-79	1988-90	1996-97	1975-79	1988-90	1996-97
Protein (g)	22.8	23.7	20.9	30.2	33.9	31.2
Energy (Kcal)	834	908	807	1118	1260	1213
Vitamin A (mg)	136	117	133	159	153	205
Thiamin(mg)	0.50	0.52	0.40	0.76	0.83	0.70
Riboflavin (mg)	0.38	0.37	0.40	0.48	0.52	0.60
Niacin (mg)	5.08	5.56	4.60	7.09	8.40	7.40
Vitamin C (mg)	15	14	15	20	23	25

Source: NNMB (1999)

been a substantial improvement in their energy intake over the last two decades (Table 3.3.11). However, there has been a reduction in moderate and severe under-nutrition (Figure-3.3.34). Though there has not been any improvement in micronutrient intake over the years, there has been a substantial decline in the prevalence of nutritional deficiency signs (Figure-3.3.35). This is, perhaps, because of the better access to health care and effective treatment of infections. The decline in fertility and reduction in the higher order births may also have contributed to this because prevalence of severe forms of under-nutrition is higher among higher order births.

Intra-familial Distribution of Food

3.3.82 It is widely believed that in India, especially among the rural poor, food distribution is not based on 'need'. The breadwinner gets sufficient food, the children get the next share and the women take the remains. In times of

scarcity, the dietary intake of women and children are likely to be most adversely affected. Several small studies in different states have reported that intra-familial distribution of food follows this traditional pattern even today.

3.3.83 However, this may not be applicable to all states and all strata of society. Analysis of data from diet surveys carried out by the NNMB in 1975-79 and in 1996-97 using the 24 hours dietary recall method is shown in Figure 3.3.36. Data from the repeat survey showed that there has been reduction in the proportion of families where both adults and pre-school children were having inadequate food intake. However, it is a matter of concern that the proportion of families where the dietary intake of adults is adequate but that of pre-school children is inadequate has nearly doubled. Nutrition and health education on child-feeding and child-rearing practices are of paramount importance in improving the dietary intake and nutritional status of children through appropriate intra-familial distribution of food.

Figure-3.3.34 Distribution of Children (1-5) years according to Gomez Classification

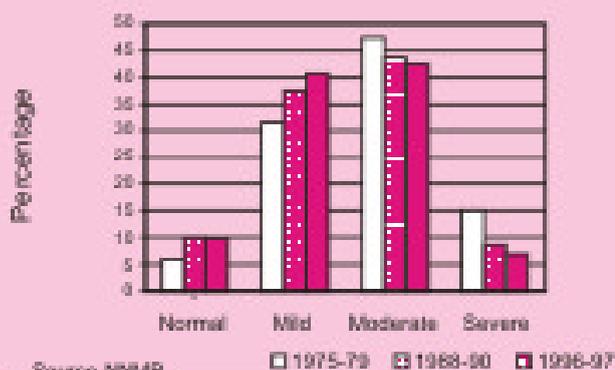
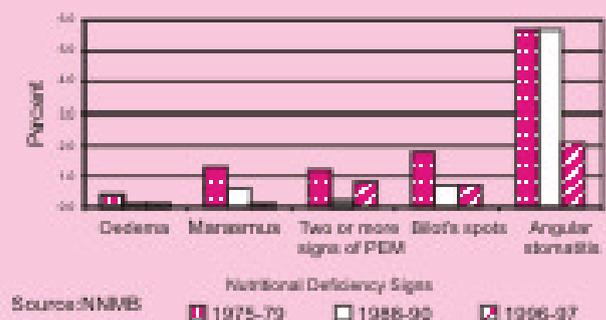
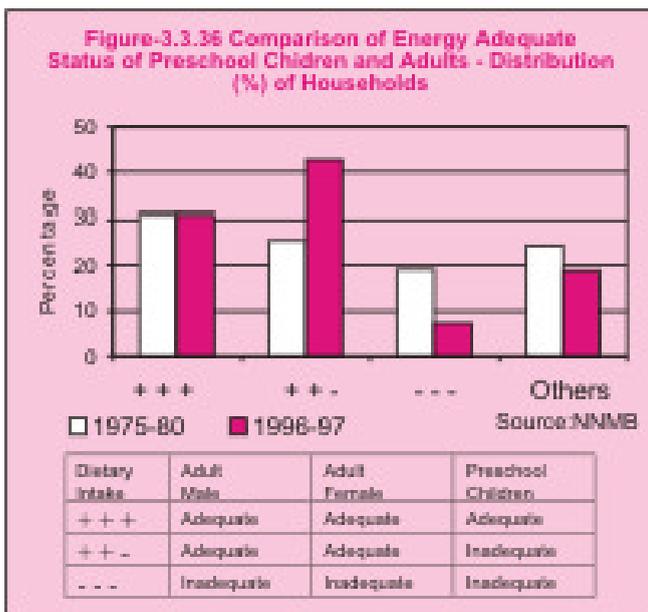


Figure-3.3.35 Percent Prevalence of Nutritional Deficiency Signs among Pre-school Children - Pooled





Programme for Improving Nutritional Status of Pre-school Children

3.3.84 The ICDS scheme was initiated in 1975 with the following objectives:-

- ☒ to improve the health and nutrition status of children in the 0-6 age group by providing supplementary food and coordinating with state health departments to ensure the delivery of the required health inputs;
- ☒ to provide conditions necessary for pre-school children's psychological and social development through early stimulation and education;
- ☒ to provide pregnant and lactating women with food supplements;
- ☒ to enhance the mother's ability to provide proper child care through health and nutrition education;
- ☒ to achieve effective coordination of policy and implementation among the various departments to promote child development.

3.3.85 The initial geographic focus of ICDS was on drought-prone areas and blocks with a significant

proportion of scheduled caste and scheduled tribe population. In 1975, 33 blocks were covered under ICDS. Over the last two decades the ICDS coverage has progressively increased. The nutrition component of the ICDS aims at providing food supplements to pre-school children between the age of six months to six years, pregnant and lactating mothers and adolescent girls (in some selected blocks). The type of food supplements in the ICDS programme varies widely, from ready-to-eat food to the supply of supplements cooked in the anganwadi.

3.3.86 The emphasis was initially on providing cooked food through on-the-spot feeding in the anganwadi because it was believed that

- ☒ this would ensure that the targeted child would get food supplements, which would not be shared between other members of the family; and
- ☒ the anganwadi centres would provide practical nutrition education to women on cooking and feeding young children.

3.3.87 However, the on-the-spot cooked food feeding programme has several disadvantages as well. They are:

- ☒ children especially those in the age group of 6-36 months cannot consume the entire amount of food provided because of a smaller stomach capacity;
- ☒ even if older children do eat the food provided in the anganwadis, this acts mainly as a substitute, and not an addition, to home food;
- ☒ the most needy segments viz., children in the critical 6- 36 month age group and women, may not be able to come to the anganwadis duty and receive the food;
- ☒ providing food supplements only to the children from BPL families or those with under-nutrition is not possible as it may be difficult to feed one child and withhold food from another in the same anganwadi;

- ☒ cooking food, feeding the children and cleaning the vessels and the anganwadi take up most of the time of the anganwadi workers and helpers, leaving them little time for other important activities such as growth monitoring, nutrition education, or pre-school education;
- ☒ in any mass cooking and feeding programme, the monotony of the food provided and relatively poor quality of the preparations is a problem;
- ☒ cooking in poor hygienic conditions and keeping left-over food may result in bacterial contamination of food;
- ☒ under-nourished children, even those in the 3-6 year age group, if given double rations, cannot consume all the food at one sitting in the anganwadi.

Evaluation of the Nutrition Component of ICDS

3.3.88 The nutrition component of the programme was evaluated by the Nutrition Foundation of India (NFI), Delhi, National Institute of Public Cooperation and Child Development (NIPCCD), Delhi, and the National Council of Applied Economic Research (NCAER), Delhi. In addition, there have been several small-scale evaluations.

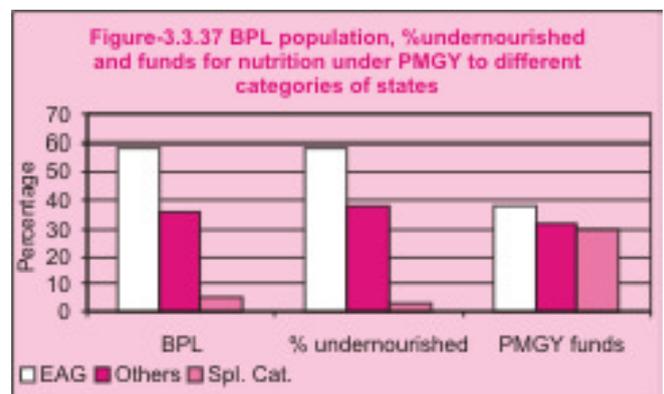
3.3.89 There were major reviews of the nutrition sector and ICDS programme by the World Bank and the Government of India in 1997 and 2001. The findings showed:

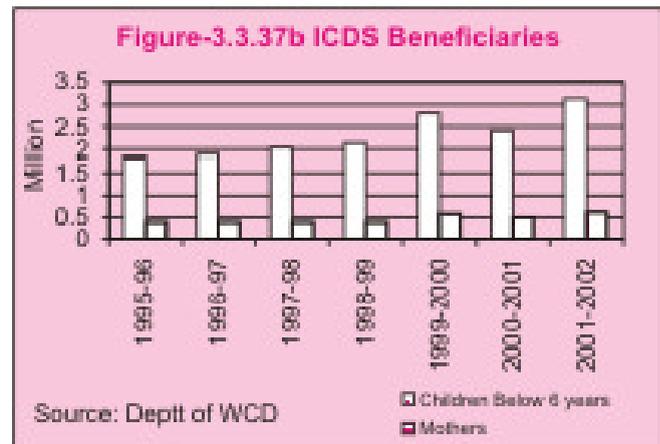
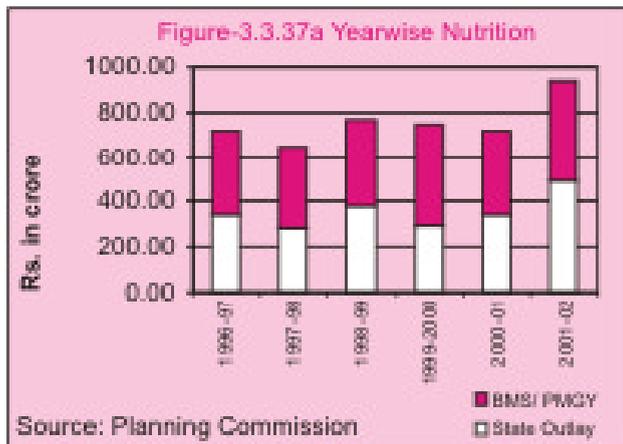
- ☒ ICDS services were much in demand but there are problems in delivery, quality and coordination;
- ☒ the programme might be improving food security at the household level, but does not effectively address the issue of prevention, detection and management of the under-nourished child/mother;
- ☒ children in the 6-36 months age group and pregnant and lactating women do not come to the anganwadi and do not get food supplements;

- ☒ available food is shared between mostly children in the 3-5 years age group irrespective of their nutritional status;
- ☒ as there was no attempt in ensuring that all children are weighed, the children with severe CED could not be identified and offered double the rations as envisaged in the ICDS guidelines. As a result, there is very little focussed attention on the correction of under-nutrition, prevention and management of health problems associated with moderate and severe under-nutrition.
- ☒ child care and nutrition education of the mother is poor or non-existent.
- ☒ there were gaps in the training and knowledge of anganwadi workers. Also, supervision of the programme, community support and inter-sectoral coordination was poor.

Nutrition Component of PMGY

3.3.90 Under Pradhan Mantri Gramodhaya Yojna 15% funds are earmarked for Nutrition Component. As the funding for PMGY is through the Gadgil-Mukherjee formula, the populous poor states with high under-nutrition rates do not get sufficient funds (Figure 3.3.37). The Department of Women and Child Development implemented the nutrition component of the programme providing take-home food supplements to children in the 6-36 months age group in the first two years viz., 2000-01 and 2001-02. From 1st April 2002, the Planning Commission has taken over its implementation. Some of the available data indicate that in many states:





- ☒ there was difficulty in procuring locally available take-home food supplements;
- ☒ relatively expensive ready-to-eat food, and not cereal-pulse-oilseed mix was provided;
- ☒ the funds provided under the nutrition component of PMGY were not treated as an additionality but were substituted for state's own Plan funds for nutrition (Figure 3.3.37a);
- ☒ there has not been any substantial improvement in the enrolment of children (Figure 3.3.37b).

3.3.91 The guidelines laid down for the nutrition component of PMGY emphasise that all infants and children should be weighed at least once in three months to detect those who are under-nourished so that health and nutrition interventions could be undertaken. Even though growth monitoring is an essential component of ICDS, this actually has not been operationalised. During the Tenth Plan, the physical and financial evaluation and the impact of the programme on infant feeding practices or infant nutritional status will be taken up.

ICDS During the Tenth Plan

3.3.92 During the Tenth Plan, every effort will be made to strengthen India's commitment and institutional capacity to combat under-nutrition in pre-school children and pregnant and lactating women. The nutrition component of ICDS will be specifically directed to achieve reduction in both micro and macro-nutrient under-nutrition. The focus will be on:

- ☒ strengthening the nutrition and health education component so that there is appropriate intra-familial distribution of food based on needs;
- ☒ reaching children in the 6-36 months age group, pregnant and lactating women;
- ☒ weighing all vulnerable population, identify those with CED and provide integrated health and nutritional support so that they recover within the next three months;
- ☒ ensuring universal screening of all children at least once a quarter to identify those children with growth faltering;
- ☒ focusing health and nutrition intervention (by providing take-home supplements) to ensure that children in Grades III and IV under-nutrition are in Grade II by the next quarter;
- ☒ looking for and treating health problems associated with severe under-nutrition;
- ☒ enhancing the quality and impact of ICDS substantially through training, supervision of the ICDS personnel and improved community ownership of the programme;
- ☒ concentrating on the improvement of the quality of care and inter-sectoral coordination and strengthening nutrition action by the health sector;
- ☒ creating nutrition awareness through IEC at all levels (community, women's group, village-

level workers, PRIs, programme managers and policy makers at the state and central levels);

- ☒ establishing a reliable monitoring and evaluation mechanism

3.3.93 There is a shift in focus from providing cooked food at anganwadis to take-home food supplementation (under the PMGY and the pilot project providing food-grains to under-nourished pregnant and lactating women and adolescent girls). Undoubtedly, the take-home food supplements provided will be shared with the family, but that would add to household food security. When coupled with nutrition education, the under-nourished persons may get their due share. Nutritional education and careful monitoring of weight of the under-nourished individual will go a long way in ensuring that the person does get her due share. This shift may free the anganwadi workers and helpers from the time-consuming task of cooking and cleaning, giving them time for their other designated tasks for child development.

3.3.94 During the Tenth Plan, inter-sectoral linkages between the health and the ICDS programmes will be strengthened. The Health sector will :

- ☒ invest in upgrading the nutritional knowledge and skills of all health care workers;
- ☒ focus on the management of health problems in moderately and severely under-nourished children; and
- ☒ train health and anganwadi workers so that they provide nutrition and health education on

feeding of infants and young children and nutrition counseling to parents with sick children.

3.3.95 Simultaneously, efforts will be made to build up institution capacity for strengthening

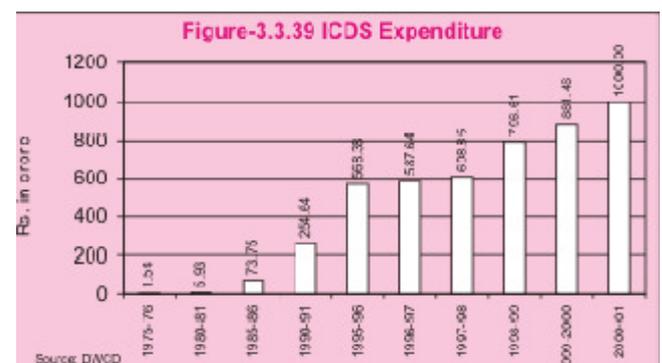
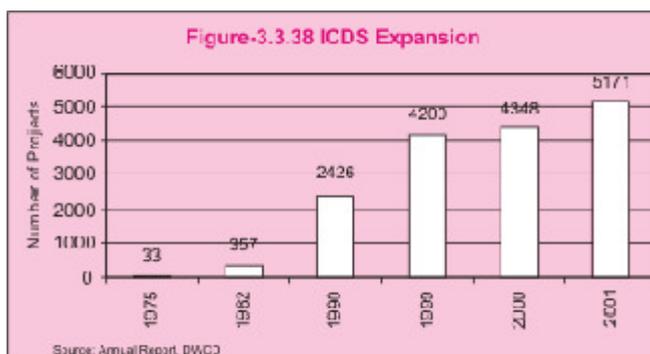
- ☒ advocacy for nutrition among policy makers, programme implementers, women's groups, PRIs etc;
- ☒ country's capacity for nutrition action, training and research; and
- ☒ the network of medical colleges, home science colleges, centres undertaking nutrition monitoring and nutrition education.

3.3.96 Priority areas for research in nutrition during the Tenth Plan will include:

- ☒ operational research to identify and eliminate constraints in the ongoing programme; and
- ☒ analysis of nutrition needs at the local level and tailoring ongoing nutritional interventions to meet these needs.

Funding of the Nutrition Component of the ICDS Programme

3.3.97 The ICDS programme is a centrally sponsored one in which the Centre bears the cost of maintaining the infrastructure, while the states bear the expenditure on the food component. The programme has expanded (Figure 3.3.38) and central expenditure on the scheme has increased from Rs.1.54 crore in 1975-76 to Rs. 1,000 crore in



2000-2001 (Figure-3.3.39). With the increase in coverage, there is an increasing need for funds for the food supplements as well. Though the central expenditure has increased over the years, there has been no corresponding increase in the states' own plan expenditure on food supplements (Figure-3.3.37a).

Expenditure on Nutrition - World Bank's Computation

3.3.99 The World Bank computed the information on expenditure relating to nutrition in 12 major states (Table 3.3.12). In addition to ICDS, some states have supplementary feeding programmes, like the Mid-day meals programme in Tamil Nadu. States' expenditure on supplementary nutrition does not have any correlation with level of under-nutrition or state domestic product. States with a higher prevalence of under-nutrition are not investing higher amounts in food supplementation programmes. However, expenditure on supplementary nutrition is not the only critical determinant of the level of under-nutrition. Kerala, which is spending very little on supplementary

nutrition programmes, has the lowest under-nutrition rates, perhaps due to more equitable distribution of food and effective health care.

Planning Commission's Review of Funding of Nutritional Component of ICDS:

3.3.100 The Planning Commission reviewed the current funding of the ICDS food supplementation programme. The funding requirements were calculated for different scenerios: on the basis of the ICDS norms (1999), for providing food supplements only to persons from BPL families, for providing food supplements to undernourished children and pregnant women or providing double the rations to children with severe under-nutrition. The total funds available for procuring food supplements i.e., state nutrition allocation under Plan and the PMGY nutrition outlays(Annexure 3.3.2) were taken into account while computing the gaps. Currently, in most states there are substantial gaps (Annexure 3.3.3) between the requirement and the actual funds provided. However there are other states where the funds provided are more than what is required. It is a matter of concern that

Table-3.3.12 Nutrition spending in selected states, 1992-95

State	Population below poverty line (%)	Severe and moderately malnourished children (%)	Net Annual state domestic product per capita (Rs.)	Nutrition spending as a % of state domestic product		
	1993-94	1992-93	1994-95	1992-93	1993-94	1994-95
Andhra Pradesh	23	49	5,718	0.11	0.10	0.10
Assam	41	50	4,973	0.11	0.12	0.17
Gujarat	24	50	8,164	0.31	0.31	0.29
Haryana	25	38	9,037	0.17	0.17	0.16
Karnataka	33	54	6,315	0.08	0.08	0.10
Kerala	25	29	5,768	0.10	0.09	0.12
Madhya Pr.	43	57	4,544	0.20	0.16	0.18
Maharashtra	37	54	9,806	0.08	0.08	0.08
Orissa	49	53	4,114	0.32	0.33	0.36
Rajasthan	27	42	5,257	0.09	0.12	0.13
Tamil Nadu	35	48	6,670	0.62	0.53	0.58
West Bengal	36	57	5,541	0.07	0.08	0.08

Note : Nutrition spending figures include GOI and state government expenditures on ICDS, Mid-day meal Programme and other nutrition programmes

Source : India Wasting Away, World Bank (1999)

states like Bihar with high rates of poverty, under-nutrition and birth rates have substantial gaps. However states like Gujarat, Tamil Nadu and Delhi are spending more than the required minimum amount. In spite of this, the nutritional status of children in these states is not better than the national average. It would, therefore, appear that while funding constraints is a problem in some states, effective implementation may be the bottleneck in other states. The critical role of the family in ensuring intra-familial food distribution based on needs to prevent under-nutrition cannot be overestimated.

3.3.101 During the Tenth Plan efforts will be made to:

- ☒ persuade states to provide more funds;
- ☒ optimally utilize funds provided under PMGY;
- ☒ improve targeting by providing available food on a priority basis to those with under-nutrition;
- ☒ improve health care for under-nourished children; and
- ☒ monitor children / women with severe grades of undernutrition who are receiving food supplementation and assess improvement in their nutritional status.

3.3.102 Given the current financial constraints, States may find it difficult to increase the amount of funds currently being allocated to the programme. However experience in Orissa has shown that even with the existing outlay it is possible to achieve significant reduction in severe grades of undernutrition by identifying the children with severe grades of undernutrition and ensuring that they get the required health and nutrition inputs. It is essential that appropriate guidelines for screening all children and identification of those with undernutrition and utilizing the available food supplements to fully meet the requirement of these children on priority basis are drawn up and agreed to by the centre, state, PRI and the community; the PRI and the community should play a major role in ensuring the effective implementation of the programme.

Mid-day Meal Programme

3.3.103 The National Programme of Nutritional Support to Primary Education commonly known as Mid Day Meals Scheme was launched in August, 1995 as a 100% centrally funded Centrally Sponsored Scheme. The objective of the programme is to give a boost to universalisation of Primary Education by increasing enrolment, retention and attendance and simultaneously improving nutritional status of students in primary classes. This is discussed under the section on Education.

MICRONUTRIENT DEFICIENCIES

3.3.104 Goitre due to iodine deficiency, blindness due to Vitamin A deficiency, dry and wet beriberi and pellagra were the major public health problems in pre-independent India. Sustained dietary changes resulted in the elimination of beriberi and pellagra. Kerato malacia due to severe Vitamin A deficiency is no longer a public health problem. However, there has not been any decline in the prevalence of anaemia due to iron and folic acid deficiency; the decline in Vitamin A deficiency and iodine deficiency disorders has been very slow.

3.3.105 The Tenth Plan envisages a paradigm shift from food security to nutrition security to meet the needs of the macro, micro and phyto nutrients through dietary diversification. There will be sustained efforts to reduce/eliminate micronutrient deficiencies including universal salt iodisation to eliminate Iodine Deficiency Disorders (IDD) and a multi-pronged strategy to reduce the prevalence of anaemia and associated health hazards.

Anaemia

3.3.106 In India, the prevalence of anaemia is high because of

- ☒ low dietary intake, poor iron and folic acid intake;
- ☒ poor bio-availability of iron in phytate fibre-rich Indian diet; and
- ☒ infection such as malaria, hook worm infestations.

Anaemia due to deficiency of other micronutrients like copper, zinc, pyridoxine and Vitamin-B12 are rare in India. Studies conducted by the ICMR and NNMB show that the prevalence of anaemia is high among pregnant women (50-90 per cent) and children (50-70 per cent).

3.3.107 India was the first developing country to take up a National Nutritional Anaemia Prophylaxis Programme to prevent anaemia among pregnant women and children. Screening for anaemia and iron-folate therapy in appropriate doses and route of administration for the prevention and management of anaemia in these vulnerable groups have been incorporated as an essential component of antenatal care and paediatric practice. In spite of all these efforts anaemia continues to be a major problem affecting all segments of the population and there has not been any substantial decline in the adverse consequences of anaemia. A nationwide survey on anaemia using the cyanmethaemoglobin (Hb) method is currently under way and will provide data on the prevalence of anaemia in pre-school children, pregnant women and adolescent girls.

3.3.108 Pregnant women with Hb less than 8 g/dl show functional decompensation and constitute a high-risk group (Table 3.3.13). A single Hb estimation done around the twentieth week of

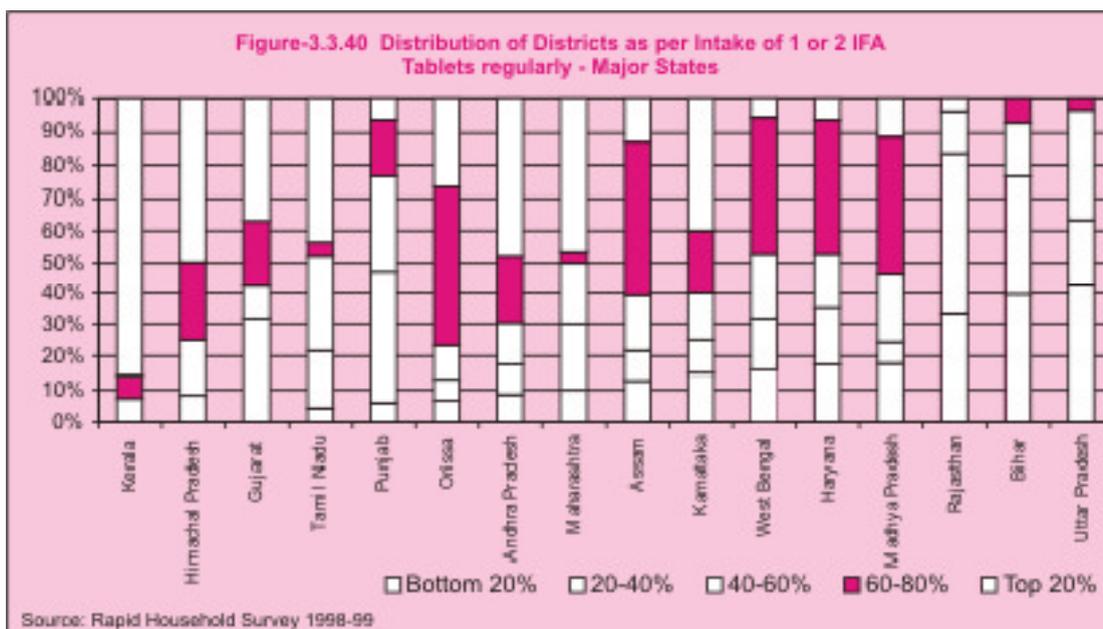
Table-3.3.13 Effect of maternal haemoglobin level on birth weight and perinatal mortality

	Haemoglobin gm/decilitre (g/dl)			
	<5	5 - 7.9	8 - 10.9	>11.0
Mean birth weight (g)	2,400	2,530	2,660	2,710
Perinatal mortality rate /1000	500	174	76	55
Number of observations	312	362	1015	1456

Source: Prema et al, 1981

pregnancy is sufficient to detect the high-risk anaemic pregnant women. The RCH programme envisages screening all pregnant women for anaemia by Hb estimation utilising the ANM and laboratory technicians in the primary health centres so that anaemia in pregnancy could be detected and effectively treated. Unlike the situation elsewhere in the world, oral iron therapy is not effective in correction of moderate or severe anaemia in Indian pregnant women, within the short time available because of the poor bio-availability of iron in the Indian diet.

3.3.109 The Ninth Plan envisaged the prevention, detection and management of anaemia in pregnant women as a priority intervention but this has not yet been operationalised. Evaluation of the ongoing RCH programme by the Rapid Household Survey, Department of Family Welfare and NFHS-2 showed



that a majority of pregnant women are not screened for anaemia and their iron and folic acid tablet (IFA) intake is erratic. Poor quality and inadequate supply of IFA tablets, erratic distribution due to poor worker motivation and erratic intake by woman are some of the major problems which are responsible for anaemia among them. The recent efforts to improve packaging and availability of these IFA tablets has not yet had an impact on the regularity of intake (Figure-3.3.40). As a result very high rates of anaemia in pregnant women persist and the impact of severe anaemia on birth weight and maternal mortality remain unaltered.

Anaemia in Childhood

3.3.110 The prevalence of anaemia in childhood is very high and contributes to poor scholastic performance and increased susceptibility to infection. In India, anaemia is caused by (a) inadequate intake of food (cereals and pulses) and vegetables rich in iron and folate; (b) poor bio-availability of iron; and (c) high incidence of hookworm infestation and incidence of malaria. Several investigators have taken up small-scale intervention studies to address each of these problems. These small research studies have proved the beneficial effect of these interventions. However, the larger programmes had very little impact. Pre-school children have been one of the target groups to receive IFA tablets under the National Nutritional Anaemia Prophylaxis Programme. But both access to and intake of IFA tablets by children have been very poor and there has been very little impact in terms of reduction in anaemia in childhood. Neither the RCH nor the school-based programmes have operationalised the programmes for detection and treatment of anaemia in children in the country. There are inter-state and perhaps inter-district variations in the prevalence of anaemia in children and the data from the RHS Survey is expected to provide information on this.

Strategies for the Prevention, Detection and Management of Anaemia in the Tenth Plan

3.3.111 The major intervention strategies required for the prevention and management of anaemia are:

- ☒ improve dietary intake to meet RDA for all macro and micronutrients;
- ☒ dietary diversification-inclusion of iron folate rich foods as well as food items that promote iron absorption;
- ☒ food fortification, including introduction of iron and iodine-fortified salt and other iron-fortified items (e.g., atta in specific areas);
- ☒ health and nutrition education to improve over all dietary intakes and promote consumption of iron and folate-rich foodstuffs; and
- ☒ screening for early detection of anaemia among vulnerable groups (such as pregnant women).

3.3.112 Management of anaemia depends upon its severity and chronicity and the physiological status of the individual and the time available for correction of anaemia.

Infants:

- ☒ exclusive breast feeding for six months, and introduction of green leafy vegetables along with cereal/pulse/oilseed mix in the sixth month for the prevention of anaemia;
- ☒ screening for anaemia in pre-term, low birth weight infants and those with growth faltering and repeated episodes of infection; and
- ☒ appropriate treatment for anaemic infants.

Preschool children:

- ☒ advocacy with regard to dietary diversification for the prevention of anaemia;
- ☒ all growth retarded children and those with repeated infections should have Hb estimation carried out; and
- ☒ those found to be anaemic must be provided with appropriate treatment.

School children:

- ☒ Operational research needs to be done to
 - ☞ assess the feasibility of at least once-a-year screening for detection and correction of anaemia as a part of the school health check up; and
 - ☞ set up mechanism to cover out-of-school children among whom anaemia is likely to be more prevalent; efforts may have to be made to explore the mechanism for the prevention, detection and management of anaemia in this group.
- ☒ In hookworm endemic areas, it will be necessary to improve;
 - ☞ sanitation and educate people not to walk barefoot;
 - ☞ treat children with a history of passing worms with broad spectrum anti-helminthics; and
 - ☞ screen all anaemic children for hookworm infestation and treat them.

Adolescents

3.3.113 Wherever possible, (such as during school health check up) attempts should be made to screen adolescent girls, especially those who are undernourished or have menstrual problems, for anaemia and provide appropriate treatment. Adolescents who are pregnant should receive very high priority for screening and management of anaemia.

Pregnant women

3.3.114 The multi-pronged strategy for the control of anaemia in pregnancy include:

- ☒ fortification of common food items such as salt with iron to increase the dietary intake of iron and improve the haemoglobin status of the entire population, including girls and women prior to pregnancy;

- ☒ screening of all pregnant women for anaemia using a reliable method of haemoglobin estimation;
- ☒ oral iron folate prophylactic therapy for all non-anaemic pregnant women (with haemoglobin more than 11 g/dl);
- ☒ iron folate oral medication at the maximum tolerable dose throughout pregnancy for women with haemoglobin level between 8 and 11 g/dl;
- ☒ parenteral iron therapy for women with haemoglobin level between 5 and 8 g/dl if they do not have any obstetric or systemic complication;
- ☒ hospital admission and intensive personalised care for women with haemoglobin less than 5 g/dl;
- ☒ screening and effective management of obstetric and systemic problems in all anaemic pregnant women; and
- ☒ improvement in health care delivery systems and health education to the community to promote utilisation of available care.

Elderly people

- ☒ research studies to assess the magnitude of the problem; and
- ☒ mount an appropriate intervention programme based on the findings.

Research and Development

- ☒ evaluate the safety, efficacy, acceptability and cost effectiveness of double (iodine and iron) fortified salt so that decisions regarding universal double fortification of salt and its supply through TPDS system could be taken; and
- ☒ evaluate the safety, feasibility, efficacy and cost effectiveness of fortifying food items like atta with iron.

Monitoring and Surveillance

3.3.115 Initiatives for monitoring the programme for preventing and controlling anaemia will include:

- ☒ strengthening routine reporting under the RCH programme to include percentage of pregnant women in whom haemoglobin estimation has been done, percentage anaemic, percentage given IFA tablets, compliance in IFA intake and the percentage given parenteral iron therapy; and
- ☒ requesting PRIs, Women's Self Help Groups and Anganwadi Worker's to monitor intake of IFA tablets.

3.3.116 Evaluation of the ongoing programmes through process and impact can be done as a part of the Rapid Household Surveys by including questions regarding haemoglobin estimation, IFA coverage and intake. In addition as and when large-scale surveys are done, information can be collected on the prevalence of anaemia in pregnancy, childhood, adolescents and the elderly so that it is possible to assess the impact of ongoing interventions.

Tenth Plan goals include:-

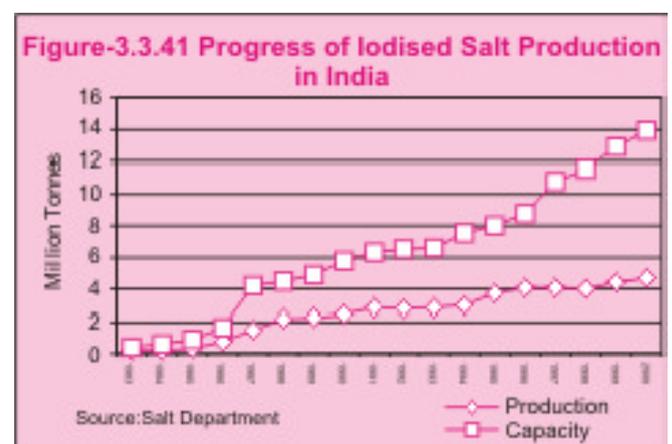
- ☒ screening of children for anaemia wherever required and appropriate treatment of those found anaemic;
- ☒ universal screening of pregnant women for anaemia and appropriate treatment; and
- ☒ reducing the prevalence of anaemia by 25 per cent and moderate and severe anaemia by 50% in children, pregnant and lactating women and adolescents;

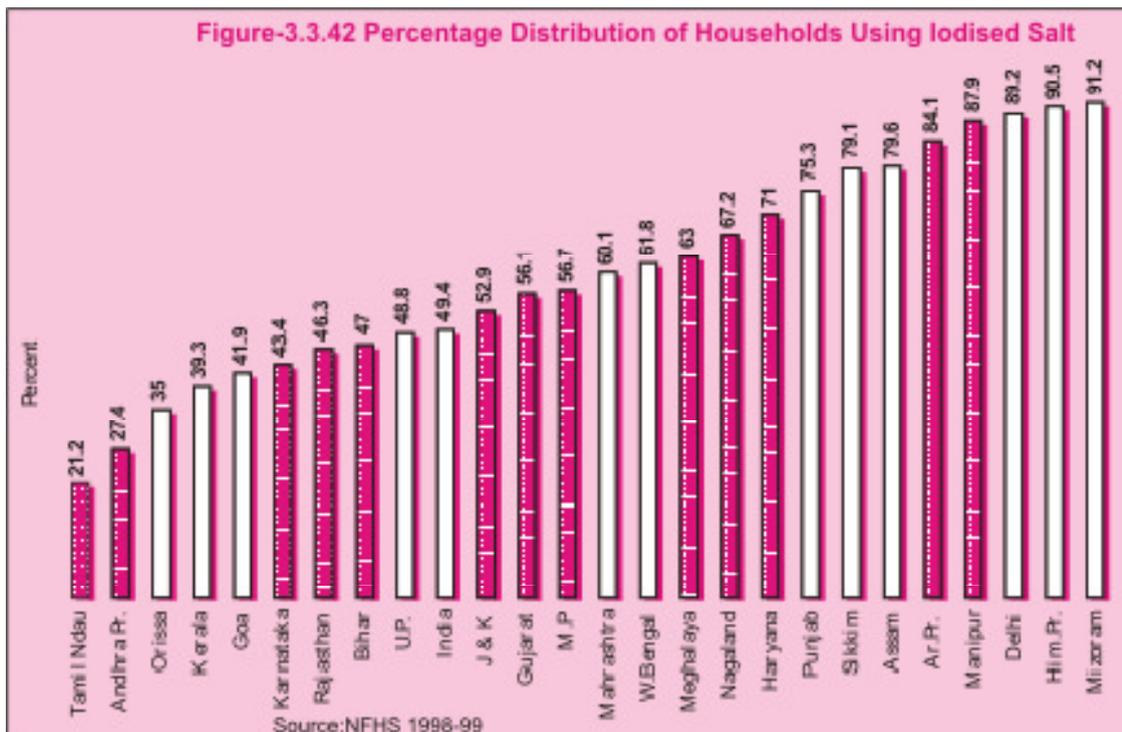
Iodine Deficiency Disorders (IDD)

3.3.117 Iodine deficiency disorders have been recognised as a public health problem in India since the 1920s. Unlike other micronutrient deficiencies, iodine deficiency disorders are due to deficiency of iodine in water, soil and foodstuffs and affect all

socio-economic groups living in defined geographic areas. Initially, Iodine deficiency disorders was thought to be a problem in sub-Himalayan region. However, surveys carried out subsequently showed that iodine deficiency disorders exist even in riverine and coastal areas. No state in India is completely free from iodine deficiency disorders. It is estimated that 61 million people are suffering from endemic goitre and about 8.8 million people have mental/motor handicap due to iodine deficiency. Universal use of iodised salt is a simple, inexpensive method of preventing iodine deficiency disorders.

3.3.118 Following the successful trial of iodized salt in the Kangra Valley, Himachal Pradesh, a National Goitre Control Programme (NGCP) was launched in 1962. Initially the programme aimed at providing iodised salt to the well-recognised sub-Himalayan 'goitre' belt. However, there was no substantial reduction in iodine deficiency disorders due to the erratic availability of salt, availability of cheaper non-iodised salt and the lack of awareness regarding the need to use iodised salt. In view of the fact that no state was free of iodine deficiency disorders, a decision was taken for the universal iodisation of salt for human consumption, which was implemented in a phased manner from 1986. The progress in implementation of this programme was tardy as the production and availability of iodised salt was a fraction of what was required. In August 1992, the NGCP was renamed as the National Iodine Deficiency Disorders Control Programme (NIDDCP), taking into its ambit the control of a wide spectrum of iodine deficiency disorders with the goal of reducing the prevalence of IDD below 10 per cent in endemic districts of the country. Based on the recommendations of the Central Council of





Health, the Government took a policy decision to iodise the entire edible salt in the country by 1992. There has been a steady progress in the production of iodised salt over the past few years in India (Figure-3.3.41).

3.3.119 Available data suggest that there has been substantial increase in the availability and consumption of iodised salt during the 1990s. However, the NFHS-2 showed that even in the late 1990s only 49 per cent of households use cooking salt that is iodised at the recommended level of 15 the parts per million or more, about 28 per cent of the households use salt that is not iodised at all and 22 per cent use salt containing less than 15 ppm of iodine. State-wise use of iodised salt is indicated in Figure 3.3.42. The data shows that in coastal states like Tamil Nadu, Andhra Pradesh, Kerala, and Gujarat, the percentage of households consuming adequate iodised salt is much lower than in many of the northern states where the availability of iodised salt is more than 90 per cent. One of the reasons could be that the salt transported by road are not subject to any kind of check regarding iodisation and this loophole in the law permits transport of non-iodised salt by road to areas upto 250 km. Therefore, these areas have ready access to non-iodised salt.

3.3.120 A national consultation was held in April 1999, to discuss the scientific and epidemiological evidence on benefits and safety of iodised salt in the prevention and control of iodine deficiency disorders; the consensus statement from the consultation confirmed that under the existing conditions in India universal iodisation of salt for human consumption was safe and will enable the country to combat IDD. In October 2000, the central government lifted the ban on sale of non-iodised salt for human consumption. However all the states and Union territories, except Kerala and Gujarat, have issued ban notifications on the sale of non iodised salt for human consumption in their entire territories under the Prevention of Food Adulteration Act. There is a partial ban in Andhra Pradesh and Maharashtra.

Strategies for the Prevention of Iodine Deficiency Disorders During Tenth Plan

3.3.121 It is essential to ensure that only iodised salt is made available for human consumption in order to enable the children of the 21st century to attain their full intellectual potential and take their rightful place in a knowledge based-society. Efforts to improve the quality of iodised salt will include:

- ☒ mandatory certification of the adequacy of iodisation as a pre-requisite for getting priority for the transportation of salt;
- ☒ ensuring that the salt is packed in half or one kg consumer poly pack at production site itself to prevent deterioration in quality during transportation and storage;
- ☒ periodic checking of the iodine content of salts available at wholesale/retail outlets; and
- ☒ quality check at the household level through anganwadi/school-based testing using salt iodine test kit.

3.3.122 IEC to increase the demand for good quality iodised salt will have to continue. Efforts to reduce price differentials between iodised and non-iodised salt and provide ready access to iodised salt through TPDS will have to be considered. Monitoring of the production, distribution, quality of salt at various levels, along with the studies on goitre prevalence among school children, urinary iodine excretion status, thyroid status of school children, neonatal thyroid status by appropriate screening techniques, may be used to assess the progress of reduction in iodine deficiency disorders. In areas where iodine deficiency disorders continue to be high, despite the adequate availability and extensive use of iodised salt, the possible role of goitrogens may have to be investigated.

3.3.123 The Tenth Plan goals are to:

- ☒ achieve universal access to iodised salt;
- ☒ generate district-wise data on iodised salt consumption; and
- ☒ reduction in the prevalence of iodine deficiency disorders in the country to less than 10 per cent by 2010.

Vitamin A Deficiency

3.3.124 Vitamin A is an important micronutrient for maintaining normal growth, regulating cellular proliferation and differentiation, controlling development, and maintaining visual and reproductive functions. Diet surveys have shown

that the intake of Vitamin A is significantly lower than the recommended dietary allowance in young children, dietary adolescent girls and pregnant women. In these vulnerable sub-groups multiple nutritional problems coexist including inadequate intake of energy as well as of micronutrients other than Vitamin A. In spite of the fact that there has not been any significant improvement in the dietary intake of Vitamin A and coverage under Massive Dose Vitamin A programme has been low, there is a decline in clinical Vitamin A deficiency in under-five children in the country (Figure-3.3.35). This could perhaps be due to increase in access in health care, consequent reduction in severity and duration of common childhood morbidity due to infections.

Vitamin A deficiency in Pregnancy and Lactation

3.3.125 It is estimated that the prevalence of Vitamin A deficiency signs during pregnancy and lactation ranges between 1 and 5 per cent. Small-scale studies have reported large inter state and inter district variation. However, nation-wide comparable data is not available. There are reports of night blindness occurring during pregnancy and disappearing after delivery without any treatment. Sub-clinical Vitamin A deficiency might perhaps be more widespread. It may not be feasible to undertake large-scale studies to estimate prevalence as biochemical estimation of Vitamin A deficiency during pregnancy present several problems. There is very little data on the prevalence of Vitamin A deficiency during lactation. In spite of continued secretion in breast milk, available limited data does not suggest increased prevalence of Vitamin A deficiency during lactation. Unlike anaemia, Vitamin A deficiency in pregnant and lactating women is not associated with any increase in morbidity and mortality. There is no ongoing programme for the prevention, detection and treatment of Vitamin A deficiency in pregnant and lactating women.

3.3.126 During the Tenth Plan period, the detection and management of clinical Vitamin A deficiency will be included as a component of antenatal care. Night blindness and Bitot's spot are readily identifiable clinical entities. Women with these symptoms / signs will be identified by the ANM and 10,000 IU of Vitamin A administered daily for

four weeks. Efforts to promote cultivation and consumption of micro-nutrient rich vegetables will be taken up for prevention of clinical deficiency.

Vitamin A deficiency in Childhood

3.3.127 Vitamin A deficiency in childhood is mainly due to inadequate dietary intake of Vitamin A. Some of the earlier studies from developing countries have shown that Vitamin A administration could have beneficial effect on growth, morbidity and mortality in children but more recent studies do not confirm this. The association between measles, severe protein energy malnutrition and keratomalacia and high fatality in such cases was reported by many paediatricians. In the 1950s, prevalence of night blindness and Bitot's spot in pre-school children ranged between 5 per cent and 10 per cent in most states. Paediatricians in major hospitals in most of the states reported that blindness due to Vitamin A deficiency is one of the major causes of blindness in children below five years. A five-year long field trial conducted by NIN showed that if massive dose Vitamin A (200,000 units) is administered once in six months to children between one and three years of age, the incidence of corneal xerophthalmia is reduced by about 80 per cent. In view of the serious nature of the problem of blindness due to Vitamin A deficiency, it was felt that urgent remedial measures in the form of specific nutrient supplementation covering the entire population of susceptible children should be undertaken. In 1970, the National Prophylaxis Programme Against Nutritional Blindness was initiated as a centrally sponsored scheme. Under this scheme, all children between ages of one and three years were to be administered 200,000 IU of Vitamin A orally once in six months.

3.3.128 This programme had been implemented in all the states and union territories during the last thirty two years. The major bottleneck during the 1970s was lack of infrastructure at the peripheral level to ensure timely administration of the dose. In the 1980s there was considerable improvement in the infrastructure. The lack of adequate supply of Vitamin A which came in the way of improved coverage was also corrected. However coverage levels continued to be very low.

Ninth Plan strategy to improve the coverage of all doses of massive dose Vitamin A administration:

- ☒ increased inter-sectoral coordination between ICDS and family welfare workers - anganwadi workers may be requested to administer second and subsequent doses;
- ☒ ensure adequate availability of Vitamin A;
- ☒ health education to improve consumption of foods rich in B-carotene to be continued and backed up by efforts to improve their availability at affordable cost.

The goal for the Ninth Plan was to control Vitamin A deficiency so that the incidence of blindness due to this becomes less than one in 10,000 not only at the national level but also in every state.

3.3.129 In an attempt to improve the coverage, especially of the first two dose, it was decided to link Vitamin A administration to the ongoing immunisation programme during the Eighth Plan period. Under the revised regimen a dose of 100,000 IU of Vitamin A was administered to all infants at nine months along with measles vaccine and a second dose of 200,000 IU was administered at 18 months of age along with booster dose of DPT and OPV. Subsequently, the children were to receive three doses of 200,000 IU of Vitamin A every six months until 36 months of age. The reported coverage figures under the modified regimen indicate that there has been some improvement in coverage with the first dose (50 -75 per cent). However, the coverage for subsequent doses is low.

3.3.130 Available data suggests that during the Ninth Plan there has not been any substantial improvement in the coverage level of the second and subsequent doses of Massive Dose Vitamin A. In an attempt to improve the coverage, Orissa linked administration of Vitamin A with the pulse polio immunisation campaign. It is reported that the state took precautions to prevent overdosing by stopping Vitamin A administration in the preceding six months. The state reported improved coverage.

Following this report several states embarked on a similar exercise. Planning Commission, the Department of Family Welfare and the Indian Academy of Paediatrics stated that this strategy is inappropriate because:

- ☒ while all children in the 0-5 age group get polio vaccine only those in the 1-3 age group receive Vitamin A. It may not be easy to give the latter only to 1-3 year children as the PPI is a massive campaign covering over 120 million children and the booths are manned by persons who are not health professionals;
- ☒ there would be difficulties in keeping adequate record of Vitamin A dosing; as a result, there will always be a possibility of toxicity or side effects due to multiple dosing within six months. Stopping Vitamin A dose six months prior to PPI will have a negative impact on Vitamin A administration through the routine services;
- ☒ the second dose of Vitamin A for the year has to be administered through an alternative strategy; and
- ☒ when the pulse polio programme ends, the re-initiation of routine Vitamin A administration would pose problems.

3.3.131 During the campaign mode administration of Vitamin A, along with pulse polio, in Assam in November 2001 deaths among children who were administered massive dose Vitamin A were reported. Some of these deaths could be coincidental where Vitamin A had been administered to ill children, but the possibility that some of the deaths could have been due to Vitamin A toxicity (either due to administration of higher dose or a massive dose Vitamin A administration earlier) cannot be ruled out. Since then, the Department of Family Welfare reiterated the earlier recommendation that the campaign mode - administration of Vitamin A along with pulse polio immunisation should not be taken up.

Strategies for Prevention and Management of Vitamin A Deficiency during the Tenth Plan

3.3.132 Clinical Vitamin A deficiency often coexists with other micro-nutrient deficiencies and, hence,

there is a need for broad-based dietary diversification programmes aimed at improving the overall micro-nutrient nutritional status of the population. In addition, the ongoing Massive Dose Vitamin A supplementation programme in children in the 9-36 month age group will be continued and its implementation strengthened.

3.3.133 Strategies in specific groups are indicated below.

Infancy

- ☒ health and nutrition education will be taken up to encourage colostrum feeding, exclusive breast feeding for the first six months and the introduction of complimentary feeding including mashed greens and yellow/orange fruits/vegetables at sixth month;
- ☒ 100,000 IU dose of Vitamin A will be given at nine months along with the measles vaccine; and
- ☒ every effort will be made to ensure the early detection and prompt treatment of infections.

Childhood

- ☒ ensure adequate intake of Vitamin A rich food throughout childhood;
- ☒ early detection and prompt treatment of infections; and
- ☒ massive dose Vitamin A administration at 18,24,30 and 36 months of age; in order to improve coverage without too many logistic problems, these four doses are to be administered by anganwadi worker during April and October each year (pre-summer/pre-winter period) under the supervision of the ANM.

Sick Children

- ☒ all children with xerophthalmia should be given two doses of synthetic Vitamin A as per the present schedule of the Government under the RCH programme;
- ☒ all children suffering from measles should also be given one dose of Vitamin A, if they have not received it during the previous one month;

- ☒ all cases of severe CED (based on weight for age criteria or clinical signs) should be given one additional dose of Vitamin A.

3.3.134 Research studies may have to be taken up to identify

- ☒ food items, conventional as well as non-conventional, which are rich in vitamin A;
- ☒ functional decompensation associated with Vitamin A deficiency in various stages in different age and, physiological status groups;
- ☒ time trends in the prevalence of sub-clinical and clinical Vitamin A deficiency in different regions.

3.3.135 Goals for the Tenth Plan

- ☒ achieve universal coverage for each of the five doses of Vitamin A;
- ☒ reduce prevalence of night blindness to below 1 per cent and that of Bitot Spots to below 0.5 per cent in children between six months to six years of age;
- ☒ eliminate Vitamin A deficiency as a public health problem.

Dietary Improvement and Diversification

3.3.136 There are three approaches for combating micro-nutrient deficiencies: medicinal supplementation, food fortification and dietary diversification with increased intake of micro-nutrient-dense foods. The first two approaches can take care of only one or two nutrients. Dietary diversification is the most appropriate and sustainable option ensuring adequate intakes of all micronutrients and phytochemicals. Availability, affordability, access and awareness are some of the major determinants of sustained dietary diversification in families and communities. Dietary diversification can be made possible through community effort through increased production of micro-nutrient-dense foods and reduced wastage through appropriate processing. It can be linked to income generation, particularly for the rural women. Micronutrient intake in children and women can be

improved if the community contributes locally produced millets, fruits and vegetables for supplementary feeding programmes such as ICDS, and Mid-day Meal. It is important to update and expand available data on the micro and phyto nutrient content of conventional and unconventional food items so that optimal use is made of the country rich diverse plant resources to eliminate micro nutrient deficiencies.

Research

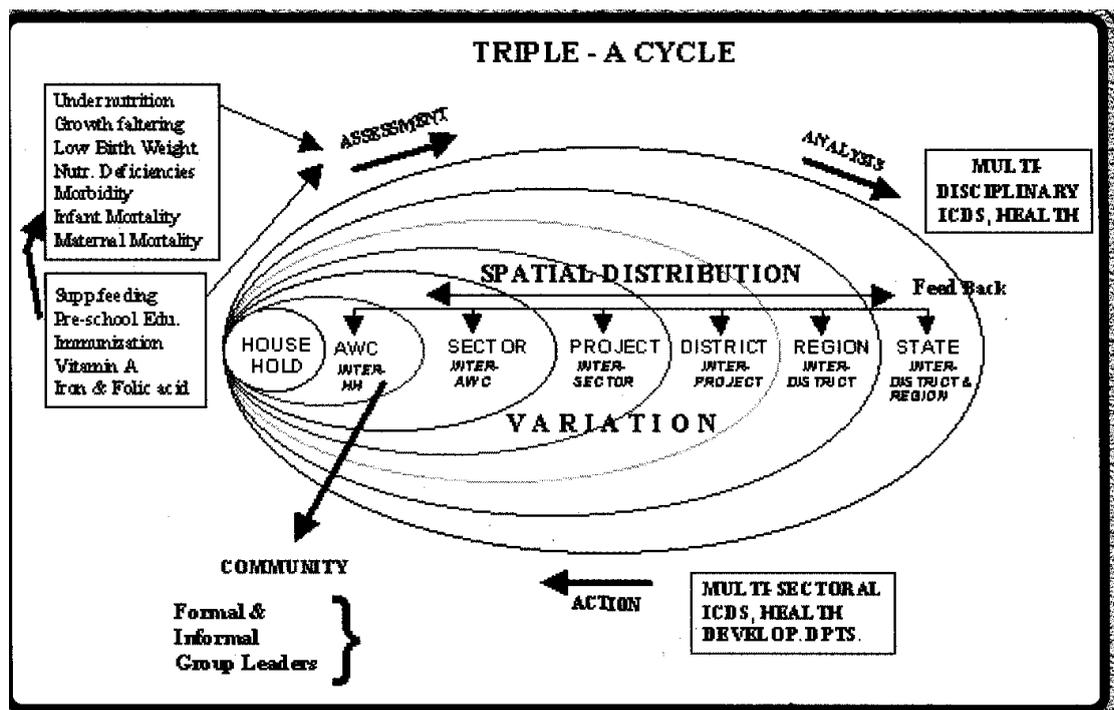
3.3.137 India is one of the pioneers in nutrition research not only in the Asian region but also in the world. Several research institutions and universities are carrying out the research studies with assistance from ministries and research funding agencies such as Indian Council of Agricultural Research, Indian Council of Medical Research, Council for Scientific and Industrial Research, Department of Bio-Technology and Department of Science and Technology. Basic, clinical, applied and operational research studies have identified major nutritional problems in the country, their aetiology, appropriate remedial and preventive measures, and the modalities of effectively operationalising the intervention programme at the regional and national level. Initially the focus of research was on deficiency diseases and chronic energy deficiency, the health hazards associated with them, methods for detection, treatment and prevention. It is noteworthy that the major interventions such as food supplementation programmes, the National Anaemia Prophylaxis Programme, massive dose Vitamin A supplementation programme have all been initiated on the basis of research work carried out in the country. Over the last two decades, responding to the changing spectrum of nutrition-related disorders, research studies have been initiated on food and drug toxins and nutritional risk factors associated with non-communicable diseases.

3.3.138 During the Tenth Plan period basic, clinical, applied, operational and socio-behavioral research in nutrition will continue to receive priority attention so that the country can effectively and rapidly tackle the dual disease burden due to under- and over-nutrition. Networking of the research institutions and universities carrying out research studies on

nutrition will be attempted, so that there is no unnecessary duplication of efforts and the available resources are fully utilised. Research priorities have already been indicated in each section dealing with specific nutritional problems.

3.3.139 Priority areas for research in nutrition include:

- ☒ nutritive value of food items - for macro , micro and phyto nutrients using newer techniques; analysis of uncommon food stuffs for their nutritive value;
- ☒ food safety including food contaminants, adulterants and genetically modified food items;
- ☒ dietary intake and nutritional requirement of Indians;
- ☒ evolving and testing better tools for assessment of nutritional status;
- ☒ evolving appropriate norms for assessing the nutritional status of Indians;
- ☒ assessing the determinants of nutritional status;
- ☒ nutritional status and health, especially epidemiological data on the health consequences of deviation from the norms;
- ☒ nutrition-fertility and nutrition-infection interactions;
- ☒ micro-nutrient deficiencies and their health consequences;
- ☒ changing dietary habits and lifestyles focusing on obesity and noncommunicable diseases;
- ☒ increasing longevity-nutritional implications;
- ☒ nutritional problems of the elderly;
- ☒ clinical nutrition, including nutritional management during illness and nutritional rehabilitation;
- ☒ emerging changes in nutritional status due to changing ecology, agriculture, life style and social policy;
- ☒ effectiveness of nutrition intervention as assessed by health and nutritional benefit and cost of different interventions;



- ☒ socio-behavioural research on lifestyle modifications, IEC&M to the population to alter lifestyles;
- ☒ operational research to improve the efficiency of the implementation of on-going programmes;

Nutrition Monitoring

3.3.140 Nutrition monitoring refers to repeated measurements of changes in the nutritional status of individuals and groups at regular intervals. In India, there are huge differences in per capita income, purchasing power, availability of food items, dietary habits, lifestyle and nutritional status between and within states, among urban, rural and tribal population. The country is currently going through demographic, economic, social, educational, agricultural and health transition, all of which can modify nutritional status. Sound, reliable data is needed for appropriate, decentralised planning and monitoring of interventions to meet the local needs. It is important, therefore, to strengthen, streamline and effectively utilise the existing mechanisms for monitoring the nutritional status of the population. The National Nutrition Policy, drawn up by the Department of Women and Child Development and adopted in 1993, envisaged the building up of a "regular monitoring and surveillance system and developing a reliable database in the country not only to assess the impact of ongoing nutrition and development programmes but also to serve as an early warning system for initiating prompt action."

3.3.141 The ICDS functionaries regularly file monthly progress report on nutritional status. However, there are lacunae and delays in the collection, reporting, collation and analysis of data. Monthly progress reports are not utilised for district level monitoring and midcourse correction of ongoing programmes. During the Ninth Plan, the NIN, at the request of the Department of Women and Child Development, conducted a study in Andhra Pradesh for improving the monthly progress reports of the ICDS workers and improving monitoring of the ICDS programme at the district level. The data

from the study indicated that it was possible to train and orient the ICDS functionaries to improve the quality and timeliness of the reporting. Analysis of the data and discussions on the implications of the reports with the functionaries facilitated the implementation of mid-course corrections and led to improved performance.

3.3.142 When data from the Andhra Pradesh study was used for Geographical Information System (GIS) mapping, it showed that the data generated by anganwadi workers are useful for monitoring the situation at the block/district levels and for building up, over time, a database for nutritional surveillance. Orissa had utilised 'routine' reporting of the ICDS workers for block-wise GIS mapping of the severe and moderate under-nutrition in the 0-6 years age groups. The GIS maps clearly brought out trends in under-nutrition in different areas, different seasons and in different age groups. Meghalaya, Rajasthan, Maharashtra, Madhya Pradesh and Karnataka have initiated projects to improve nutrition monitoring, mapping and surveillance.

3.3.143 As part of efforts to monitor the nutritional component of the PMGY initiative, the Planning Commission has drawn up in collaboration with the Department of Women and Child Development, a proforma for assessment and reporting of the nutritional status of under-six children. This has been incorporated as a part of the monthly the ICDS reporting format. The Department of Women and Child Development and the Planning Commission have requested the secretaries of the state Departments of Women and Child Development to ensure that the data is compiled district-wise (in two age groups, gender-specific) and reported every month and monitored at the district, state and central levels. The state/central Departments of Women and Child Developments are to monitor the improvement in terms of

- ☒ enrolment of children in the 6-36 months age group;
- ☒ percentage of children who received complimentary food by six months;
- ☒ nutritional status of children in the 6-36 months age group; and

- ☒ fund allocation for nutrition and utilisation of funds provided.

Independent Surveys to Monitor Nutritional Status

3.3.144 The ICMR established the NNMB in 1972 for undertaking

- ☒ data collection on the dietary intakes of families, and individuals belonging to different physiological and age groups, in different states;
- ☒ assessing intra-family distribution of food and nutrients;
- ☒ generating data on the diet and nutritional status of socially vulnerable groups like the tribals living in the ITDP areas, and the physiologically at-risk population like the elderly and adolescents;
- ☒ organising repeat surveys to assess time trends in the diet and nutritional situation.

During the nineties the NNMB has been using the NSSO sampling for their survey in the ten states.

3.3.145 The Food and Nutrition Board of the Department of Women and Child Development conducted a nutrition survey in 1993-94 in 187 districts, the report of which was published in 1998. This was a one-time effort and the sample covered was not derived from a representative sample of the district. The NFHS has undertaken height and weight measurement in a representative sample of children and women at the state-level. NFHS provides state-level estimates of under-nutrition and over-nutrition at two time points, 1992-93 and 1998-99. Every five years, the National Sample Survey Organisation (NSSO) collects and reports information on expenditure on food at the family level in representative sample population all over the country. The NSSO does not provide information on dietary consumption at the family and individual level and does not assess nutritional status. However, if coupled with the NNMB survey, the NSSO data may provide

excellent insights into changing dietary patterns and nutritional status .

3.3.146 Currently it is estimated that only about 20 per cent of the under-six children are weighed in the ICDS blocks. During the Tenth Plan period, all pregnant and lactating women and all under-five children will be weighed at least four times a year to identify under-nourished persons and initiate targeted interventions. Once, a good quality data becomes available at the block and district level on a regular basis, it will be used for:

- ☒ building block/district/state level data on prevalence of under-nutrition;
- ☒ monitoring ICDS activities for reduction in under-nutrition;
- ☒ assessment of the impact of ongoing nutrition interventions;
- ☒ planning appropriate mid-course corrections in the ongoing ICDS programme;
- ☒ building up a database for nutritional surveillance in vulnerable groups.

During the Tenth Plan, efforts will be made to conduct nutrition surveys in a representative sample of the population in all the states.

Nutrition Surveillance

3.3.147 The nutrition surveillance system (NSS) provides information on under/over nutrition, its spatial distribution, causes, and changes in prevalence/incidence over time, the actions initiated and their impact. Though the National Nutrition Policy recommended the development and establishment of "nutritional surveillance of the country's population especially children and mothers" in the country by the year 2000, the NSS is yet to be developed. Currently, there are three systems, which provide the essential core information that could be developed into a full-fledged nutrition surveillance during the Tenth Plan period: nutrition monitoring through ICDS system; the NNMB-NSSO databases; and the pilot project on Food Insecurity and Vulnerability Information and Mapping System (FIVIMS) under the Department

of Food and Public Distribution. It is envisaged that the Department of Women and Child Development will ensure an improvement in quality of data being collected by the ICDS functionaries. The NNMB will be expanded to cover all states and carry out regular surveys on dietary consumption, assessment of macro and micro-nutrient nutritional status and morbidity profile; special efforts will be made to cover at-risk groups. FIVIMS will also provide nation-wide data. Once district-wise data becomes available and problem areas are identified, health and nutrition intervention could be initiated at appropriate levels. Over time, it may be desirable to integrate data on rainfall, food production, food distribution, civil registration and disease surveillance with the nutrition surveillance.

National Nutrition Policy

3.3.148 The National Nutrition Policy had set various goals to be achieved by 2000. All the concerned departments have reviewed the progress achieved and have revised their goals for the Tenth Plan /2010. The goals set in the policy have to be revised in the light of these revised goals.

Path Ahead and Goals Set

3.3.149 The Prime Minister, in his Independence Day speech on 15th August, 2001 announced the setting up of a National Nutrition Mission with the following objectives:

- reduction in under-nutrition (CED);
- reduction / elimination of micronutrient deficiencies viz., iron, iodine and Vitamin A;
- reduction in chronic energy deficiency.

3.3.150 The Mission would

- co-ordinate and monitor implementation of the National Nutrition Policy;
- strengthen
 - existing programmes;
 - research and development;

- nutrition education and IEC;
- relief in natural calamities.

The National Nutrition Mission will be supervised by the National Nutrition Council headed by the Prime Minister.

Newer Strategies for Rapid Reduction in Severer Grades of Under Nutrition

3.3.151 The Tenth Plan envisage a change in strategy to achieve substantial reduction in the severer grades of under-nutrition and health hazards associated with it without massive increase in the cost.

3.3.152 For prevention of under-nutrition, strategy suggested include

- nutrition education through all modes of communication with special focus on inter-personal communication by anganwadi workers and ANMs to promote:
 - universal breastfeeding;
 - exclusive breastfeeding for first six months;
 - continuing breastfeeding up to two years;
 - introduction of semi solid supplements from family pot at sixth month;
 - giving the complimentary feeds to children at least 4-5 times a day;
 - improving intra-familial distribution of food based on needs and providing pre-school children, pregnant and lactating women some more food from the family pot;
 - introducing green leafy vegetables at least twice a week in the family meal.
- provide take-home food supplements to children in the 6-36 months age group from BPL families (utilising PMGY funds also) as they cannot consume 300 Kcal food at one sitting at the anganwadi;

- ☒ administration of massive dose Vitamin A in April and October to the children at 18, 24, 30 and 36 months by the anganwadi workers under the supervision of the ANMs;
- ☒ organise immunisation, maternal and child care at the anganwadi on a fixed date at least once a month so that the health care needs of these vulnerable groups are met;
- ☒ the anganwadi workers can keep iron and folic acid tablets and ORS for distribution as and when required in the village and also monitor the regularity of intake;
- ☒ promote universal use of iodised salt and organise testing salt for adequacy of iodisation at home level.

3.3.153 The anganwadi workers and the ANMs will be trained by appropriate agencies including Food and Nutrition Board and Home Science and medical colleges so that they learn and communicate the right nutrition and health education messages to the population on a sustained basis. This is a very important but neglected area which does not require any additional financial inputs and could play the most critical role in reducing the prevalence of under nutrition.

3.3.154 *For detection and management of undernutrition*

- ☒ Ensure that all children in the age group of 0-6 years are weighed at least four times in a year and children suffering from grade III and grade IV under-nutrition are identified. Those with grade III and grade IV under-nutrition be provided with double rations (as envisaged in the ICDS guidelines) as take-home food supplements continuously with the instruction that they should be fed these preparations at least four times a day. In addition, appropriate health care should be provided to them by the ANMs and PHC doctors.
- ☒ Weigh all pregnant and lactating women, identify those with body weight less than 40 kg and provide them with food grains for the remaining period of pregnancy/lactation or until they cross the cut off point.

- ☒ Weigh all adolescent girls at least four times in a year, identify those with weight less than 35 kg and provide foodgrains for the next three months or until they weigh more than 35 kg.
- ☒ Organise antenatal and child health clinics in anganwadi by the ANM for screening vulnerable population, early detection and effective treatment of anaemia, Vitamin A deficiency and iodine deficiency disorders.

Goals Set for the Tenth Plan

3.3.155 The Tenth Plan has set specific nutrition goals to be achieved by 2007. The major goals are:

- ☒ Intensify nutrition and health education to improve infant and child feeding and caring practices so as to
 - ☒ bring down the prevalence of under-weight children under three years from the current level of 47 per cent to 40 per cent;
 - ☒ reduce prevalence of severe under-nutrition in children in the 0-6 years age group by 50 per cent.
- ☒ reduce prevalence of anaemia by 25% and that of moderate/severe anaemia by 50 per cent;
- ☒ eliminate Vitamin A deficiency as a public health problem; and
- ☒ reduce prevalence of IDD in the country to less than 10 percent by 2010.

3.3.156 In view of the massive inter-state/inter-district differences in the availability and access to the nutrition-related services and in nutritional status of the population, the state specific goals to be achieved by 2007 have been evolved based on the current level of these indices and the Tenth Plan goals for the country has been derived from the state specific goals (Annexure 3.3.1). The progress achieved in terms of the process and impact indicators will be reviewed annually. Midterm review of the progress achieved and the problems faced will enable midcourse corrections. If necessary goals can be reset at the time of the mid-term appraisal.

NATIONAL AND STATE LEVEL GOALS FOR THE TENTH PLAN

State Name	% Under nourished children < 3 years				Infant Feeding Practices					
	Current levels of Wt-for-age below -3 SD	Tenth Plan Goal-Redn. by 50%	Current levels of Wt-for-age below -2 SD	Tenth Plan Goal-Redn. From current level of 47% to 40%	Current levels of % children breast fed within one hour of birth	Tenth Plan Goal-increase to 50%	Current levels of % of children 0-3 months exclusively breast fed	Tenth Plan Goal 80% of children upto 6 months to be exclusively breast-fed	Current levels of complementary feeding of infants aged 6-9 months	Tenth Plan Goal-introduction of semi-solids at 6 months to 75% of children
Andhra Pradesh	10.3	5.2	37.7	32.1	10.3	32.6	74.6	100.0	59.4	100.0
Arunachal Pradesh	7.8	3.9	24.3	20.7	49.0	100.0	33.9	49.1	60.2	100.0
Assam	13.3	6.7	36.0	30.6	44.7	100.0	42.5	61.6	58.5	100.0
Bihar	25.5	12.8	54.4	46.3	6.2	19.6	55.2	80.0	15.0	33.6
Goa	4.7	2.4	28.6	24.3	34.4	100.0			65.4	100.0
Gujarat	16.2	8.1	45.1	38.4	10.1	32.0	65.2	94.5	46.5	100.0
Haryana	10.1	5.1	34.6	29.4	11.7	37.0	47.2	68.4	41.8	93.6
Himachal Pradesh	12.1	6.1	43.6	37.1	20.7	65.5	17.5	25.4	61.3	100.0
Jammu & Kashmir	8.3	4.2	34.5	29.4	20.8	65.8	41.5	60.1	38.9	87.1
Karnataka	16.5	8.3	43.9	37.4	18.5	58.5	66.5	96.4	38.4	86.0
Kerala	4.7	2.4	26.9	22.9	42.9	100.0	68.5	99.3	72.9	100.0
Madhya Pradesh	24.3	12.2	55.1	46.9	9.9	31.3	64.2	93.0	27.3	61.1
Maharashtra	17.6	8.8	49.6	42.2	22.8	72.2	38.5	55.8	30.8	69.0
Manipur	5.3	2.7	27.5	23.4	27.0	85.4	69.7	100.0	86.8	100.0
Meghalaya	11.3	5.7	37.9	32.3	26.7	84.5	16.1	23.3	77.1	100.0
Mizoram	5.0	2.5	27.7	23.6	54.0	100.0	40.7	59.0	74.2	100.0
Nagaland	7.4	3.7	24.1	20.5	24.5	77.5	43.9	63.6	81.3	100.0
Orissa	20.7	10.4	54.4	46.3	24.9	78.8	58.0	84.1	30.1	67.4
Punjab	8.8	4.4	28.7	24.4	6.1	19.3	36.3	52.6	38.7	86.6
Rajasthan	20.8	10.4	50.6	43.1	4.8	15.2	53.7	77.8	17.5	39.2
Sikkim	4.2	2.1	20.6	17.5	31.4	99.4	16.3	23.6	87.3	100.0
Tamil Nadu	10.6	5.3	36.7	31.2	50.3	100.0	48.3	70.0	55.4	100.0
Tripura*	NA	3.9	NA	24.9	NA	100.0	NA	70.0	NA	100.0
Uttar Pradesh	21.9	11.0	51.7	44.0	6.5	20.6	56.9	82.5	17.3	38.7
West Bengal	16.3	8.2	48.7	41.4	25.0	79.1	48.8	70.7	46.3	100.0
Andaman & Nicobar Is.*	NA	-	NA	-	NA	-	NA	-	NA	-
Chandigarh *	NA	4.7	NA	27.0	NA	28.5	NA	60.0	NA	90.0
Dadra & Nagar Haveli *	NA	8.8	NA	42.2	NA	72.2	NA	55.8	NA	69.0
Daman & Diu *	NA	8.1	NA	38.4	NA	32.0	NA	94.5	NA	100.0
Delhi	10.1	5.1	34.7	29.5	23.8	75.3	13.2	19.1	37.0	82.8
Lakshadweep *	NA	2.4	NA	22.9	NA	100.0	NA	99.3	NA	100.0
Pondicherry *	NA	5.3	NA	31.2	NA	100.0	NA	70.0	NA	100.0
INDIA	18.0	9.2	47.0	40.0	15.8	50.0	55.2	80.0	33.5	75.0

Source for current level: NFHS 1998-99

Notes:

1. NFHS was not conducted in States with a * mark. In these the values have been estimated.
2. Current status for children in 0-3 years age-group is taken as representing status for children in 0-6 years age-group
3. As NFHS data for Chattisgarh, Jharkhand and Uttaranchal are not available, goals laid down are for undivided states.
4. As NFHS data for A&N Islands was not available, no goals have been set.

Year-wise allocation for Supplementary Nutrition by the State Governments during the IX Plan

(Rs. In crores)

SI.								PMGY	
No.	State Name	IX Plan Outlay	1997-98	1998-99	1999-2000	2000-01*	2001-02**	2000-01	2001-02
1	Andhra Pradesh	299.85	40.00	75.00	45.00	31.50	95.60	21.31	28.41
2	Arunachal Pradesh	19.40	3.31	2.41	2.28	9.28	11.46	10.23	11.46
3	Assam	80.00	8.45	9.13	9.20	30.00	30.17	26.94	30.17
4	Bihar	195.00	25.30	35.00	14.00	32.92	36.87	43.09	36.87
5	Chattisgarh						28.23		7.29
6	Goa	4.00	0.70	0.45	0.50	0.50	0.80	0.12	0.13
7	Gujarat	825.00	125.50	140.00	140.00	129.50	132.50	9.72	10.88
8	Haryana	25.08	5.00	6.93	5.25	3.50	4.50	2.52	2.82
9	Himachal Pradesh	36.00	6.00	8.00	9.40	9.40	9.80	10.59	9.80
10	Jammu & Kashmir	38.00	8.35	8.25	8.25	8.25	10.00	25.74	13.50
11	Jharkhand						N.A.		11.39
12	Karnataka	160.00	37.38	38.84	38.50	47.34	48.26	11.27	21.47
13	Kerala	5.10	0.75	0.75	0.45	0.30	0.35	10.36	11.61
14	Madhya Pradesh	126.17	41.39	47.00	49.60	51.25	42.00	17.07	19.22
15	Maharashtra	178.92	43.39	75.38	74.58	57.47	49.33	14.87	19.79
16	Manipur	16.30	2.00	2.30	2.30	8.29	8.16	7.28	8.16
17	Meghalaya	14.00	2.00	2.50	2.60	6.15	6.82	6.09	6.82
18	Mizoram	8.66	1.85	2.00	2.50	4.15	6.27	6.06	6.27
19	Nagaland	18.00	1.83	1.83	1.83	6.17	6.67	6.17	6.79
20	Orissa	472.00	82.00		64.74	54.79	26.96	14.78	16.56
21	Punjab	34.58	3.00	3.00	5.00	9.00	7.79	6.06	6.79
22	Rajasthan	102.25	18.10	18.10	11.35	25.69	30.00	14.46	35.59
23	Sikkim	10.00	2.26	1.95	1.95	4.21	5.70	4.22	5.70
24	Tamil Nadu	500.00	90.86	102.20	124.17	93.87	128.02	15.72	17.60
25	Tripura	47.73	6.95	5.78	6.58	8.72	11.68	7.62	13.61
26	Uttar Pradesh	232.00	35.58	45.00	45.00	63.77	81.54	52.34	56.51
27	Uttaranchal								2.11
28	West Bengal	72.91	26.22	26.14	41.00	97.47	76.00	25.17	28.20
29	A & N Islands	4.00	0.55	0.61	0.50	1.54	2.20	1.54	1.73
30	Chandigarh	0.25	0.05	0.05	0.05	0.73	0.95	0.68	0.77
31	Dadra & Nagar Haveli	2.37	0.47	0.47	0.47	0.67	0.62	0.20	0.22
32	Daman & Diu	1.77	0.34	0.30	0.28	0.28	0.46	0.16	0.18
33	Delhi	150.00	20.75	29.20	32.10	25.17	34.30	1.66	1.86
34	Lakshadweep	0.87	0.19	0.19	0.30	0.28	0.59	0.27	0.30
35	Pondicherry	21.00	3.10	5.18	6.23	6.46	6.74	0.72	1.92
	All India	3701.21	643.62	693.94	745.96	828.62	941.34	375.03	452.49

* Excluding PMGY

** Including PMGY

Annexure-3.3.3

GAPS IN REQUIREMENT OF FUNDS FOR NUTRITION

(Rs. In crores)

Sl.No.	State Name	Funds available for Supplementary Nutrition			Requirement of funds for Supplementary Nutrition			
		State Plan	PMGY	Total	I*	II*	III*	IV*
1	Andhra Pradesh	31.50	21.31	52.81	54.32	95.36	54.80	75.09
2	Arunachal Pradesh	9.28	10.23	19.51	2.28	1.03	0.86	7.23
3	Assam	30.00	26.94	56.94	55.67	44.69	31.82	27.63
4	Bihar	32.92	43.09	76.01	244.18	295.41	227.69	92.82
5	Goa	0.50	0.12	0.62	0.22	0.71	0.37	2.88
6	Gujarat	129.50	9.72	139.22	34.96	92.58	61.19	84.03
7	Haryana	3.50	2.52	6.02	10.17	27.76	18.10	30.18
8	Himachal Pradesh	9.40	10.59	19.99	2.13	7.96	5.12	19.29
9	Jammu & Kashmir	8.25	25.74	33.99	1.72	10.01	6.53	26.16
10	Karnataka	47.34	11.27	58.61	48.82	92.06	61.95	84.45
11	Kerala	0.30	10.36	10.66	16.35	16.52	9.44	43.47
12	Madhya Pradesh	51.25	17.07	68.32	142.43	189.26	141.91	90.45
13	Maharashtra	57.47	14.87	72.34	115.84	181.14	127.65	107.07
14	Manipur	8.29	7.28	15.57	3.10	1.46	0.91	8.67
15	Meghalaya	6.15	6.09	12.24	5.39	3.97	2.84	5.28
16	Mizoram	4.15	6.06	10.21	0.92	0.62	0.39	3.21
17	Nagaland	6.17	6.17	12.34	3.00	1.43	1.14	6.63
18	Orissa	54.79	14.78	69.57	87.04	87.01	58.98	67.74
19	Punjab	9.00	6.06	15.06	6.71	20.61	14.79	25.86
20	Rajasthan	25.69	14.46	40.15	56.76	161.41	119.56	62.64
21	Sikkim	4.21	4.22	8.43	0.99	0.26	0.18	1.35
22	Tamil Nadu	93.87	15.72	109.59	51.55	62.69	39.75	119.37
23	Tripura	8.72	7.62	16.34	5.03			8.01
24	Uttar Pradesh	63.77	52.34	116.11	340.75	495.73	367.04	164.67
25	West Bengal	97.47	25.17	122.64	105.05	147.70	99.81	103.38
26	A & N Islands	1.54	1.54	3.08	0.33			0.93
27	Chandigarh	0.73	0.68	1.41	0.22			0.75
28	Dadra & Nagar Haveli	0.67	0.20	0.87	0.24			0.33
29	Daman & Diu	0.28	0.16	0.44	0.03			0.21
30	Delhi	25.17	1.66	26.83	5.51	12.90	10.69	8.85
31	Lakshadweep	0.28	0.27	0.55	0.05			0.15
32	Pondicherry	6.46	0.72	7.18	0.86			1.77
	All India	828.62	375.03	1203.65	1402.59	2050.27	1463.51	1280.55

I*: To provide nutrition @ Re.1/- per day for 300 days in an year to all pregnant women and children upto 6 years in the BPL families (by Planning Commission)

II*: To provide double the ration to all severely under nourished children and pregnant women (by Planning Commission)

III*: To provide double the ration to all severely under nourished children only (by Planning Commission)

IV*: To provide nutrition @ Re.1/- per day for 300 days in an year to beneficiaries (72 in no.) as per ICDS norms of 1999 (by Department of WCD)

Source: Census 2001 for Population and 0-6 years old children;

Planning Commission for BPL estimates;

NFHS 1998-99 for nutritional status of children and women

CHAPTER 3.4

PUBLIC DISTRIBUTION SYSTEM

3.4.1 A combination of good monsoon years and a policy of ensuring relatively higher returns on production of rice and wheat has ensured that the country has a surfeit of foodgrains accumulated in the godowns of the Food Corporation of India (FCI), far beyond the prescribed buffer stock norms. The problem facing the country today is not one of shortage of foodgrains but of managing the surplus. Ironically, even as the godowns of the FCI are overflowing, stray cases of starvation deaths are still being reported. A civilised society in the 21st century cannot allow this to happen.

3.4.2 Therefore, while there is need to produce adequate food grains domestically, supplementing with imports whenever required, it is also necessary to look at the food grain distribution network. The Public Distribution System (PDS) in the country facilitates the supply of food grains to the poor at a subsidised price. However, doubts have been raised about the efficacy and cost-effectiveness of the PDS, especially in the light of the growing food subsidy and food stocks. The PDS needs to be restructured and there is a need to explore the possibility of introducing innovative ideas such as smart cards, food credit/debit cards, food stamps and decentralized procurement, to eliminate hunger and make food available to the poor wherever they may be in cost-effective manner.

3.4.3 There are two aspects to the paradox of overflowing godowns and vulnerable sections of society not consuming adequate food. One is the issue of having enough purchasing power or income to buy food and the other is the access to food in terms of physical availability of food. Though the overall employment generation is closely connected to efficient economic growth, there are some issues that must be kept in mind. In remote, inaccessible and backward regions both job opportunities and access to food may be constrained. In such

situations, food-for-work and related schemes are necessary. These may need to be supplemented by more innovative schemes like grain banks. Community grain banks can be set up in such areas from where the needy can borrow grain in times of need and repay the grain once the crisis is over. Natural disasters such as earthquakes also create conditions in which the Government must provide emergency assistance and the administration has to be alert to such situations. Finally, a minimal amount of social security must be provided to those who are old, sick or disabled and cannot take on work even if it is available. Special schemes must ensure that they do not go hungry.

Changes in Food Consumption Pattern

3.4.4 Dramatic changes in food consumption patterns have taken place in India in the post Green Revolution period. Between 1972-73 and 1993-94, the food basket has become much more diversified, with the share of cereals seeing a dramatic decline of ten percentage points in most regions. At the all-India level, cereal consumption in the rural areas declined from 15.3 kg per capita per month in 1972-73, to 13.4 kg per capita per month in 1993-94. The corresponding decline in the urban areas was more modest — from 11.3 kg to 10.6 kg over the same period. At the same time, consumption of milk and meat products as well as vegetables and fruits has increased. Such changes are a natural outcome of economic development.

3.4.5 This trend towards a more diversified diet is also discernible among the poorest 25 per cent of the population. Thus although cereals continue to dominate food expenditures, over time their importance has decreased. At the same time, cereals have become cheaper in relation to other food groups. In rural Uttar Pradesh, for example, the per capita monthly consumption of cereals for the lowest quartile income group has declined from

13.6 kg in 1972-73 to 12.3 kg in 1993-94. During the period, the consumption of coarse cereals declined from 5.0 kg per capita per month in 1972-73 to 0.8 kg per capita per month. This was only partly offset by an increase in the per capita monthly consumption of rice from 2.6 kg to 3.5 kg and that of wheat from 6.1 kg to 8.1 kg. During the same period, the share of cereals in the total food expenditure among the lowest quartile income group in the state declined from 69 per cent to 49 per cent while that of milk, meat, vegetables and fruits increased from 7 to 12 per cent and that of other food items from 17 to 28 per cent.

3.4.6 Thus the growth of aggregate demand for cereals in the country can be said to have been kept in check due to two factors — slowdown in the pace of population growth and shift in consumer preference towards non-cereals. However, some of the studies on cereal consumption requirements in the country have not taken into consideration the full implications of changing consumer preferences and have led to exaggerated demand projections for cereals. At the same time, other demand projections which take these changing preferences into account, come out with estimates which match the supply projections, indicating that the requirements of cereals will be adequately met by domestic supplies at least up to 2020. Thus there is no need for undue concern on this front.

MSP and Food Procurement Policy

3.4.7 The stock of food grains available with the government agencies as on 1 July 2002 was 63.01 million tonnes (mt) — 21.94 mt of rice and 41.07 mt of wheat. This was well above the prescribed buffer stock norms.

3.4.8 While the changing demand patterns is one reason for the accumulation of surplus food grains, another factor is the tendency of successive governments to fix minimum support prices (MSP) for paddy and wheat in excess of the levels prescribed by the Commission for Agricultural Costs and Prices (CACP) (Table 3.4.1). While this has given the farmers an incentive to produce more, it has raised the market prices and reduced the demand for cereals. Studies conducted at the National Council of Applied Economic Research,

New Delhi, show that fixing of procurement prices at levels higher than the CACP's recommendations has led to the procurement of an additional quantity of 12.8 mt of wheat and 3.4 mt of rice. This points to the need to strictly adhere to the recommendations of the CACP. A realistic MSP will help promote the diversification of cropping patterns.

Table-3.4.1
Procurement/Minimum Support
Prices of Foodgrains (Rs/Qtl.)

Commodity	Quality	Crop/Marketing Year	Price Recommended by CACP	Price Announced by Government
1. Paddy	FAQ	1980-81	100	105
		1981-82	115	115
		1982-83	122	122
		1983-84	132	132
		1984-85	137	137
		1985-86	140	142
		1986-87	146	146
		1987-88	150	150
		1988-89	160	160
		1989-90	172	185
		1990-91	205	205
		1991-92	235	230
		1992-93	260	270
		1993-94	310	310
1994-95	340	340		
1995-96	355	360		
1996-97	370	380		
1997-98	415	415		
1998-99	440	440		
1999-00	465	490		
2000-01	510	510		
2001-02	520	530		
2. Wheat	FAQ	1980-81	117	117
		1981-82	127	130
		1982-83	142	142
		1983-84	151	151

Table 3.4.1 (Contd.)

Commodity	Quality	Crop/Marketing Year	Price Recommended by CACP	Price Announced by Government
		1984-85	155	152
		1985-86	157	157
		1986-87	162	162
		1987-88	165	166
		1988-89	173	173
		1989-90	183	185
		1990-91	200	215
		1991-92	225	225
		1992-93	245	250
		1993-94	305	330
		1994-95	350	350
		1995-96	360	360
		1996-97	380	380
		1997-98	405	475
		1998-99	455	510
		1999-00	490	550
		2000-01	550	580
		2001-02	580	610

3.4.9 The system of MSP served the country well in the past three and a half decades but has started encountering certain problems in recent years. This is because the agricultural production scenario has undergone significant changes over the past four years. Many states, including formerly deficit states like Bihar, Assam and Uttar Pradesh, have reported surpluses of several agricultural commodities, especially cereals and this trend is likely to continue in the coming years as well. The average production of food grains, which was 187 mt during the Eighth Plan, is expected to have increased to 205 mt in the Ninth Plan. Thus, the increase in average total food production is in excess of the total food grains requirements of around 196 mt at the end of the Ninth Plan as worked out on the basis of normative approach.

3.4.10 The policy of recommending a relatively higher MSP for wheat and rice as compared to the MSP for other crops served the cause of the country well in the 1980s and 1990s. It helped exploit the opportunity created by the Green Revolution and

led to much higher average productivity of these two crops, compared to the average productivity of pulses or coarse cereals. The higher MSP increased the profitability of these crops and motivated the farmers to divert their areas to these crops from coarse cereals, pulses and even oilseeds, as in the case of Punjab. This enabled the country to achieve higher output of food grains and achieve surpluses. However, the need to rethink this approach is overdue.

3.4.11 There should be a marked incentive for growing pulses and oilseeds by increasing the MSP of these crops. The MSP for oilseeds should not, however, exceed the long-term international price. It should also be noted that attempts to support prices of some oilseeds through public procurement met with limited success despite the huge resources invested in the process. In this connection, it would be desirable to introduce commodity-specific limits on food procurement operations based on indicators like total production of a commodity during the previous five years. Such limits on total procurement operations during the year should apply to all commodities, including rice and wheat. The CACP or some other suitable agency could be asked to work out a suitable criterion on which such limits can be based.

Public Distribution System and Food Subsidy

3.4.12 It is now well recognised that the availability of food grains is not a sufficient condition to ensure food security to the poor. It is also necessary that the poor have sufficient means to purchase food. The capacity of the poor to purchase food can be ensured in two ways – by raising the incomes or supplying food grains at subsidised prices. While employment generation programmes attempt the first solution, the PDS is the mechanism for the second option.

3.4.13 With a network of more than 4.62 lakh fair price shops (FPS) distributing commodities worth more than Rs 30,000 crore annually to about 160 million families, the PDS in India is perhaps the largest distribution network of its kind in the world. This huge network can play a more meaningful role only if it ensures the availability of food to the poor households.

3.4.14 All is not well with the PDS. The annual food subsidy involved in maintaining the system is huge (Table 3.4.2). The food subsidy bill for 2002-3 is budgeted at Rs. 21,200 crore, which works out to 5.2 per cent of total Central Government expenditure. The level of food subsidies as a proportion of total government expenditure has gone up from a level of 2.5 per cent or below in the early 1990s to more than 5 per cent today. The per capita food subsidy expenditure by the government in 2002-3 is estimated at around Rs. 200 or Rs. 17 per head per month. This, however, does not mean that consumers got Rs. 17 per head per month, for the cost of distributing this subsidy has to be deducted from the subsidy expenditure.

Table-3.4.2
Food Subsidy of the Central Government

Year	Amount (Rs crore)	% of total Government Expenditure
1990-91	2450	2.33
1991-92	2850	2.56
1992-93	2785	2.27
1993-94	5537	3.9
1994-95	4509	2.8
1995-96	4960	2.78
1996-97	5166	2.46
1997-98	7500	3.23
1998-99	8700	3.11
1999-00	9200	3.03
2000-01	12125	3.61
2001-02	17612	4.83
2002-03	21200	5.17

3.4.15 The high carrying cost of stocks in excess of the buffer norms pushes up the food subsidy bill and actually amounts to subsidy to the cereals producers/surplus farmers. The Expenditure Reforms Commission (ERC) has recommended that the cost of holding stocks in excess of the requirement for food security and for PDS could be reflected in the budget as producers' subsidy rather than consumer subsidy.

Targeted Public Distribution System

3.4.16 The PDS in its original form was widely criticised for its failure to serve the below poverty line (BPL) population, its urban bias, negligible coverage in the states with the highest concentration of the rural poor and lack of transparent and accountable arrangements for delivery. Realising this, the government streamlined the system by issuing special cards to BPL families and selling food grains under PDS to them at specially subsidised prices with effect from June 1997.

3.4.17 Under this Targeted Public Distribution System (TPDS), each poor family was entitled to 10 kg of food grains per month at specially subsidised prices. This was expected to benefit about 60 million poor families. The state-wise poverty estimates of the Planning Commission, based on the methodology of the expert group on the estimation of the proportion and number of poor chaired by late Prof. Lakdawala, defined the number of poor in each state. The identification of the poor is done by the states. The emphasis is on including only the really poor and vulnerable sections of the society such as landless agricultural labourers, marginal farmers, artisans/craftsmen (potters, tappers, weavers, blacksmiths, carpenters etc.) in the rural areas and slum dwellers and daily wagers in the informal sector (porters, rickshaw pullers and hand cart pullers, fruit and flower sellers on the pavements etc.) in the urban areas.

3.4.18 In keeping with the consensus on increasing the allocation of food grains to the BPL category and to better target the food subsidy, the Government increased the allocation to BPL families from 10 kg to 20 kg per month at 50 per cent of economic cost from 1 April 2000. The allocation for above poverty line (APL) families was retained at the same level as June 1997 but the Central Issue Prices (CIP) was fixed at 100 per cent of economic cost from that date so that entire consumer subsidy could be directed towards the BPL population.

3.4.19 The number of BPL families increased with effect from 1 December 2000 because the base was shifted from the population projections of 1995 to the population projections of the Registrar General of India as on 1 March 2000. The change

has resulted in increasing the number of BPL families to 65.2 million as against 59.6 million estimated when the TPDS was introduced. The allocation of foodgrains for the BPL category thus increased to 147 lakh tonnes per annum.

3.4.20 In order to reduce the excess foodgrains stocks with the FCI, the Government initiated the following measures under the TPDS from 12 July 2001:

1. The BPL allocation of food grains was increased from 20 kg to 25 kg per family per month with effect from July 2001. At Rs. 4.15 per kg for wheat and Rs. 5.65 per kg for rice, the CIP for BPL families is 48 per cent of the economic cost.
2. The Government decided to allocate food grains to APL families at the discounted rate of 70 per cent of the economic cost. The CIP of wheat was reduced from Rs. 830 per quintal to Rs. 610 per quintal and the CIP of rice reduced from Rs. 1,130 per quintal to Rs. 830 per quintal.

3.4.21 In addition, 25 kg of food grain was to be provided to the poorest of the poor families under the Antyodaya Anna Yojana at a highly subsidised rate of Rs. 2 per kg for wheat and Rs. 3 per kg for rice. The Public Distribution System (Control) Order 2001 was also promulgated which seeks to plug the loopholes in the PDS and make it more efficient and effective.

3.4.22 On 23 March 2002, the Government reduced the issue price for APL rice and wheat by Rs. 100 per quintal for a period of three months. The scale of issue for APL, BPL and Antyodaya households was also increased to 35 kg per month.

3.4.23 Cumulatively, the offtake under TPDS between April 2002 and June 2002 has been 23.54 lakh tonnes for rice and 16.09 lakh tonnes for wheat against 18.46 lakh tonnes and 9.87 lakh tonnes respectively for the corresponding period in 2001. Thus, there is a clear indication that offtake under TPDS has improved at the national level. However, the situation is not uniform across states and there are certain states where conditions need to be improved. For instance, between April 2001 and

March 2002, total offtake of rice in Bihar was only 13.8 per cent of total allocation and in the case of wheat this was only 27.9 per cent.

Restructuring of PDS

3.4.24 The following points need to be taken into consideration in order to make the implementation of TPDS more effective:

- a) Items other than rice and wheat need to be excluded from the purview of TPDS. The main objective of providing food subsidy to the poor is to ensure food security. Since rice and wheat are the basic necessities for the poor, food subsidies must be restricted to these two commodities.
- b) Sugar should be kept outside the purview of PDS. It should be decontrolled and the system of levy on sugar discontinued.
- c) It is argued that encouraging production of coarse cereals in dry land areas can check environment damage like degradation of soil to some extent. However, there is difficulty in supplying coarse cereals through PDS and bringing them under the cover of food subsidy. The average shelf life of coarse grains is limited, making them unsuitable for long-term storage and distribution under PDS. The inclusion of coarse cereals under PDS cannot be taken up as a national level programme since there is no standard variety of coarse grain. However, initiatives on the part of state governments catering to the needs of specific localities are possible.
- d) Kerosene oil is also supplied through PDS and is intended for the poor. However, there is large-scale diversion of this commodity and subsidised kerosene is used for adulteration with diesel. The subsidy on kerosene is thus cornered by the non-poor. A study of four states carried out by Indira Gandhi Institute for Development Research (IGIDR), Mumbai shows that there is huge leakage of kerosene meant for PDS. It is irrational, therefore, to continue to subsidise kerosene at such high rates and continue its distribution through the

PDS. The subsidy on kerosene should be phased out by raising its supply price under PDS while eliminating all domestic central (e.g. Cenvat) and state (e.g. sales tax) taxes on it so as to encourage private supply through petroleum retail outlets and small dealers rather than FPS. Alternately, if kerosene is to be retained under PDS, the extent of subsidy given should be reduced so that there is less incentive for diversion.

- e) All further attempts to include more and more commodities under the coverage of food subsidy should be resisted.
- f) The FPS should be permitted to sell all commodities (other than rice and wheat) at full market prices in order to ensure their economic viability.
- g) The coverage of TPDS and food subsidy should be restricted to the BPL population. For the APL population, which has the purchasing power to buy food, the Government needs to only ensure the availability of food grains at a stable price in the market. Stability in food grain prices should be ensured through the maintenance of buffer stock and open market operations of the FCI. Any attempt to revert to the old concept of a universal PDS will be a retrograde step and needs to be resisted. However, in the current situation, where the FCI has huge surplus stocks of foodgrains, it may be necessary to continue supply of cereals under PDS to the APL population at below economic cost as a temporary measure.
- h) With the liberalisation of external sector, the operation of the buffer stock can be supplemented by timely exports and imports and this will effectively mean that a smaller buffer stock will be required.
- i) Ration cards should not be used by the administration as an identification card for various purposes. That role should be assigned to multi-purpose identity cards.
- j) There are several Plan schemes involving distribution of foodgrains which are in the

nature of welfare or income transfer schemes. Such schemes could be merged and some sort of convergence achieved.

Food Stamps and Food Credit Cards

3.4.25 In order to contain the level of food subsidy, major reforms are required in the system of marketing of food grains. All restrictions on inter-state movement of food grains should be removed once and for all. Second, the system of private trade and marketing of food grains must be strengthened. Third, the idea of having FPS across the length and breadth of the country should be looked into afresh. It may be more efficient to move towards a new system of providing food subsidy through the normal food supply shops (including the FPS), supplemented by new/additional FPS in remote and inaccessible regions where such shops do not exist. This could be achieved through the introduction of food stamps or the food credit card system.

3.4.26 Under the system of food stamps, the State Governments could issue a subsidy entitlement card (SEC) instead of issuing ration cards. The SEC should show, among other things, the number of members in a poor family and their age and indicate their entitlement level for food stamps.

3.4.27 There could, in principle, be different levels of entitlement based on age. All adult members from a poor family, for example, could be entitled to 'a' number of food stamps per month while the entitlement for a child could be 'b' number of food stamps. There could also be a higher subsidy entitlement for old and infirm people. The SEC will indicate the total number of food stamps a family is entitled to every month.

3.4.28 Each family would collect its monthly quota of food stamps from prescribed distribution centres on showing their SEC. They could then use these food stamps at any food supply shop to buy food grains (rice and wheat) at a price (Rs x) below the market price. The retailer will then be reimbursed by the State Government.

3.4.29 There is less scope for corruption under a system of food stamps. Under the existing system, FPS owners declare on paper that they have sold a

certain quantity of food to the poor at subsidised prices when, in fact, they have made huge profits by selling the food at market prices. There is less possibility of such diversion of food supplies under the system of food stamps. The retailer can claim food subsidy only if he acquires food stamps by selling food to the poor at subsidised prices. Under this system, it could be made mandatory for retail traders to display the selling price of foodgrains prominently in their shops.

3.4.30 Two potential problems with the system of food stamps need to be kept in mind while designing the system. There is a distinct possibility of food stamps being counterfeited. Secondly, reimbursement of subsidy to the participating retailers can run into logistical problems. These problems are, however, minuscule compared to the problem of physically procuring, storing, transporting and delivering foodgrains to FPS across the country by the FCI and the state food corporations/agencies.

3.4.31 The food stamp system can be introduced in phases. Initially food stamps can be allowed to be redeemed only at the FPS currently used by the

consumer. This will allow food stamps to be printed with the identification number of the FPS so that the totals can be matched and cross-checked later, thus reducing the scope for counterfeiting. This could be followed by the consumer designating any participating retailer and having the identification number of that shop printed on the food stamp. Normally consumers purchase their daily food provisions from the most convenient shop or, in very rare cases, two shops. As the problem of reimbursing money is a fraction of the problem of delivering food, it should not be too difficult to set up a re-imbursement system, perhaps by sub-contracting the task to a financial service provider. To reduce malpractices, there is an opinion that the food stamps should be issued to female members of the family who can be designated as heads of households for the purpose. The system should be introduced cautiously on an experimental basis in areas where a proper market infrastructure exists. The conventional FPS system may have to be continued in remote and inaccessible areas. A food coupon system for distribution of rice and kerosene through PDS was introduced in Andhra Pradesh in 1998-99. Particulars regarding the scheme are in Box 3.4.1.

BOX 3.4.1 :The Andhra Pradesh Experiment

A food coupon system for distribution of rice and kerosene through the public distribution system (PDS) was introduced in Andhra Pradesh during 1998-1999 in order to improve the delivery system for these two commodities. Under the scheme, mere possession of the card was not enough to draw PDS rice, wheat or kerosene. The cardholder, whose photo was affixed on the card has to be physically present when obtaining the coupons. Coupons are issued once a year and coupon holders are entitled to draw rice and kerosene on a monthly basis. To help the coupon holder draw rice and kerosene in easy instalments in a month, coupons are denominated in smaller quantities like 4 kg, 8 kg etc. The coupon holder/ beneficiary is aware of his entitlement. The State Government feels that this system has largely eliminated the scope of cheating by dealers by giving beneficiaries less than their entitlement. The coupon guarantees the stakeholder his right to draw a specific quantity every month. Rice or kerosene is not released unless the coupon is produced. This facilitates proper accounting of the actual quantity distributed in the month as it is calculated on the basis of the quantity covered by coupons produced by the beneficiaries. Quantity distributed vis-à-vis the coupons produced could be verified every month by the officials of the Civil Supplies/Revenue Department. Introduction of the coupon system has also reduced the number of bogus cards or those with ineligible families by approximately eight lakh. This system has resulted in saving about 20,000 tonnes of rice and 7,100 kilo litres of kerosene every month. In financial terms, the exchequer has saved Rs. 9 crore per month on rice and Rs. 5.67 crore per month on kerosene as subsidy. The coupon system could be made more effective if the list of beneficiaries is computerised on the basis of FPS so that duplicate names, if any, could be identified and eliminated. This step would also reduce the cost of PDS substantially. However, steps should be taken to prevent counterfeiting of coupons by unscrupulous persons. Regular and staggered distribution of coupons could also prevent mischief and manipulation.

3.4.32 Informal trading of food stamps can also convert the food subsidy into an income subsidy. The use of smart cards in the form of a food credit/debit card can remove these problems. The card can have in-built security features that make it difficult, if not impossible, to trade.

3.4.33 A food credit card system could be a superior alternative to the prevalent system of FPS and perhaps even a food stamp system. The customers could use food credit/debit cards to buy subsidised food grains from the market and the retailers can claim the subsidy from the Government. Though the initial cost of issuing a food credit card and setting up a leakage-proof system are likely to be higher than for the existing ration card, the running costs of the system may be lower as the credit/debit card can be used in existing retail shops that accept such cards. Besides, the cost would also be compensated by the elimination of leakage at all stages of the current food procurement, storage and distribution system (including the FCI). To minimise the cost, existing credit card companies could be persuaded to set up and run the food credit/debit card system at a cost, in return for advertisement rights to this social service. Specialised credit card companies can also ensure that the food retailers are reimbursed on time, thus giving them an incentive to sell food to the poor.

3.4.34 The food debit/credit card can also have the in-built flexibility of changing over from a food subsidy to an income transfer system if there is a subsequent change in the policy. The card can also be made applicable to all cereals including coarse grains. If desired, a different subsidy rate can be specified for different cereals. As coarse cereals are consumed mainly by the poor, the smart card will allow some self-selecting/self-targeting features to be built into the system.

3.4.35 The food debit/card card could also be integrated with a food-for-work programme without incurring the additional administrative and logistic costs of transporting food to each area where there is need to provide work. Payment for the work would be done by adding the food grain to the food credit of the worker. Once this system is set up, it can also be used to provide social security to the old,

infirm, disabled and handicapped citizens. This could be done by programming a higher subsidy proportion for such groups. However, in the rural areas the smart card system may have to be preceded by a food stamp system.

Decentralisation of Operations

3.4.36 One possibility that could be considered is that based on the net consumer subsidy spent on providing food through the PDS, the Central budget should make a provision for a national food subsidy. This subsidy can be distributed among the states according to a prescribed formula based on the latest available data and updated poverty ratios. It would then be left to individual State Governments to determine the quantum of food subsidy based on the contribution they get from the Centre and their own contribution. The Centre could also agree to enhance the quantum of its contribution to compensate for any increase in prices. The new system will also result in a more equitable distribution of the benefits of food subsidy among different states. *However, it needs to be ensured that the food subsidy distributed by the Centre is utilised for the purpose for which it is meant and not diverted for other purposes.*

3.4.37 The operation of the PDS should be the responsibility of the State Governments. If a State Government feels that its administrative and managerial resources are inadequate to the task, it can sub-contract this job to other State agencies or the private sector. The role of the Centre should be limited to the allocation of food subsidy to the states and the maintenance of buffer stock through the FCI. Procurement, storage and distribution of food grains should be the joint responsibility of the central and state governments. The scheme of decentralised procurement, which is in operation, should be promoted and more states should be encouraged to adopt this scheme.

3.4.38 The issue of food stamps will be the responsibility of the state governments. The subsidy in each food stamp could be decided by them based on the resources available. The state's own resources could supplement the subsidy provided by the Centre.

3.4.39 As long as the Centre fixes the issue price, changes should be made every time there is a revision in the procurement price of food grains. This will drive home the message to the public that the issue price is being raised because of an increase in the cost of production. There will, then, be less resistance to increase in the issue price. One reason for the burgeoning food subsidy bill is the non-neutralisation of the increase in MSP by a corresponding increase in issue prices. However, any attempt to increase the issue price following an increase in MSP has the undesirable effect of reducing the offtake, leading to further accumulation of excess stocks.

3.4.40 There is a suggestion that the task of fixing the issue price of foodgrains, deciding the quantum of food subsidy per food stamp, amount of food grains to be supplied to beneficiaries etc. may be left to the discretion of state governments, whose decision will be based on their individual capacities. The implications of this suggestion need further examination.

Operation of Buffer Stocks and FCI

3.4.41 The high level of market prices of wheat now prevailing in India are primarily due to the rise in procurement prices over the past three years and taxes and charges on cereals imposed by state governments. The difference between the economic cost of FCI and the market price also contributes to the higher price. Notwithstanding the criticisms against FCI, it has to be admitted that it does play an important role in the country's food economy. The contribution of the FCI would be enhanced if there were greater competition in food trade from other public, co-operative and private organisations.

3.4.42 While the provision of food subsidy is an important element of the food security system in India, the food procurement and buffer stock operations play an equally important role. Since agricultural production tends to fluctuate due to climatic factors, it is necessary to maintain an adequate level of buffer stock to ensure stability in food grain prices. Based on a study done by Dr Kirit Parikh of the IGIDR, the ERC has recommended that a food security buffer stock of 10 mt – 4 mt of wheat and 6 mt of rice - would be

adequate. The present levels of buffer stocks in the country are far in excess of requirements and create more economic instability than stability.

3.4.43 The FCI can maintain a minimum level of buffer stock and then undertake open market operations within a prescribed price band. It can release stocks in the open market when there are shortages and prices increase. It can also purchase food grains from the open market when there is excess supply and prices are depressed. However, its objective should not be to procure all that is offered by the farmers but only to maintain an optimum level of buffer stock. Recognising the fact that a high level of buffer stock can itself contribute to inflationary pressures, the FCI can be instructed to limit its role to more manageable and optimum levels in the future. Presently, the level of food credit is more than Rs. 40,000 crore. Large food credit will have significant macro economic implications since it has a significant impact on money supply.

3.4.44 The FCI could also play a role in the international market for food grains by importing when stocks are low and exporting food grains when there are surplus stocks. The private sector and the farmers must also be allowed a role in the export of food grains, by removing all restrictions on the export of wheat and rice. In fact, there should be no restriction on the export of any agricultural commodity. The lifting of quantitative restrictions on the import of wheat and rice has been accompanied by import duties that are well above the general 'peak' rate of duty of 35 per cent. The relationship between these duties and the 'peak' rate can be defined in the context of the continuing custom duty reform.

3.4.45 The FCI will continue to play a vital role in the maintenance of the buffer stock to insulate the food economy from fluctuations in food grains production. However, its monopoly in food procurement must be ended by allowing State procurement agencies to be set up in all states. Restrictions on private trade must be lifted so that competitive forces can have a free play, thus reducing intermediation costs. Curbs on the entry of modern food procurement, transport, processing and distribution companies must also be removed,

so that the agriculture sector can benefit from modern management practices like silo storage, logistics and large-scale processing. This will benefit both farmers and consumers.

3.4.46 It has also to be noted that when procurement prices for food grains are fixed, these should not be pegged at such a high level that it leads to accumulation of surplus stocks in FCI godowns. In this connection, there is a need to strictly adhere to the recommendations of the CACP and not resort to fixation of procurement prices much in excess of the estimated costs of production.

3.4.47 The high market prices of wheat now prevailing in India are due to primarily the rise in the procurement prices over the past three years or so and taxes and charges on cereals imposed by State Governments. The difference between the economic cost of FCI and the market price also contributes to the higher price.

3.4.48 A study by the Indian Statistical Institute researchers using NSS data for 1993-4 along with other data for Andhra Pradesh and Maharashtra estimated both the extent of leakage as well as the economic inefficiency of the public food procurement system relative to the open market. The study shows that only 56 per cent to 58.5 per cent of the total food subsidy (i.e. Centre and State) reaches the PDS consumers. A major part of the subsidy is lost in the process of administering it. While leakages (grains shown as issued by the PDS system minus grains actually received by households from PDS) can range from 15 per cent to 28 per cent of the subsidy, another 16 per cent to 26.5 per cent of the subsidy is eaten up by the inefficiency of the Government procurement and distribution system (FCI plus State level) relative to the market.

3.4.49 The contribution of FCI would be enhanced if there were greater competition in food trade from other public, co-operative and private organisations. Most of FCI's storage godowns are small-scale, low-quality structures. Sometimes, grains are also stored in the open (known as covered and plinth storage-CAP) leading to heavy storage losses. The quality of the FCI's food stocks is also questionable.

As noted in the approach paper to the Tenth Plan, a June 2000 research report found that half of FCI's grain stocks is at least two years' old, 30 per cent between two and four years old, and some grain as old as 16 years¹. Immediate disposal of all the stocks that are more than three years old should be undertaken. A credible physical audit of the FCI stocks is necessary.

3.4.50 The main objective of the food procurement policy should be the stabilisation of food prices rather than subsidising producers. Currently, even though food subsidies are provided to the BPL population, the PDS meets only a limited part of their food requirements. They depend on private traders to meet the rest of their requirements. This makes the objective of stabilisation of foodgrain prices even more important. Such stabilisation has to be achieved by appropriate buffer stock operations and market interventions by the FCI.

Private Trade in Foodgrains

3.4.51 The FCI should gradually hand over its role of MSP-related procurement to private trade. This requires a comprehensive reform of policies, rules and procedures to strengthen the role of the modern private sector in the matter of storage, distribution and processing of foodgrains. Various restrictions that inhibit private initiatives in this regard need to be removed so that the private sector has an incentive to make huge investment in grain handling operations and food processing. There is urgent need to upgrade market infrastructure, cold storage facilities, mandi facilities and roads, areas in which the private sector should be encouraged to make productive investment.

3.4.52 While the National Policy on Handling, Storage and Transportation of Food Grains 2000 is timely, its success is largely dependent upon highly regulated and controlled sectors of the economy. Under the policy, integrated bulk handling facilities with silos of large capacity for wheat along with testing facilities for quality control would be created for the storage of foodgrains procured by the FCI at about 20 locations in producing and consuming areas as well as a few port towns. These facilities, including the infrastructure for bulk transportation

¹ By the World Bank.

to these centres, will be created and maintained by the private sector under the overall supervision of the FCI. Private sector participation in this sector will be encouraged through measures such as Build-Own-Operate-Transfer (BOOT), Build-Own-Lease-Transfer (BOLT), Build-Own-Operate (BOO), Lease-Develop-Operate (LDO), joint ventures etc. It is proposed to provide several fiscal incentives to make the scheme a success.

3.4.53 However, the success of the proposed public-private partnerships will be limited unless the existing controls on storage and movement of foodgrains and other essential commodities is suitably relaxed. Many of these controls have outlived their utility since the country has achieved self-sufficiency in food and their continuance hampers the market from performing its productive and commercial role. There is an urgent need to withdraw them, and legislative and administrative measures to ensure this need to be accorded top priority.

3.4.54 The Essential Commodities Act, 1955 is one legislation that is the source of stifling controls. A large number of permits and licences are required to be obtained from the authorities under the Act, periodic returns have to be submitted and regular inspections are carried out, all of which add to transaction costs. Some notifications under the Act restrict the movement of goods from the surplus states to deficit states. These controls and restrictions, and the constant threat of arrest in case of violations, discourage private companies from producing and distributing essential commodities, thus denying the food sector the benefits of economies of scale and modernisation.

3.4.55 In order to facilitate the free trade and movement of foodgrains, the Government issued a Control Order titled, 'Removal of (Licensing Requirements, Stock Limits and Movement Restrictions) on Specified Foodstuffs Order, 2002' on 15 February 2002. The Order allows any dealer to freely buy, stock, sell, transport, distribute, dispose, acquire, use or consume any quantity of wheat, paddy/rice, coarse grains, sugar, edible oilseeds and edible oils, without a licence or permit. State governments would require the Centre's prior permission before issuing any order for regulating,

by licences or permits, the storage, transport and distribution of the specified commodities.

3.4.56 According to the Expenditure Reforms Commission, the induction of the private sector in procurement operations will indirectly lead to a reduction in the cost of procurement to FCI. The report points out that even though the MSP for wheat in 1999-00 was only Rs. 550 per quintal, the costs by way of statutory and non-statutory charges paid to agencies in Punjab and Haryana totalled up to an additional Rs. 60 per quintal. Of these, mandi charges were Rs. 28.46 per quintal and the purchase tax was Rs. 17.12 per quintal. Some of these charges are in the nature of economic costs and unavoidable like mandi labour costs, local transport costs, forwarding charges etc. However, the remaining items clearly reflect an attempt by the State Government and various other agencies involved in the process to maximise the returns to themselves on these transactions.

3.4.57 The following combination of policy reforms can benefit both farmers and food consumers:

- **Single Market**

- Amend the Essential Commodities Act to make it an emergency provision that will have to be formally invoked by a notification for a limited period.
- Enact a Central Act to ban controls on movement within and between States.
- Abolish octroi and all sorts of taxes/levies on food articles.

- **Competitive Grain Procurement**

- Phase out all forms of monopoly purchase.
- State Food Corporations should be allowed and encouraged to operate in all States.
- The role of private agencies in food procurement activities should be gradually enhanced.

● De-Licensing

- Remove licensing controls and de-reserve all agro-based and food-processing industries in a time-bound manner.
- Phase out controls on sugar and its by-products and also remove sugar from the PDS.
- Remove the present restrictions on establishing new milk processing capacity under the Milk and Milk Products Order, (MMPO).
- De-reserve roller flour mills.
- Remove rapeseed and groundnut processing units from the small-scale industries (SSI) list.
- De-reserve all pesticides and fungicides.
- De-license and de-control fertiliser production.

● Export De-control

- Announce a policy renouncing the use of export restrictions on agricultural commodities. Domestic shortages should be met by imports, not by imposing export controls.
 - Remove all restrictions (e.g. canalisation) on the export of agro-products.
- Lift the ban on futures trading and stocking of all agricultural commodities, and on institutional credit and finance for such activities.
- Amend the Agricultural Produce Marketing Acts of states to allow direct purchase of grain and other produce from farmers by agro-produce trading, storage and processing companies.
- Support and promote provision of all types of insurance (health and hospitalisation, crop and weather) to farmers and other rural inhabitants.

- Give income tax incentives to insurance companies for a specified promotional period (five years).
- Allow 100 per cent foreign direct investment (FDI) in insurance for agriculture and rural areas.

- Modernise the information and extension system for farmers.
- Overhaul the agricultural research and development system so as to replace the bureaucratic financial/administrative system with a modern system of professional management and accountability under the Societies Act and provide for academic autonomy and peer review.
- Remove all central and state taxes on production and marketing of cereals and other food products.
- Allow 26 per cent FDI in food retailing. Food retailers would also be free to sell other agro-based and rural industrial products.

3.4.58 These reforms will set the stage for large-scale entry of the private sector into agricultural procurement. While these reforms are being introduced in a phased manner, the following steps can be considered to start the process of replacing the FCI operations by private trade:

- Public-private partnerships in setting up modern food procurement, handling, storage and transport systems.
- The Government should operate a market intervention scheme with the support of private trade – purchasing from the farmers when prices are low and offloading in the market when prices are high.
- The number of commodities covered under the procurement scheme should be reduced till finally the scheme is restricted to only rice and wheat. The procurement policy must not be extended to cover more and more commodities.

3.4.59 State governments should be asked to immediately do away with all taxes on foodgrains. This is an unnecessary addition to the price of the essential food items, which, in turn, adds to the burden of subsidy. This should be accompanied by ending the compulsory routing of agro-commodities through regulated grain markets/*mandis*. Farmers must be allowed to borrow working capital from the banks against hypothecation of their stocks, a step that is long overdue. All banks and financial institutions must be instructed to grant this facility. The same facility must be provided to traders as well.

PDS Plan Schemes

3.4.60 While the provision for food subsidy is made in the non-Plan budget of the Central Government, the Planning Commission provides funds under its Plan programmes for the following schemes to strengthen the operational machinery of the PDS: construction of Godowns; purchase of mobile vans/trucks; and training, research and monitoring. The godowns scheme was intended to assist State Governments and Union Territories in the construction of small godowns of up to 2,000-tonnes capacity. The mobile vans scheme provided financial assistance for the purchase of mobile vans/trucks for distributing essential commodities in rural/hilly/remote and other disadvantaged areas where it is not feasible or viable to set up regular FPS. The training scheme aims at strengthening and upgrading the skills of personnel managing the PDS and to improve the management of supplies. The efforts of the State Governments/Union Territory administrations and Civil Supplies Corporations etc. are supplemented by providing financial assistance for organising training programmes on PDS. Evaluation studies and research studies on various aspects of PDS are also sponsored under the scheme. The Plan outlay and expenditure under the schemes are shown in Table 3.4.3.

3.4.61 According to a report of the Comptroller and Auditor General (CAG) between 1983 and 1999, the Government of India released Rs. 58.73 crore and Rs. 62.96 crore for the construction of godowns and purchase of mobile

Table-3.4.3
PDS Schemes - Plan Outlay/Expenditure (Rs crore)

Scheme	1999-00 Actual	2000-01 Actual	2001-02 (R.E)
1. Construction of Godowns	22.29	8	11.5
2. Purchase of Vans/Trucks	1.06	0.23	0.3
3. Training, Research and Monitoring	0.36	0.16	0.5
TOTAL	23.71	8.39	12.3

vans respectively. However, the response of State Governments was lukewarm, at best. A large number of godowns for which the Central Government provided funds were not constructed and many were not put to the intended use. Many state governments did not purchase mobile vans. A large number of vans were out of order or used for purposes other than the doorstep delivery of foodgrains.

3.4.62 A decision has, therefore, been taken to abolish the schemes for construction of godowns and purchase of vans during the Tenth Plan. The funds under the training, research and monitoring scheme need to be diverted towards sponsoring studies on the operation and viability of the food security system. A pilot project for the introduction of smart cards in the PDS is proposed to be taken up for implementation during the Tenth Plan. The schemewise break up of Tenth Plan outlay of Department of Food and Public Distribution is given in the Appendix.

Grain Bank Scheme

3.4.63 As a part of the Government's efforts to prevent deaths of children in remote and backward tribal areas due to malnutrition, a Village Grain Banks scheme was launched in 1996-97. A one-time grant is provided by the Ministry of Tribal Affairs towards the purchase of grains, at the rate of one quintal per family, storage facilities for the grains and purchase of weights and scales. The funds are provided through TRIFED, which acts as the canalising agency. The bank is managed by the village committee, which is elected by the

beneficiaries themselves who are also members of the bank. They can borrow grains from the grain banks during times of scarcity.

3.4.64 A grain bank scheme is also being run under the aegis of the Department of Rural Development in the Jhabua district of Madhya Pradesh. The scheme was launched in 1995 on a pilot basis in 18 villages. The performance of the scheme in the last two years encouraged DRDA to adopt the strategy in all villages under the Integrated Watershed Development Programme. Presently, there are 184 grain banks functioning in watershed areas and these are managed by the community itself. In the last season, 12,363 families took loans from the grain bank.

3.4.65 The Madhya Pradesh government has proposed the evolution of community-based support systems to substitute/supplement PDS operations in areas where PDS does not exist. Self-help groups of BPL families will be formed and charged a membership fee of Rs. 50. These groups will be eligible to receive supplies of foodgrains and other infrastructure-based assistance from the government. They will organise activities, under the grain bank scheme, to develop degraded lands on the periphery of forests with significant Adivasi population through food for work programmes. The grain banks will be managed by committees of women beneficiaries to be called *anaj samitis*. The government will give a one-time supply of 100 kg of wheat or rice to each grain bank. The grain will be stored by the traditional method in earthen *kothas* constructed with local material and free family labour.

3.4.66 Grain banks can be set up in remote and isolated areas beyond the reach of PDS and in regions where there is inadequate employment generation such as in tribal and forest areas. In order to be successful, the grain bank scheme has to be combined with a food for work programme, so as to ensure generation of income, which is necessary in order to ensure repayment of borrowed grain by the beneficiaries.

3.4.67 A grain bank scheme should function with minimum interference on the part of the

government. It should be run under the supervision of self-help groups headed by women. The moment beneficiaries realise that grain under the scheme is being supplied by the government, there will be a tendency not to repay. However, the government may provide the initial supply of grain and the storage capacity may be created under the food for work programmes. The scheme may work well during times of surplus. Besides, a system of food distribution running parallel with the current PDS could result in lack of accountability on the part of both. In the long-run, therefore, there should be only one system.

THE PATH AHEAD

3.4.68 Despite the huge stock of food grains available in FCI godowns, stray cases of hunger deaths are still being reported. The food distribution system, therefore, needs to be reformed and made more efficient. The present system could be replaced by a system of food stamps and eventually by a food credit card system. The excess stocks of food grains that have accumulated with the Government is partly a result of the high MSP which often exceeded the levels recommended by the CACP. There is, therefore, a need to adhere to the recommendations of the CACP in this regard. The MSP should encourage diversification of agricultural production.

3.4.69 Surveys by the National Sample Survey Organisation (NSSO) show that consumers today prefer to consume less of cereals and more of fruits, vegetables and animal products than before. This changing food consumption pattern may also have contributed to the accumulation of surplus food grain stocks.

3.4.70 Studies show that a buffer stock of 10 mt is adequate to meet food security needs. The FCI could intervene in the market by timely sales and purchases to maintain stability in food grain prices. The buffer stocking agency could also take resort to exports and imports of food grains as per requirements. The scheme for decentralised procurement of food grains should be encouraged and more states could be brought under its fold. Similarly, the operation of the PDS

could be decentralised with the states taking their own decisions regarding issue prices, quantum of food grains to be supplied etc. The national food subsidy could be distributed among the states according to a prescribed formula.

3.4.71 The private sector should play an enhanced role in the food distribution system. The Essential Commodities Act should be amended to make it an emergency provision that will have to be formally invoked by notification for a limited period for specific commodities. All restrictions

on inter-state movement of food grains should be removed. Octroi and all sorts of taxes/levies on food articles should be eliminated. The ban on futures trading in all agricultural commodities should be lifted. Twenty-six per cent FDI should be allowed in food retailing along with 100 per cent FDI in insurance for agriculture and rural areas. These and other policy recommendations outlined in the chapter would make the food distribution system in the country more vibrant and efficient and capable of meeting the requirements of a liberalised economy.

CHAPTER 3.5

LABOUR WELFARE & SOCIAL SECURITY

3.5.1 The productivity of labour is an essential condition for the prosperity of enterprises and the well being of the workers and their families. While the production facilities at workplace and the remuneration are important, attitudes towards work, and the value placed by the society on dignity of labour are equally important in influencing the productivity of labour.

3.5.2. The planning process supports the attainment of economic and social objectives in the labour sector through a set of strategies. The supply of labour is kept in tune with demand through skill development and vocational training. Appropriate conditions at work are ensured by measures taken to promote safety at the workplace and minimising occupational hazards. A reasonable return on labour is facilitated by labour laws that regulate payment of wages and provision of social security to workers.

3.5.3 Situations where the supply of labour exceeds demand by a huge margin can lead to highly exploitative forms of work. Therefore, an effective implementation of the existing regulations relating to prohibition of bonded (forced) labour and child labour and monitoring the conditions of migrant workers is required.

Tenth Plan Objectives

3.5.4 The present infrastructure for improving labour productivity and for ensuring the welfare of workers covers only a very small segment of the labour force. The objective of Tenth Plan will be to increase the coverage of the labour market institutions. The essential condition for this is the provision of gainful employment to the entire labour force.

3.5.5 However, certain recent trends make the attainment of these objectives a more challenging

task. The growth of population in the working age group is at a substantially higher pace than that of the average population. Agriculture used to provide employment to a major part of the workforce. However, the number of workers deployed in agriculture cropping activities has not increased in recent years and it has even declined in certain parts of the country. The pace of growth of jobs in the organised sector has slowed down primarily because number of jobs in the public sector (which has a three-fourth share in organised sector jobs) has reduced and employment elasticity in the private sector has decreased significantly. The economic policy in general, and labour policy in particular, must facilitate the opening up of new employment avenues. In agriculture and related sectors, there is need to create more employment opportunities in horticulture, animal husbandry, poultry, and development of watersheds. However, the non-agricultural sectors of the economy will have to absorb the bulk of the increase in labour force. The labour sector has to focus at those kinds of establishments where much of the labour finds work.

Labour Policy and The Smaller Establishments

3.5.6 The Economic Census enumerates economic activities other than those which are purely for self-consumption and agricultural crop production. It identifies two types of enterprises that operate in such economic activities – the own account enterprises (OAE), which operate without any hired workers and establishments which hire workers. Labour regulations apply to the second category. Ninety-five per cent of establishments employ less than 20 workers, and 60 per cent of the workers serve in such establishments. (Tables 3.5.1 and 3.5.2). In order to reach the bulk of the workers, labour policies and programmes have to focus on the requirements of the small establishments. This is in contrast to the situation in recent years, where the large enterprises and

their workers have been the focus of labour policy.

Development of Vocational Skills

3.5.7 One of the important determinants of labour productivity is the working skills of the worker. Enterprises will be able to absorb the new entrants to labour market only if they have the requisite training. Surveys have revealed that only about 5 per cent of those in 20 to 24 year age group had

any kind of technical education, in contrast to the situation in several developing countries (Table 3.5.3). On the other hand, education levels have improved. Fifty-one per cent of those in 20 to 24 age group now have middle school level or higher education. With education becoming compulsory for those in the 6-14 age group, this number is set to increase in the future. If the youth do not have the working skills required by the employers, the incidence of unemployment among the educated youth will increase.

Table 3.5.1
Distribution of establishments by employment size class

Employment size ¹	Agricultural establishments	Non agricultural establishments
1-5	86.4	81.3
6-19	12.7	15.4
20-99	0.8	3.1
100-499	-	0.1
Above 500	-	-
All establishments	100.0	100.0
No. of establishments (thousand)	(371.9)	(8,601.2)

¹ Employment size includes both the hired workers and those working on 'own account' basis.
Source: Economic Census, 1998

Table 3.5.2
Distribution of workers by employment size class of establishments

Employment size ¹	Agricultural establishments	Non agricultural establishments
1-5	61.4	35.6
6-19	27.9	24.3
20-99	7.4	18.3
100-499	2.7	10.9
Above 500	0.6	10.9
All establishments	100.0	100.0
No. of workers ¹ (million)	(1.39)	(49.66) ²

¹ Includes both the hired workers and those working on 'own account' basis.

²Economic Census covers enterprises in selected agricultural activities. These are livestock production and agricultural services including hunting, tracking and game production, forestry, logging and fishing.

Crop production and plantations are not covered.

All non-agricultural entrepreneurial activities are included. Activities purely for self-consumption are excluded.

Source: Economic Census, 1998

Table 3.5.3
Proportion of vocationally trained among the youth in labour force - international comparison²

Country	Age	Vocationally trained (per cent of those in labour force)
India	20-24	5.06@
Developing countries		
Botswana	20-24	22.42
Colombia (1998)	20-29	28.06
Mauritius (1995)	20-24	36.08
Mexico (1998)	20-24	27.58
Developed Countries		
Australia (1998)	20-24	64.11
Canada (1998)	20-24	78.11
France (1997)	20-24	68.57
Germany (1998)	20-24	75.33
Israel (1998)	18-24	81.23
Italy (1997)	20-24	43.88
Japan (1997)	15-24	80.39
Republic of Korea (1998)	20-24	95.86
Singapore (1998)	20-24	66.24
United Kingdom (1998)	20-24	68.46

- Note :
1. Vocationally trained persons are defined here as those having education level 3 or 5 as per ISCED Classification which classifies the population across age groups and levels of education starting with level X i.e. no education and the highest level being level 7 which is post graduate level specialisation in a field. Levels 4 and 8 are not used. Level 3 of education: General education continues to be an important constituent of the programmes, but separate subject presentation and more specialisation are found at this level. Also classified under Level 3 are programmes consisting of subject matter mainly with a specific vocational emphasis of apprenticeship programmes, with an entrance requirement of eight full years of education, or a combination of basic education and vocational experience that demonstrates the ability to handle the subject matter of that level. Level 5 of education: Programmes of this type are usually "practical" in particular vocational fields in which they can qualify as high level technicians, teachers, nurses, production supervisors etc. It may be noted however that in developing countries, economically productive skills are acquired orientation in that they are designed to prepare students for not only in training/ education institution but also through the family. Only the formal institute/school vocationally trained are shown above.
 2. Only those who have received formal vocational training are shown as trained in this table. To the extent that training and skills in India are acquired through informal methods, including training in the family, the Indian figures are understated
- @ Estimates are based on (NSSO Report No.409 on Results of 50th round (1993-94) survey on Employment and Unemployment; Table 20) distribution of persons by technical education in India adjusted by labour force participation rate by sex. The corresponding percentages by sex and residence are rural female 1.7, rural male 2.3, urban male 9.4, and urban female 17.0.

3.5.8 The projections of increase in labour force indicate that 8-10 million new entrants are required to be trained each year during the Tenth Plan period. Against this, the vocational training/ technical/ professional education sector has a capacity of only 2-2.3 million. The resultant large gap is not entirely due to a shortage in the availability of training infrastructure. In some training establishments, the enrolment is much below the capacity and dropout rate in training institutes is significant in certain instances. So a part of the gap can be attributed to a lack of demand for vocational training, since the youth may not find the training at the vocational training institute enhances their chances of finding jobs. There is a mismatch between the training facilities available and the skills that employers require. The factors which suppress the demand for vocational training have to be addressed. In addition, new ways of generating resources to expand the capacity for training have to be found so that the training system can absorb the large number of new entrants to the labour force. A reform of the vocational training system is, therefore, required.

Reform of the Vocational Training System

3.5.9 The objective of providing skills to all entrants to the labour force will have to be fulfilled by initiatives that (i) increase the demand for training; and (ii) increase the capacity for training. Thus, the process of reform will address both the factors that influence demand for vocational training and the factors that influence supply. So far, the main thrust of Government policies has been on augmenting the supply capacity. Since the factors that restrain the demand did not receive adequate attention, greater returns are expected, in the near future, from the initiatives that increase the demand for vocational training.

Demand For Vocational Training

3.5.10 The demand for vocational training comes from the returns to the trainee in the form of a job and better income and returns to the employer by way of a higher output from a trained worker. If the income expectations of workers exceed the output

realised by the employer, the demand for training cannot be sustained, let alone be increased. Hence, the quality of training should be of a standard that the employer expects. On the other hand, if the expectation from training is to get a job in the Government or public sector, which are not expanding much, no useful purpose will be served by acquiring such training.

Improving Linkage Of Training With Prospective Employment

3.5.11 Employment prospects of trained manpower can increase if the employer has a say in imparting training. In the Ninth Plan, industry-institute interaction was initiated in Industrial Training Institutes (ITIs), whereby Institute Management Committees (IMC) were set up under the leadership of a local employer/ industrialist. However, the IMC has been set up only at 33 ITIs. There has been no such effort outside the labour sector. In the Tenth Plan, State Governments will be encouraged to cover practically all the training institutes by the IMC mode of management.

3.5.12 Industries/employers which require training for new recruits will get priority in allotment of seats in training institutes.

3.5.13 Though the bulk of the employment opportunities arise in the small establishments, these enterprises do not have an adequate role in the formulation of a policy for training and its implementation. Such involvement can be meaningful only at the local level rather than at the state or national level. The formulation of a training policy in Tenth Plan will give priority to the needs of local small employers.

3.5.14 Apprenticeships in establishments lead to better job prospects than the training based in the institute classroom. The Apprenticeship Training Scheme under the Apprentices Act, 1961 has remained confined to large establishments, especially those in the public sector. Small employers have not been a significant part of the scheme. In the Tenth Plan, the Apprenticeship Training Scheme will be modified keeping the small employers in mind. Payment of stipend should not

be made mandatory for small employers. Absorption of apprentice trainees by the establishment to which they are attached should be voluntary.

3.5.15 There is a social divide between those who opt for vocational training after completing school and those who enter the higher technical/professional/medical education stream. In the entry requirements for higher applied education, vocational training and even vocational experience should be considered as fulfillment of some part of the requirement of basic education. Entry criteria to higher-level institutions should give higher priority to those coming out of vocational training establishments over those who join after basic and general education in schools. Thus, the higher applied education streams should be vertically integrated with the training institutes that provide training in industrial trades, medical diagnostics, commercial practice, tailoring, cooking, travel services, accounting, financial services, insurance services etc. This requires closer interaction between the authorities that regulate higher applied education and those regulating vocational training and related applied courses.

Capacity For Training

3.5.16 A massive expansion of training capacity is required if all the entrants to labour force are to acquire some vocational skills. New methods to enable skill building have to be created. More resources are needed and this requires new means to mobilise resources. The informal sector must receive special attention since it absorbs a large part of the labour force and enables the bulk of the new entrants to labour force to acquire working skills.

Skill Building And The Informal Sector

3.5.17 Training activity for entrants to organised sector has always received a highly preferential treatment in contrast to those working in the unorganised sector. This trend has only got accentuated in the recent phase of economic reforms. This is reflected in the exorbitant capitation fees for medical education and the high fees in private establishments for newly emerging areas of employment like information technology –(IT) and

IT-enabled services, engineering, hotel and catering, etc. The problem had already got compounded even before reforms, because the formal training certificates became a screening mechanism for recruitment to the public sector/ Government. Within the human resource development activity, literacy and general education always received greater attention from Central and State Governments than vocational training. In short, a policy is needed for skill building for the bulk of the new entrants to labour force for employment in the unorganised and the informal sector.

3.5.18 A strategy for skill building in the informal sector will be framed in the Tenth Plan. The elements of this strategy are:

- Government to articulate a policy framework for support of informal sector training.
- Use all available methods to increase literacy standards and production skills of persons in the informal sector.
- Certification system to declare competency in vocational skills acquired at work.
- Detailed surveys on training needs and existing arrangements for training in informal sector.
- Motivate associations in the informal sector to help develop skills and entrepreneurship.
- International agencies (such as the International Labour Organisation (ILO), United Nations International Children's Emergency Fund (UNICEF) and World Bank) to act in collaboration with the Government at grass root level for administration and distribution of aid to informal sector.
- Opening training-cum-production centres in informal sector to enable individuals to earn while they learn e.g., handicrafts sector.

- Common identity cards by local bodies and police to those working in the informal sector clearly specifying the places where informal sector activity is not wanted.
- Refinancing for urban micro-credit that creates training facilities for this sector to open up entrepreneurship in this area.
- Private sector companies to be enabled to create foundations to finance community-based programmes which include training and business support to micro-enterprises, coupled with tax and credit incentives.
- Identify organisations through which action programmes can be developed – trade-based guilds, trade unions (including the smaller ones) and self-help groups.
- In the construction sector, the Building and Other Construction Workers Welfare Cess Act, 1996 enables generation of funds for the welfare of construction workers. A part of this can be utilised for financing the training of informal sector construction workers.
- Open learning systems for vocational skills.

Attracting Investment Into Skill Building Activities

3.5.19 Vocational skill building needs to be developed as an entrepreneurial activity in which the private sector would be willing to invest. Income tax incentives are available to higher technical and medical education establishments. These establishments can also draw resources from the market because of higher returns on such education. Vocational skill building establishments need more income tax incentives than higher education establishments.

3.5.20 A skill development fund is envisaged to institutionalise the management, collection mechanism, contributions, and utilisation of funds. The resources collected should be utilised for creating training infrastructure in the area where they are collected. The purpose is to attract

resources from the beneficiaries of training including the employers, the employees in the organised sector and the trade unions. Income tax incentives for these contributions could be considered.

3.5.21 Under Section 37(1) of the Income Tax Act, tax benefits for providing apprenticeship training is available to employers employing 500 or more workers. This benefit should be available to all establishments registered under the Factories Act, 1948, Shops and Commercial Establishments Act, (Central & State Acts), or any other relevant Act that enables setting up of institutions.

3.5.22 Equipment donated to vocational training institutes should be exempted from customs duties.

3.5.23 In urban areas, schools and higher technical/professional/medical institutions get land at special rates. These institutions have a much higher income potential than the vocational training institutions, and, therefore, it is the latter that needs support and concessions in the allotment of plots and other civic infrastructure. This should be done especially in small and medium towns where the bulk of the new entrants to the labour force is located or can have easier access than the metropolitan towns.

Training Services Provided By Governments at Centre and States

3.5.24 Much of the present capacity for training is provided by institutions financed by the Central and State Governments. Most of the ITIs in the State sector, and the Central Government institutes are organised as subordinate offices of the respective governments. Examples of this are the establishments in sectors such as labour, technical education, health, small industry, agro and rural industries, and agriculture. In contrast, similar establishments under other departments like the Ministry of Information Technology are organised as autonomous bodies. Administering these establishments through the normal governmental procedures greatly reduces the operational flexibility which a specialised institution needs. Such institutional structures also preclude the possibility of raising any resources from the trainees for financing at least a part of the cost. Thus, the

discipline of a consumer-server relationship that accrues from claims against payments made is not easily possible in the existing departmental set up of the services rendered. These training and training related establishments should therefore be restructured as 'autonomous bodies'. Autonomous bodies publish their accounts and a review of their performance and place them before the relevant legislature. This is more transparent than the operation of an attached office of government whose details of operations and accounts get absorbed in the voluminous accounts of the main ministry/ department.

3.5.25 Under the departmental mode, all the revenue expenditure for salaries, raw materials, and maintenance of equipment is financed by the government budget directly to the training establishment. Sometimes, even the expenses related to travel and daily allowances are funded by Government through the training establishment. Thus the department that owns the establishment finances not only the production of the training services but also the consumption of services produced by it. There is little or no exchange of services taking place and the trainees are faced with a 'take it or leave it' situation. While vocational training definitely serves a social purpose, the trainees should be allowed a choice of institutes. Therefore, rather than funding the revenue expenditure to the institute, the trainees can be provided stipends through the local bodies, and they can choose among the approved institutes, which can either be Government establishments, Government-funded autonomous bodies, Government-aided institutes or private establishments. The performance of a training establishment will be reflected in the number of trainees attending it.

3.5.26 As a first step in the restructuring of ITIs, Central assistance for developing 100 State-run ITIs as institutes of excellence during the Tenth Plan will be extended to ITIs that are registered as an autonomous body and have a formal tie up with industry.

3.5.27 In addition, financial aid given by State Governments to local bodies to introduce schemes

for payment of stipend to vocational trainees for attending approved institutes will also be looked into. This will not have a burdensome impact on the budget because the funds given directly to training institutes for revenue expenditure will be reduced by a corresponding amount.

District-Specific Policies And Programmes for Vocational Training And Skill Development

3.5.28 The present system of governance of vocational training is nearly four decades old (Box 3.5.1). The policy is framed at national level and the establishments that implement the policy are mainly at the state level. A national forum is useful for laying down guidelines but the transaction of business (for example, design of curriculum, recognition of institutes, conduct of examinations, award of certificates, etc.) has to be delegated to the field level or to autonomous professional bodies. The National Vocational Training System (NVTS) is in contrast to education sector where the administrative responsibility is delegated to the State Governments and State Governments are in the process of delegating the responsibility for the administration of junior schools to panchayats and local bodies.. In the vocational training field, however, only a few states have 'State Councils for Vocational Training' that are active and there are no state-level organisations in fields of training not covered by the NVTS. Hence, most State Governments rely on the Central Government for operational decisions concerning their vocational training institutes.

3.5.29 In matters pertaining to vocational training, even the state-level arrangement cannot be sensitive to local needs. This is because vocational training has enormous linkages. It is concerned with the local employing establishments, the services needed by the local households, magnitude of new entrants to local labour force, the traditional skills available with local population, out-turn from local schools at Class VIII and Class X level, and the expectations of the local youth. Such inter-disciplinary linkages can be established better at the district or block level, rather than at the national level.

Box 3.5.1**Evolution of vocational training system in the labour and employment sector**

The Second and the Third Five-Year Plans, which were designed to create a strong industrial base, emphasised the need for expansion of training facilities. Vocational training in Institutes became the principal means of turning out skilled workers. However, even with such expansion as the Government could undertake traditional methods of imparting training had to be continued for many sectors of the economy.

Based on the recommendation of 'Training and Employment Service Committee' (Shiva Rao Committee), the administration of Industrial Training Institutes (ITIs) was transferred to the respective State Governments from 1 November 1956, with the Directorate General of Employment and Training (DGE&T) at the Centre retaining the functions of coordinating craftsmen training and laying down training policies. Recognising the need for expansion and improvement in the training centres, the Committee recommended that the Central and State governments should share the expenditure in the ratio of 60:40. The sharing of the cost of administration of training institutions continued till March 1969 and thereafter was entrusted to the State Governments.

Starting from 54 in 1953, the number ITIs has now gone up to 4,274 with the seating capacity progressively increasing from 10,000 to 6,28,000 over the same period. Out of 4,274 ITIs, 1,654 are in government sector and the remaining 2,620 in the private sector. The Craftsmen Training Scheme was complemented by introducing the Apprenticeship Training Scheme with the enactment of Apprentices Act, 1961. Each State Government has a Directorate of Technical Training or a Directorate of Employment & Training which is responsible for the implementation of training programmes run by the ITI, and for implementation of the provision of Apprentices Act in respect of State Government and private establishments.

The Apprentices Act essentially serves a dual purpose. – One, to regulate the programme of training apprentices in industry so as to conform to the syllabi, period of training, etc. prescribed by the Central Apprenticeship Council, and secondly, to utilise fully the facilities available in industry for imparting practical training to meet the requirement for skilled workers. As on 31 March 2001, the number of seats in over 17800 public/private sector establishments covered under the Act, were 2,20,000, out of which 1,58,000 seats were utilised. Many occupations in the emerging high-tech areas, services sector and informal sector are outside the scope of the present system of Apprenticeship Training.

Although the Craftsmen Training Scheme and the Apprenticeship Training Scheme are the two important schemes, the DGET runs several other schemes like Craft Instructors Training Scheme, Advanced Vocational Training, Supervisory Training Scheme, Women Training Scheme, Executive Training, Research and Development in Vocational Training, Development of Instructional Material etc. Most of them are in the form of support to the core schemes (Craftsmen Training Scheme and Apprenticeship Training Scheme) or in the form of continuing education/ training to the already employed people.

Source: Report of Working Group on Skill Building for Tenth Plan

3.5.30 Besides the labour sector of Plan, vocational training facilities exist in many other sectors (Box 3.5.2). Most of these are national level efforts, and individually they are able to reach a very small part of the new entrants to the labour force. Each authority in charge of subject sets up training establishments in its field of specialisation. The target audience at the local level is the same set of households. The attempt to meet training needs through multiple authorities – labour, handlooms, handicrafts, small industry, education, health, women & child development, social welfare, tourism, etc. — does lead to redundancy at some locations. The local-level small industry establishments in the unorganised and the informal sector, and the local labour force do not derive benefits commensurate with the expenditure incurred by the Government. Sometimes, the locations where the labour force has a high density of tiny establishments may not get reasonable attention from any of the training institutions set up by the Government. While each of the training initiatives has a definite area of specialisation, there is need for coordination amongst these and with the vocational training system at the district level, because the target beneficiaries are the same.

3.5.31 Information on the occupation profile of the labour force, wages, gap between skills required

and available, the available and needed training facilities at district or block level is needed for framing training programmes sensitive to local needs. The nature of policy support required from the Government varies with the social and economic conditions in a district or block. This covers liaison with industry, role of local industry/market/trade/self employed persons associations in guiding training and providing employment to trainees; role of associations/unions of workers; involvement or otherwise of NGOs; direct financial support to trainees versus incentives to the training establishment; institute-based versus industry-based apprenticeship training; provision of capital equipment or technology to training establishments; restructuring of existing institutes versus establishment of new institutes; inter-sectoral linkage among the developmental wings of governments; nature of interface with local education and labour administration; and relative roles for panchayat/district administration/local government/State Governments/ Central Government at a location.

3.5.32 In the Tenth Plan a district-level vocational training system will be evolved. A special group will be set up to suggest the modalities of designing and implementing a district-based vocational training system.

Box 3.5.2 Vocational Training activities in sectors other than labour and employment

Development head	Training activity
Human Resource Development	Vocational Education
Human Resource Development	Community Polytechnics
Khadi and Village Industries Commission	- Khadi (cotton, silk and wool)
	- Village industries including polyvastra
	- Entrepreneurship Development Programme
Small Scale Industry	- Entrepreneurship
	- Skill Development
	- Management Development
Textiles	Handloom Weavers
CAPART	NGOs
Health and Family Welfare	Health & Para-Medical
Construction	Construction Workers
Urban Employment and Poverty Alleviation	Self-employment
Apparel Export Promotion Council	Cutting, tailoring and fashion design
Informal Training Sector	Competency Based Certification
Tourism	Hotel Management
Source: Report of Working Group on Skill Building for Tenth Plan	

Training Of Youth in Rural Areas

3.5.33 With the diversification of agriculture and fresh opportunities in the rural non-farm sector, a number of new possibilities are emerging for employment in rural areas with better income. Besides the State Governments rural ITIs, the lead agencies of the Central Government are the Council for the Advancement for People's Action and Rural Technology (CAPART), Khadi and Village Industries Commission (KVIC), and the Community Polytechnics under the Ministry of Human Resource Development. The envisaged district-level vocational training system will be useful in developing programmes relevant for local rural needs.

3.5.34 The programme run by KVIC and CAPART impart skills as a part of the effort at establishing new production units and projects. Entrepreneurship development, besides training in production skills, is a part of the programme of these two organisations. These will be strengthened further in the Tenth Plan.

Training of Women

3.5.35 Certain occupations are preferred more by women. Training in such trades is included under the NVTs. State Governments have set up special women wings in ITIs and the Central Government has set up Regional Vocational Training Institutes for women. Handlooms, handicrafts, and weaver development programmes provide training opportunities for women, along with the men. The women and child development sector includes development of self-help groups of women and training programmes. There are special needs for vocational training for women, given the low female participation in the labour force, greater proportion of women in jobs which are of a seasonal or short-term nature and the phenomenon of women resuming work after mid career breaks in the organised sector. Since setting up two parallel streams of training institutes for women and men will be too expensive, vocational training of women in existing institutes can be directly supported by paying stipends to women candidates and by supporting capital expenditure by institutes for specific trades. The women component of the Plan will also be used for getting a better share for women in the sector wise training initiatives.

Regions Requiring Particular Attention

3.5.36 The incidence of unemployment among the educated is higher in the northeast and in Jammu and Kashmir. The economic activities in these two regions are different from those in other parts of the country. A centrally sponsored scheme for doubling the capacity of ITIs in the northeast is being implemented. A similar scheme for Jammu and Kashmir is also envisaged.

Occupational Safety and Health of Workers

3.5.37 Ensuring a reasonable quality of employment requires safeguarding of workers against risk and the occupational hazards. In a situation of labour surplus, the workers take up whatever work is available and are often exposed to risks. There is a plethora of laws that seek to safeguard the safety and health of workers (Box 3.5.3). However, in practice, it is very difficult to enforce their compliance. The result is that the bulk of the workforce does not get a reasonable level of protection. Such tendencies get accentuated when market forces motivate the minimisation of the cost of labour input. Compliance with safety measures is confined to units in the organised sector.

3.5.38 Central Government establishments dealing with occupational safety and health provide mainly advisory and training services, except in the case of mines and ports and docks where enforcement is also with Central Government establishments like the Director General of Mines Safety (DGMS) and the Director General Factory Advisory Services and Labour Institutes (DGFASLI). Outside the labour sector, National Safety Council (NSC), located at Mumbai, sponsored by insurance companies and operating as a self-financing autonomous institution, conducts educational, training, promotional and consultancy services.

3.5.39 Typical industries, which are not covered by effective safety measures commensurate with the degree of exposure to risk, are:

- Agricultural workers
- Small mines
- Truck/buses operators

- Hotels
- Eating places
- Machinery repair establishments
- Beedi & cigar making
- tiny/small units
- Building construction
- Brick kilns
- Carpet manufacturing
- Fire works
- Power looms
- Home-based workers

3.5.40 To reach a majority of the workers, the focus has to be on the agriculture sector and on small establishments.

Agricultural Operations

3.5.41 There is a higher risk in agricultural occupations but it is difficult to administer safety regulations in this sector. Hence voluntary safety campaigns through agricultural universities and state agriculture departments are needed. Awareness campaigns to demonstrate the degree of risk and educate people about preventive measures should be conducted on television and radio.

3.5.42 The Dangerous Machines Act, 1983, should be supplemented by positive efforts. Designs of agricultural equipment that are safe and those that are risk-prone should be displayed in the safety awareness campaigns.

Box 3.5.3

Statutes on occupational safety and health of workers – multiplicity of enforcement agencies

Activity	Authority for enforcement
Agricultural machinery	Dangerous Machines Act, 1983
Insecticides sale, transport, distribution	Insecticides Rules, 1981
Pesticides manufacture, packaging, distribution, handling and use	Central Insecticides Board, Ministry of Agriculture
Beedi workers	DG (Labour Welfare), Labour Ministry (Empowered under Beedi & Cigar Workers (Conditions of Employment) Act, 1966)
Factories	State Government - Chief Inspector of Factories (Empowered by Factories Act, 1948)
Boilers	State Government - Inspector of Boilers - (Empowered by Boilers Safety Act, 1923)
Shops and establishments	Labour Commissioner, (Empowered by the Shops and Establishments Acts of respective State Governments)
Construction workers	Labour Commissioner, (Empowered by Building and Construction Workers (Regulation of Employment & Conditions of Service) Act, 1996)
Docks	Central Government - DG(FASLI)
Mines	Central Government - DG(MS) (Mines Act, 1952)
Gas cylinder rules Explosives rules Pressure vessels rules	Chief Controller of Explosives under the Indian Explosives Act, 1884.

Small Establishments

3.5.43 Clusters of small establishments have to be reached. Increase in worker productivity, reduction in worker fatigue, and curbing of disease needs to be established through safety audits and areas with a high density of poor workers and where work is done under extremely tiring physical conditions should be selected for this. A recent study by International Labour Organisation (ILO) (2000-01) at Moradabad in Uttar Pradesh showed that only small investments in brass foundry chimney yielded substantial benefits. Improvements in designs of equipment were made after a study by technical consultants. To create a demonstration effect, such initiatives will be supported through the Plan. Awareness campaigns to disseminate success stories will also be supported.

3.5.44 The involvement of the insurance industry in promoting safety of workers in small establishments should be encouraged. Group insurance to share the risks of establishment owners should be promoted by the labour administration.

3.5.45 A simple safety code for small establishments — whether factories, shops, establishments, building construction sites, road transport etc. — should be devised. This can be followed by umbrella legislation on occupational safety and health.

3.5.46 Safety as a profession should be developed on the same lines as accounting practice, cost accounting, company law compliance, asset valuation, insurance risk assessors, loss surveyors, etc.

3.5.47 Establishments should be encouraged to have safety audit carried out. The practice of self-certification based on adequate expertise should be encouraged. The NSC should establish its branches at the district level.

REVIEW OF LABOUR LAWS

3.5.48 The employer-employee relationship cannot be left to be determined entirely in the

market place based on a voluntary contract between the employer and employee because workers are not commodities and individual workers are the weaker party in any employer-employee relationship. Hence, legislations aimed at protecting the rights of labour are needed in a number of areas, e.g., to form unions for the purpose of collective bargaining, laying down minimum obligations which employers must meet with regard to social benefits, health and safety of workers, provision of special facilities for women workers, establishing grievance redressal mechanisms, etc.

3.5.49 The primary purpose of labour laws is to foster the growth of the employer-employee acknowledged relationship, in lieu of relationships based on voluntary contracts. Thus labour laws should enable the creation of jobs based on this acknowledged relationship.

3.5.50 In the new economic scenario, the need for changes in labour laws has been emphasised. A fresh look at the structure of labour laws is, therefore, envisaged in the Tenth Plan. However, this task is to be seen in the perspective of the structure of the labour market.

3.5.51 Labour laws are relevant for the wage employed, and not the self-employed. Out of the total estimated number of workers, 47.1 per cent are wage employed (Table 3.5.4). Among these, 25.3 per cent are in the agriculture sector where labour laws do not generally apply, 11.7 per cent are in the services sector and 10.2 per cent in manufacturing, mining and electricity, gas & water supply. A good part of services is the employment in government establishments where the industrial labour laws do not apply. Among the wage employed, the labour laws apply to those hired on a regular salaried basis. Only about one-third of the wage employed are hired on a regular salaried basis.

3.5.52 Of the 83 million workers covered by the Economic Census, 51.9 per cent are hired workers (Table 3.5.5).

Table 3.5.4
Structure of employment by industry and category of employment

	Self Employed	Wage Employed	All Workers
Agriculture	34.5	25.3	59.8
Non-Agriculture :			
Manufacturing, mining, electricity etc.	7.3	10.2	17.5
Services sectors	11.1	11.7	22.9
All Activities	52.9	47.1	100.0

Per cent

Table 3.5.5
Share of hired workers in all workers in enterprises covered by the Economic Census¹

Workers employed in	Agricultural enterprises	Non agricultural enterprises	All enterprises
Enterprises not hiring any worker	6.4	32.3	38.7
Establishments hiring workers	1.7	59.6	61.3
(share of hired workers in establishments)	(1.1)	(50.9)	(51.9)
All workers	8.1	91.9	100.0
Number of Workers (million)			83.30 ^a

Per cent

¹ Economic Census 1998.

^a Economic Census covers enterprises in selected agricultural activities. These are livestock production and agricultural services including hunting, tracking and game production, forestry, logging and fishing. Crop production and plantations are not covered.

All non-agricultural entrepreneurial activities are included. Activities purely for self-consumption are excluded.

3.5.53 Thus the present structure of the labour market is such that the labour laws apply to a small part of the labour force. Hence, any immediate impact of changes in labour laws will be rather small. At the same time, the long-term objective is to increase the number of jobs, and, therefore, the goal is to substantially increase the present small share of employment that is based on some simple form of employer-employee contract.

3.5.54 The Government has already announced its intention to review some of the labour laws. Subsequently the Report of Second National Commission on Labour has suggested restructuring of labour laws. The Report is being examined by the Government.

3.5.55 The restructuring of labour laws must bear in mind that small establishments employing less than 20 persons account for more than 60 per cent employment.

Small Establishments and Labour Laws

3.5.56 Labour laws are drafted uniformly for all enterprises and some exemption is provided under the common laws for smaller establishments. There is need to draft one single labour legislation applicable to all establishments employing less than 20 persons. Such legislation will provide for safety and social security of workers. Business linkages between large and small enterprises should be fostered and be utilised voluntarily by the large

enterprise to deliver social security benefits to labour in the small enterprises

3.5.57 One of the reasons for rigidity in labour laws is that the 'employer' is expected to provide, individually, for security of employment (i.e., guarding against risks of loss of job, family sickness), retirement benefits and bear the costs of accidents and other occupation-related risk compensation. This happens because the labour market institutions, which are designed to provide social security to the workers, have a narrow reach, are almost exclusively administered by the Central Government, provide security at a high cost, are highly specific to individual employers and lack the concepts of 'shared risk'. Therefore, a more innovative and broad-based social security system for workers is needed to smoothen the process of labour reforms and enable rationalisation of labour laws.

Need For Making Changes in Certain Laws

3.5.58 The changes proposed in the Industrial Disputes Act, 1947 are meant to provide more flexibility in the hiring and firing of labour in order to increase productivity, efficiency and allow a more flexible adjustment process in the changing demand market. These proposals are being examined by the Government.

3.5.59 The repeal of the Contract Labour Act, 1947 will help provide more flexibility in recruiting labour without putting a long-term financial commitment on the employer. This, in turn, will encourage more recruitment. However, care should be taken to ensure that, in this process, more casualisation of labour does not take place. Already, the growth of casual labour in the 1990s is very high. A proper social security measure and a regulatory body to oversee the function of the recruiting agencies should accompany any change in the Act to safeguard the minimum quality of the job provided.

Placement agencies, which are utilised for hiring contract labour, should be registered. A forum to monitor placement agencies against exploitation of labour should be established. The principal employer should deliver unemployment benefits and pension to contract labour through placement agencies.

3.5.60 The small-scale industry (SSI) sector plays an important role in economic development and contributes significantly to industrial output, employment, and export. However, the sector is burdened with maintenance of an unmanageable number of forms and registers under different labour laws. The approach during the Tenth Plan would be to exempt it from the rigour of the various labour laws and make it vibrant and efficient. Efforts will, therefore, be made to conduct proper orientation and training programmes for the officers of the labour law enforcement machinery and create a positive climate for growth in this sector.

3.5.61 The enforcement of various labour laws pertaining to SSI units falls under the jurisdiction of the State Governments. The entire onus of compliance in furnishing the returns and inspections falls on the entrepreneur. Most entrepreneurs cannot afford to engage a person exclusively for this purpose. Therefore, the present system may be replaced by a system of self-certification wherein the return submitted on various labour laws by SSI units may be treated as prima facie compliance. Alternatively, a system of random inspection of a certain percentage of units on annual basis with well-defined criteria may be introduced.

3.5.62 The fact that labour laws are in the Concurrent List and are being implemented both by the Centre and the State Governments creates more complications. Various State Governments are demanding authorisation to carry out amendments in labour laws according to specific requirements. Since the State Governments are in the best position to enforce labour laws, in keeping with the prevailing socio-economic conditions in their states, the approach in the Tenth Plan would be to authorise them to amend labour laws as per their requirements.

3.5.63 In view of the increasing number of industrial disputes, industrial tribunals or labour courts are overburdened, affecting the speedy resolution of these disputes. Therefore, the approach in the Tenth Plan would be to set up Lok Adalats wherever necessary. In addition, the concept of social dialogue would be introduced

where all concerned parties can participate to work out an amicable solution to major problems/issues in labour market reforms.

Framework Of Procedures, Administration And Related Services Concerning Labour Regulations

- As labour laws are in the Concurrent List, the State Governments may be permitted to make amendments as per their requirement.
- While carrying out amendments, the need for an adequate social safety net for the workers may be kept in mind.
- Formulation of schemes for pension and unemployment benefit for the unorganised sector workers may be considered, depending upon the availability of resources.
- To avoid disproportionate regulatory burden on small-scale units, the present system of maintenance of various forms and registers under different labour laws may be replaced by a system of self-certification and treated as prima-facie compliance.
- Inspection under the labour laws in SSI units may be conducted only on the basis of complaints by affected persons like workers, neighbours etc., or when absolutely essential in the interest of safety of workers in industry.
- Routine and periodic inspections of information technology establishments may not be necessary.
- Special quasi-judicial tribunals manned by officers of the labour department may take up hearing of disputes in case conciliation talks fails.
- Health, safety and welfare of the workers may be given due importance while reviewing the labour laws.

SOCIAL SECURITY OF WORKERS

3.5.64 Out of about 400 million workers in the country, only around 50 to 60 million are covered by some form of social security. For the rest, a job is the best guarantee for social security right now. However, the labour market is moving in a direction that change-over of jobs by an individual will become more frequent, public sector which provides a comprehensive social security cover to its employees, is shrinking in size, the pension system for government employees is under review, and more workers are seeking work in rural and urban informal sector, as the ability of agriculture to absorb workers diminishes. In other words, the job related uncertainty would increase. Since any social security system stabilises over a period of 20 to 30 years, the efforts to be made in the Tenth Plan should have a long-term perspective.

3.5.65 A budget-funded social security system similar to that available in developed countries is not feasible for India at present. Even in the present small base of coverage, a number of models to raise resources for social security are in use (Box 3.5.4).

Box 3.5.4

Alternative models presently used for funding of Social Security of workers

- Central Budget Funded – Plan
- Central Budget Funded– Non Plan
- State Budget Funded – Non Plan
- State Budget – Plan
- State Government Sponsored Insurance (Employer & Employee)
- Commodity Cess funded Welfare Funds
- Insurance Schemes
- Workers' Funded
- Self financed pension schemes

3.5.66 The annual resource flows in respect of a few selected schemes is of the order of Rs. 28,000 crore (Table 3.5.6). A more comprehensive listing of schemes will increase this. Thus, the economy is able to generate a sizeable volume of funds for social security even at present, though it may be small compared to the number of workers. Secondly, these funds are mobilised under some structured arrangements, which are specific to the category of workers covered. Therefore, new sources will have to be explored to cover additional category of workers.

Table 3.5.6
Resource flows In economy for social security – selected schemes

Scheme/ Institution	Rs. Crore/ year
1. EPFO	10,700
2. ESIC	1,500
3. EPFO Pension Scheme	600
4. LIC – Jeevan Suraksha	600
5. Cess-based Central Welfare Funds	100
6. State Government Welfare Funds	100
7. SGRY	10,000
8. NSAP	600
9. Agricultural Workers- Central scheme	20
10. Handloom Weavers – Thrift, Health & Group Insurance Schemes	5
11. Central Government Employees Pension	4,000
12. State Government t Employees Pension	NA
Total (1-12)	28,225

3.5.67 The social security presently in use can be grouped under two categories organised sector and the unorganised sector. Though the organised sector social security system caters to a very small part of labour force, it has certain inefficiencies and weaknesses that need to be removed.

3.5.68 A legislative and administrative framework has to be created for significant coverage of the unorganised sector by social security cover. The strategy would be to motivate and encourage the State Governments to formulate and implement schemes and programmes targeted at certain occupational groups in the unorganised sector without putting any additional pressure on the budget.

3.5.69 To extend the coverage of social security measures for the unorganised sector workers, setting up of the cooperatives, self-help groups, mutual benefit associations managed and financed by the occupational groups/workers and voluntary health insurance and pension schemes would be encouraged. Also, attention would be focussed on alternative income generating activities with the provision of credit arrangement for the supply of raw materials, etc.

3.5.70 Awareness generation campaigns and dissemination of information to unorganised workers would be strengthened. To improve the efficiency of the delivery mechanism of existing programmes for workers in the unorganised sector, local institutions like panchayati raj institutions (PRIs) and urban local bodies would be involved in monitoring the social security programmes.

3.5.71 Considering the size of the country's workforce, a policy framework, at the national level, on social security provisions for different groups of workers and employees will be formulated.

3.5.72 The following approach will be pursued:

Minimum Wages

- The Minimum Wages Act, 1948 may be amended enhancing the penalty for violations.
- A national policy on minimum wages may be evolved to help deal with the problem of inter-state variations in minimum wages. Presently, there are significant variations even in wages for the same occupations.

- The enforcement machinery for minimum wages in the Central and the State Governments may be strengthened with involvement of NGOs, and PRIs.
- To prevent exploitation of workers in the unorganised sector, awareness generation may be stepped up in collaboration with voluntary organisations, trade unions and other committed individuals. The Central Board for Workers Education can be entrusted with the task of awareness generation.

A Role For EPFO And ESIC

- The delivery of services in social security through the Employees Provident Fund Organisation (EPFO) and the Employees State Insurance Scheme (ESIS) may be improved with the help of IT.
- Priority attention may be given to those social security covers for the unorganised sector, which can provide medical care, accident benefits, old age pension and maternity benefit.
- Provident fund schemes and Employees State Insurance schemes may be extended to the workers in the unorganised sector through innovative approaches. Innovative schemes may be launched on experimental basis targeting groups like rickshaw puller, auto rickshaw driver, head loader, etc.

Convergence Among Multiple Worker Welfare Schemes

- Emphasis may be given to the convergence of services for various social security measures undertaken by different ministries/departments.
- Community-based and location-specific social security measures may be encouraged through self-help groups, voluntary organisations, PRIs etc.

Central Funds for Welfare of Workers

- Based on the experience of the existing welfare funds for beedi, mine and cine industry workers, efforts may be made to constitute similar welfare funds for fish processing, salt workers, etc.

State Level Worker Welfare Funds

- State Governments may be encouraged to formulate and implement social security schemes for the unorganised sector as per their requirements with minimum burden on their budget.
- Concerted efforts may be made to enhance the coverage under the National Social Assistance Programmes (NSAP) for providing old age pension, maternity and other benefits to workers in the unorganised sector.

3.5.73 While an outline of possible initiatives is given here, a special group will prepare a perspective plan for social security for all workers. It would study the effectiveness of alternative models of providing social security to workers. The special group will examine the problems faced by other countries in implementing social security systems and their solutions.

Pension System for Unorganised Sector:

3.5.74 The present pension system is confined to organised sector, which covers less than a tenth of the labour force employed. And even in the organised sector, there is no mechanism to generate earmarked resources for pension payments. Employers, who are mainly government and public sector, have severe financial limitations. And the organised sector pension systems, including those for the private corporate sector establishments, are designed for a single life-long employer-employee relationship. These features curtail the possibility of any significant expansion of coverage of workers by the pension system.

3.5.75 In the unorganised sector, there are a large number of self-employed persons with a reasonable

level of income, but do not have a mechanism for earning a risk-free and reasonable return on their savings for retirement. And the low-income groups have no credible institution, where they can save during their active working life and earn an assured return for income support during retirement. Moreover, there is no prospect of a single employer-employee relationship in the unorganised sector, whether for the self-employed or for the wage employed. The self-employed persons and the low-income wage employed frequently take recourse to informal market, where the failure rate is high. In keeping with the announcement in the Union Budget 2001, Insurance Regulatory & Development Authority (IRDA) is preparing a road map for a pension system for the unorganised sector so that a self-sustaining pension system for unorganised sector can be introduced.

Vulnerable Groups In Labour Force

3.5.76 The groups that need particular attention are child labourers, bonded labourers, migrant labour, building and construction Workers and landless agricultural workers.

Child Labour

3.5.77 The best solution to this problem is compulsory primary education for all children. However, till this is achieved, special measures to curb child labour will include:

- Regular surveys to assess the number of working children, and placing them in special schools.
- Imparting vocational skills to all children before they attain the age of 14, in schools set up under the National Child Labour Project.

Bonded Labour

3.5.78 The centrally sponsored scheme on the release and rehabilitation of bonded labour will continue. A new element of the scheme is the survey of bonded labour-prone locations.

3.5.79 The effectiveness of the Bonded Labour Act 1976 primarily depends upon the identification of bonded labourers. Except specifying the functions

of the vigilance committee, there is no inherent provision in the Act to force identification of bonded labourer. Therefore, the institutional mechanism in the shape of a vigilance committee would improve considerably if these bodies were broad based. Accordingly, it would be appropriate to induct some volunteers, including representatives from trade union organisations and local NGOs, as co-opted members in these committees. All vigilance committees should be reconstituted once in two years to ensure their proper functioning.

Migrant Labour

3.5.80 The Inter-state Migrant Workmen (Regulation of Employment and Conditions of Service) Act, 1979 There is a legislation to regulate inter-state flows of migrant workers through the contractors. Key actions are required both at the destination as well as at the point of origin of migration in order to reduce vulnerability and increase the capacities of the targeted social groups.

3.5.81 Effective action requires the creation of a reliable information system for labour migration, as macro level data is often inadequate to capture the flow and pattern of migration. Apart from estimating the magnitude of migration, the database may cover vital aspects like: causes of migration; processes of recruitment; occupational profile of migrants; working and living conditions of migrant workers; skill profile of migrants; expenditure and remittance patterns of migrant workers; status of enforcement of legislations like the Minimum Wages Act, 1948 Equal Remuneration Act 1976 etc. Initially such a survey may be undertaken in the major lending and borrowing districts and, thereafter, in other districts during the Tenth Plan.

Building And Construction Workers

3.5.82 Only four states have set up welfare boards provided under the Building and Construction Workers Welfare Cess Act, 1996 (Table 3.5.7). These welfare boards are meant to implement schemes like immediate assistance to beneficiary in case of accident, pension at the age of 60 years, premiums for group insurance scheme for the beneficiary and medical expenses etc. In the absence of such an administrative mechanism provided under the Act, resources could not be collected from construction contractors.

Table 3.5.7
Implementation status of the Building and Other construction Workers Welfare Cess Act, 1996^a

Building & other Construction Workers Welfare Board constituted ¹	Rules framed ²	Expert committee constituted ²
KERALA ASSAM	MADHYA PRADESH WEST BENGAL	ANDHRA PRADESH MAHARASHTRA GUJRAT UTTAR PRADSH PONDICHERRY PUNJAB RAJASTHAN JAMMU AND KASHMIR DELHI

^a As on 20.08.2001

¹ Notification of the Welfare Board by a State Government enables implementation of schemes for providing various welfare benefits to workers.

² Expert Committee drafts the Rules for conducting business under the Act, and approval of Rules by State Government enables the creation of the Welfare Board.

3.5.83 Implementation of the Act by the State Governments will be pursued in the Tenth Plan. If necessary, giving some incentive to State Governments that implement the Act may be considered.

Landless Agricultural Workers

3.5.84 The main effort of Plan is poverty alleviation through rural development programmes. There is a need to ensure the effective implementation of the Minimum Wages Act, upgrading of skills, creation of awareness and introduction of social security measures, without putting serious burden on the government budget.

3.5.85 In the absence of a consensus among states on the Bill for the welfare of agricultural workers, state-specific approaches will have to be worked out. Some State Governments have introduced group insurance schemes to protect the workers against accidents and provide insurance in the case of death. Pension and other family benefits are available only in isolated cases, as for example, in Kerala. The number of workers to be covered is so large that the Central Government cannot by itself assume responsibility independent of the states.

3.5.86 The resources available with the Mandi Boards need to be tapped for this purpose. Some

district-specific models for the welfare of this category of workers through one-time assistance could be explored. The problems of landless agricultural workers merit consideration under the agriculture sector reforms that have been initiated in the Union budget 2002-03.

THE PATH AHEAD

3.5.87 Much of the agenda for social and economic planning gets automatically addressed if the labour households get opportunities for gainful employment; are able to get a reasonable return for labour; have access to some insurance against risk of accident, death and against short spells of loss of work. Mechanisms by which some savings can be pooled, during the active working career, for an old age pension are also required.

3.5.88 The pre-requisite for improving the lot of the labour is the availability of gainful employment to the entire labour force. Macro-economic policies leading to 8 per cent GDP growth and promotion of labour-intensive sectors should enable the creation of more jobs than the additions to labour force in the Tenth Plan leading to a substantial reduction in the incidence of unemployment by the end of the Plan period.

3.5.89 Labour policy (including the measures taken for skill development and social security) has,

by and large, focused on the organised sector, which has a very small share in the total labour force and, in any case, provides a reasonable level of income for its average worker. The infrastructure for the labour market that is presently available benefits only about 8 to 10 per cent of the labour force employed. Labour policy and programme in the Tenth Plan will focus on bulk of the labour force by taking up initiatives for those workers who are outside the private corporate and the public sector, i.e., in the so-called unorganised sector.

3.5.90 It is possible to reach out to the entire labour force through the labour market institutions over a period of five to ten years. This requires innovations in the existing policies concerning the labour market, and initiatives in a number of sectors that relate indirectly to work opportunities for, and income of, labour.

3.5.91 Since the essential condition for improving the lot of the workers is the availability of gainful employment, the labour policy has to interact closely with the economic policy that concerns growth of labour intensive sectors, such as:

- Agricultural crop production, storage and marketing.
- Agro forestry, medicinal plants, bamboo development.
- Wasteland development and minor irrigation.
- Animal husbandry, livestock, horticulture, fisheries.
- Rural non-farm activities (rural development).
- KVIC.
- Small industries, including the weavers, the urban informal sector.
- Construction.
- Urban infrastructure services.
- Road transport and road construction.
- Retail and distributive trade.

- IT and communication services.
- Education and vocational training services.
- Women and child development services.

3.5.92 At present, most of these economic activities are dominated by the informal sector and the small and medium enterprises. Economic infrastructure to support these has to be strengthened. Support from micro-credit institutions and the insurance industry has to be provided to meet the capital needs and to cover risk in such ventures. Since, the nature of the activities listed above is not uniform, the labour policy must also take note of these variations.

3.5.93 To reach out to the entire labour force employed, many of the existing institutions, laws and programmes have to be restructured. These pertain to:

- Reform of the vocational training system.
- Occupational safety and health.
- Labour regulations.
- Social security of workers.

3.5.94 Reform of the vocational training system will include measures to increase the demand for vocational training by linking it with the requirements of prospective employers. Recognising the role of the informal sector both as a principal provider of jobs and as a provider of on-the-job training, the vocational training policy has to specify a role for the informal sector. Noting the variations across locations in regard to employment opportunities, occupations, skill requirement, magnitude of and social characteristics of entrants to labour force, and traditional skills available, a district-level system for vocational training has to be developed. The present national-level policies and programmes should only lay down guidelines, leaving implementation to the district-level authorities. To attract private capital into vocational training, skill building has to be developed as an entrepreneurial activity at par with technical and professional education.

3.5.95 To ensure that the average worker is covered by occupational safety and health

measures, programmes will be taken up for clusters with a high density of establishments and poor workers. Special programmes for labour-intensive high-risk activities will be taken up. Safety and risk awareness media campaigns to reach out to the workers in agriculture, small mines and road transport sectors will be taken up. Since the number of small establishments is very large, all of which cannot be supervised directly by labour administration, occupational safety and health will be developed as a profession. Such professionals will supplement the efforts of labour administration in promoting compliance with labour standards.

3.5.96 A new and simple labour law designed for small establishments, with the main objective of providing occupational safety and social security for workers, will be taken up. Shared risk concepts (social insurance) for bearing the risks faced by small establishments workers will be developed further.

3.5.97 At present, there are a number of models to provide some form of social security cover to the unorganised sector workers. A few states have set up welfare boards for unorganised workers. The EPFO and ESIC are developing

models to demonstrate the provision of social security cover to the informal sector workers at specific locations. A role for associations of workers, and of the self-employed in the provision of social security has to be explored. Given the large resource requirements, and the experience in raising some resources through cess and other levies, the approach will be to provide social security through budget neutral measures. Provision of a comprehensive social security cover to all workers is a gigantic task and requires adequate preparation. A perspective plan to provide social security cover to workers in agriculture, small establishments and in the informal sector will be prepared.

3.5.98 The Tenth Plan will strive to ensure that, over a period of five to ten years, the labour market institutions for productivity improvement, safety, health and social security of workers cover the bulk of the labour force through simplified procedures.

3.5.99 The outlay under Central Plan for Ministry of Labour for the Tenth Plan is Rs. 1500 Crore. The Schemewise break of the Tenth Plan outlay is given in the Appendix.

CHAPTER 4.1

SOCIALLY DISADVANTAGED GROUPS

INTRODUCTION

4.1.1 Empowerment of the Socially Disadvantaged Groups viz., the Scheduled Castes (SCs), the Other Backward Classes (OBCs) and the Minorities continues to be on the priority list of country's developmental Agenda, as they still lag behind the rest of the society due to their social and economic backwardness. Their share in the country's total population is quite substantial, as SCs account for 179.7 million, representing 17.5 per cent and Minorities being 188.9 million, representing 18.4 per cent in 2001 (projected on the basis of the trend of their decadal growth rates, in the absence of the data of 2001 Census). The population of OBCs, as estimated by the Mandal Commission, constitutes 52 per cent of country's total population (appears to be on a high side because of the possibility of certain communities of SCs and Minorities featuring in the list of OBCs).

POPULATION PROFILE

4.1.2 According to the 1991 Census, SCs account for 138.2 million, of whom 81 per cent live in rural areas, but spread all over the country, except in the state of Nagaland and the two UTs of Andaman and Nicobar Islands and Lakshadweep. Uttar Pradesh alone accounts for 21.2 per cent of the total SC population in the country. Nearly 84 per cent of total SC population live in ten states viz. Andhra Pradesh (7.7 per cent), Bihar (9.1 per cent), Karnataka (5.3 per cent), Kerala (2.1 per cent), Madhya Pradesh (7.0 per cent), Maharashtra (6.3 per cent), Rajasthan (5.5 per cent), Tamil Nadu (7.8 per cent), Uttar Pradesh (21.2 per cent) and West Bengal (11.6 per cent). In a few states, they constitute more than 20 per cent of state's total population. These include - Punjab (28.3 per cent), Himachal Pradesh (25.3 per cent), West Bengal (23.6 per cent) and Uttar Pradesh (21.0 per cent).

4.1.3 OBCs, as per the Government of India's Notification No. 12011/68/93/BCC(C) dated 10

September 1993, consist of castes and communities which are common to both the Lists contained in the Report of the Backward Classes Commission (Mandal Commission) and those of the State Governments prepared for the purpose. So far, Central Lists of OBCs in respect of 21 States and 5 UTs have been notified.

4.1.4 The Minorities, as per the 1991 Census, constitute 145.31 million or 17.2 per cent of the total population of the country. While Muslims represent 12 per cent of the total population, Christians account for 2.3 per cent, Sikhs 2 per cent and Buddhists 0.8 per cent. The Zoroastrians number around 1 lakh. The Muslims constitute 94.3 per cent of total population in Lakshadweep, 64 per cent in Jammu & Kashmir, 28.4 per cent in Assam, 23.6 per cent in West Bengal and 23.3 per cent in Kerala, far above the national level average. A sizeable Muslim population is also found in Uttar Pradesh (25 million), West Bengal (18 million) and Bihar (13 million). The 20 million Christian population is predominantly found in Mizoram (85.5 per cent of the state's population), Meghalaya (64.8 per cent) and Nagaland (87.6 per cent). There is also a substantial Christian population in Kerala, Tamil Nadu, Goa and the Union Territory of Andaman & Nicobar Islands. The Sikhs, numbering about 16 million, constitute 63 per cent of the population in Punjab and 20 per cent of the population in the Union Territory of Chandigarh. Their population ranges between 1 and 6 per cent of the population in Himachal Pradesh, Rajasthan and Haryana, while it is below 1 per cent elsewhere in the country. The total population of Buddhists in the country is 6.76 million. There are two categories of Buddhists in the country. The traditional Buddhists are concentrated in the hilly areas of Ladakh, Madhya Pradesh, West Bengal, Sikkim and Arunachal Pradesh, while the newly converted Buddhists are mainly found in Maharashtra (6.3 per cent of the state's population), Uttar Pradesh (0.2 per cent),

Madhya Pradesh (0.3 per cent) and West Bengal (0.3 per cent). The largest Buddhist concentration is in Sikkim, which has 27 per cent of the total Buddhist population in the country, followed by Arunachal Pradesh with 13 per cent. The presence of Zoroastrians is very negligible in most of the states, except for Maharashtra (about 60,000), Gujarat (about 13,000), West Bengal, Andhra Pradesh and Daman & Diu, where their number is about 3,000 in each.

CONSTITUTIONAL SAFEGUARDS

4.1.5 Recognising the relative backwardness of these weaker sections of the society, the Constitution of India guarantees equality before the law (Article 14) and enjoins the State to make special provisions for the advancement of any socially and educationally backward classes or for SCs (Article 15(4)). It also empowers the State to make provisions for reservation in appointments or posts in favour of any backward class of citizens (Article 16(4)). The Constitution of India also states categorically that untouchability is abolished and its practice in any form is forbidden (Article 17). Further, it enjoins the State to promote, with special care, the educational and economic interests of the weaker sections of the people and, in particular, of SCs and promises to protect them from social injustice and all forms of exploitation (Article 46). Reservation of seats for SCs in the democratic institutions (Article 330) and in services (Article 335) is another measure of positive discrimination in favour of these Groups. It empowers the State to appoint a Commission to investigate into the conditions of socially and educationally backward classes (Article 340) and to specify the Castes to be deemed as SCs (Article 341).

4.1.6 In the case of Minorities, the Constitution adopts certain safeguards to recognise their rights in conserving their culture and establish and administer educational institutions of their choice under the Articles 29 and 30. While the Article 350(A) advocates instructions in the mother tongue at the primary stage of education to children belonging to Linguistic Minorities, Article 350(B) provides for a Special Officer to safeguard the interests of the Linguistic Minorities. Besides these specific Articles, there are also a number of Constitutional provisions enabling protection and

promotion of the interests of these Socially Disadvantaged Groups.

POLICIES AND PROGRAMMES : A REVIEW

4.1.7 The developmental planning launched in 1951 through the First Plan (1951-56) envisaged that the programmes under various sectors of development would benefit all sections of the population including SCs, OBCs and Minorities. But, unfortunately, it never happened so. Therefore, special programmes under the Backward Classes Sector were formulated, keeping in view the special requirements of SCs. The Second Plan (1956-61) promised to ensure that the benefits of economic development accrue more and more to the relatively less privileged classes of society in order to reduce inequalities. The Third Plan (1961-66) advocated greater 'equality of opportunity' and a reduction in disparities in income and wealth and the even distribution of economic power. The Fourth and Fifth Plans (1969-78) envisaged the 'basic goal as rapid increase in the standard of living of the people through measures which also promote equality and social justice'. One of the important features of the subsequent Annual Plan (1979-80) was the launching of the special mechanism of Special Component Plan (SCP) for SCs to ensure that these groups receive their due share of funds/benefits from the other developmental sectors.

4.1.8 The Sixth Plan (1980-85) marked a shift in the approach to the development of SCs. Special emphasis was laid on the implementation of the newly launched SCP for SCs facilitating easy convergence and pooling of resources from all the other developmental sectors in proportion to the population of SCs and monitoring of various developmental programmes for the benefit of SCs. In the Seventh Plan (1985-90), SCP for SCs was strengthened, while the other schemes for the welfare and development of SCs continued. There was a substantial increase in the flow of funds for the development of SCs under SCP from State Plans, Central Plans, Special Central Assistance (SCA) and Institutional Finance resulting in the expansion of infrastructural facilities and enlargement of their coverage. Priority in the Seventh Plan was given to the educational development of SCs. Another important achievement of this Plan was the setting up of a

National Scheduled Castes and Scheduled Tribes Finance and Development Corporation (NSFDC) in 1989 to extend loans-cum-subsidies and thus encourage these Groups to become gainfully engaged in various income-generation activities.

4.1.9 The major objective of the Eighth Plan (1992-97) was to intensify the efforts and to bridge the gap between the development of SCs, OBCs and Minorities and other sections of the society, so that by the turn of the century these disadvantaged sections of the population could be brought on par with the rest of the society. It was envisaged that all forms of oppression of SCs, suppression of their rights, untouchability, non-payment of minimum wages etc., would be eliminated, so as to enable them to avail of the benefits of all developmental efforts. Although the efforts have paid dividends with regard to improvement of socio-economic status of these groups, the benefits were, however, not evenly distributed among all communities. As such, a lot remains to be done to achieve the goal of bringing these groups on par with the rest of the society. For the economic development of SCs, OBCs and Minorities, the following three National-level Apex bodies were set up to act as catalytic agents in developing schemes for employment generation and financing pilot projects viz. i) The National Backward Classes Finance and Development Corporation (1992); ii) The National Minorities Development and Finance Corporation (1994-95); and iii) National Safai Karamchari Finance and Development Corporation (1996-97).

4.1.10 The Ninth Plan (1997-2002) was committed to empower the Socially Disadvantaged Groups as agents of socio-economic change and development through - creating an enabling environment conducive for SCs, OBCs and Minorities to exercise their rights freely, enjoy their privileges and be able to lead a life with confidence and dignity on par with the rest of the society; ensuring removal of disparities; eliminating exploitation and suppression and providing protection to the disadvantaged groups; ensuring developmental benefits to 'reach the un-reached' through equitable distribution and social justice; ensuring participation of these Groups in the process of planning not merely as beneficiaries but also as participants in planning programmes and their implementation; accelerating the on-going

process of improving socio-economic status through the effective implementation of various policies and programmes to bring them on par with the rest of the society; and ensuring a certain percentage of funds/benefits from all the relevant programmes to flow to women belonging to these groups who are the most affected. As most of the Ministries/Departments implement programmes common for both SCs and Scheduled Tribes (STs), including earmarking of a percentage of funds/benefits under SCP for SCs and Tribal Sub-Plan (TSP) for STs, reference about STs also appears in this Chapter.

4.1.11 The approach adopted towards empowering these Groups in the Ninth Plan was holistic in nature, to accomplish their all round development through (i) Social Empowerment; (ii) Economic Empowerment; and (iii) Social Justice with an inter-sectoral focus and inputs from both governmental and non-governmental agencies. The same is sought to be achieved through the efforts put in by various welfare-related Ministries/Departments and the nodal Ministry of Social Justice & Empowerment which is responsible for the development of SCs, OBCs and Minorities. They include the following:

Education & Literacy

4.1.12 Education being the most powerful instrument for empowering the Socially Disadvantaged Groups, the Ninth Plan committed to achieve the same through universalisation of primary education by 2005 with a special focus on low-literacy pockets and on the educationally backward communities like SCs, OBCs and Minorities.

4.1.13 In pursuance of the commitments made by the National Policy on Education, 1986 and in recognition of education as a Fundamental Right (yet to be announced), the Department of Education continued to take various steps to reduce drop-out rates and increase school enrolment and retention rates amongst the children belonging to SCs, OBCs and Minorities. The following special provisions for SCs have been incorporated in the existing schemes of the Departments of Elementary Education & Literacy and Secondary Education & Higher Education - relaxed norms for opening of

primary schools; a primary school within one km walking distance from habitations of 200 population instead of habitations of 300 population; and abolition of tuition fee in Government schools in all states, at least up to the primary level. Most of the states have already abolished tuition fee for SC students up to the Senior Secondary level, along with incentives like provision of free textbooks, uniforms, stationery, school bags etc. to these students. The other major programmes of the Department of Elementary Education & Literacy having relevance to SCs and OBCs include - the District Primary Education Programme (DPEP), Lok Jumbish, Shiksha Karmi, Non-Formal Education (NFE) and National Programme for Nutritional Support to Primary Education (popularly known as Mid-Day Meals).

4.1.14 One of the strategies of the programme of Sarva Shiksha Abhiyan (SSA) is the educational development of children belonging to SCs, OBCs and educationally-backward Minorities. SSA is a historic stride towards achieving the long cherished goal of Universalisation of Elementary Education (UEE) through a time-bound integrated approach, in partnership with the states. SSA aims to universalise elementary education to cover all children in the 6-14 age-group by 2010 through the community-owned and mission-mode approach. It also envisages bridging of gender and social gaps through a special focus on the children of SCs, STs and other disadvantaged groups.

4.1.15 The DPEP aims mainly at providing access to primary education for all children, reducing primary drop-out rates to less than 10 per cent and increasing learning achievement of primary school students by at least 25 per cent. It is also meant to reduce the gap among gender and social groups to less than 5 per cent. The NFE programme lays emphasis on girls, working children and those belonging to SCs. At present, there are 2,92,000 NFE centres covering about 7.3 million children in 25 States/UTs. The major thrust of the National Literacy Mission, which aims to attain full literacy, i.e. a sustainable threshold level of 75 per cent by 2005, is on the promotion of literacy among women, SCs, STs and OBCs. This is reflected in the fact that a high 61 per cent of learners are females, while 23 per cent belong to SCs and 13 per cent to STs.

Janshala, yet another community-based primary education programme, aims to make primary education more accessible and effective, especially for girls and children of deprived communities, marginalised groups, SCs, STs, Minorities, working children and children with special needs. Janshala is a block-based programme with emphasis on community participation and decentralisation. This is the first ever programme in the world where five United Nations agencies have collaborated and pooled resources to support an initiative in education. The programme now covers 105 blocks in 9 states - Andhra Pradesh, Chhattisgarh, Jharkhand, Karnataka, Madhya Pradesh, Maharashtra, Orissa, Rajasthan and Uttar Pradesh - with a total project outlay of Rs. 98.29 crore. Janshala programme is to run for five years from 1998 to 2002.

4.1.16 To enable SC and ST students to pursue higher technical studies, the following special provisions have been extended by the Department of Secondary & Higher Education : reservation of seats for SCs/STs in the Central Government institutions of higher education, including Indian Institutes of Technology (IITs), Indian Institutes of Management (IIMs), Regional Engineering Colleges (RECs), Central Universities, Kendriya Vidyalayas and Navodaya Vidyalayas, etc.; relaxation in the minimum qualifying cut-off percentages for admission to universities, colleges and technical institutions; remedial and special coaching for SC/ST students to improve academic skills and linguistic proficiency and raise their level of comprehension. The IITs have a scheme to provide one year's preparatory course for SC/ST students who fail marginally in the entrance examination. Out of 43,000 scholarships at the secondary stage for talented children from rural areas, 13,000 are reserved exclusively for SC/ST students. Besides, 70 scholarships are reserved exclusively for SC/ST students under the National Talent Search Scheme. SC/ST candidates are provided relaxation up to 10 per cent of cut-off marks for the Junior Research Fellowship (JRF) test and all SC/ST candidates qualifying for the JRF are awarded fellowships. Around 50 Junior Fellowships are awarded every year in sciences to SC/ST candidates who appear in the National Eligibility Test (NET) and qualify the eligibility test for

lecturership. Also, special attention is being paid to 146 districts identified as low female literacy districts.

4.1.17 The scheme of Area-Intensive Programme for Educationally Backward Minorities provides basic infrastructure and facilities in the areas with a concentration of educationally backward minorities and which do not have adequate provision for elementary and secondary education. Under this scheme, 100 per cent financial assistance is given to State Governments and voluntary organisations for the establishment of new primary/upper primary schools and multi-stream residential higher secondary schools for girls belonging to those groups. The scheme covers 325 Blocks in 13 states and 3 UTs and 4 districts in Assam.

4.1.18 To enhance skills and linguistic proficiency in various subjects, special coaching is provided to SC students. The scheme is in operation in 26 universities and 449 colleges. Coaching for students belonging to educationally backward minority communities to compete in various competitive examinations is being provided through 77 coaching centres, including 10 coaching centres for women functioning in 22 universities and 55 colleges. To facilitate educational development amongst the Minorities, the Scheme for Modernisation of Madarsa Education continues to encourage traditional institutions like Madarsas and Maktabas to introduce Science, Mathematics, Social Studies, Hindi and English in their curriculum. Hundred per cent financial assistance is provided for the appointment of qualified teachers.

Health & Family Welfare

4.1.19 The National Health Policy (1983) accorded high priority for extending health services to those residing in the backward rural areas, with a concentration of SCs. It laid special emphasis on endemic diseases. National Malaria Eradication Programme including Filaria Control, Japanese Encephalitis Control and Kala-azar Control were implemented by States/UTs with 50 per cent central assistance for spraying insecticides, supply of Anti-Malaria drugs etc. in the areas of SC concentration under SCP. The National Leprosy Eradication Programme is 100 per cent centrally assisted programme for the detection and treatment of leprosy cases. This programme has been in action

in all districts of the country and covers the entire SC population. The National Tuberculosis Control Programme (NTCP) implemented with central assistance, supplies anti-TB drugs, equipment etc. to areas with high concentration of SCs/STs under SCP/TSP. Further, the norms of NTCP were relaxed and the following steps were taken for facilitating effective service delivery in rural/tribal areas for – i) providing Senior Treatment Supervisors and Senior Tuberculosis Laboratories Supervisors for 2-3 lakh population against the established norms of 5 lakh; ii) opening of microscopic centres for 50,000 population against the established norms of 1 lakh; iii) opening of more Direct Observation Therapy (DOT) Centres; and iv) provision to reimburse the travel claims of patients and attendants for taking treatment at DOT Centres. Under the National Programme on Control of Blindness, 100 per cent central assistance is being extended for strengthening of ophthalmic infrastructure, training of personnel, etc. in areas with SC concentration for treatment of eye ailments and control of blindness under SCP. The National AIDS Control Programme is implemented in areas with sizeable SC population, though no separate provision is made for SCP (More details are available under the Chapters on 'Health' and 'Family Welfare').

Labour & Employment

4.1.20 In the field of Labour and Employment, the Ministry of Labour is implementing special training and rehabilitation programmes for SCs to equip them with necessary training in upgradation of skills and, thus, improve their employment opportunities. The scheme of 'Coaching-cum-Guidance Centre for SCs/STs' was implemented through 22 centres in various States/UTs to provide occupational information as well as individual guidance and to conduct confidence-building programmes for the benefit of the SC/ST job seekers. To facilitate the recruitment of SC/ST candidates against reserved vacancies in various Central Government Ministries/Departments, the Directorate-General of Employment and Training (DGET) has launched another scheme, viz. 'Special Coaching Scheme' in 1973 for SC/ST job-seekers registered with the employment exchanges to enable them to appear in Competitive Examinations/Selection Tests conducted for recruitment in Group C and equivalent posts. The scheme was launched on a pilot basis

at Delhi and Ghaziabad and so far 17 phases of this programme have been completed and the 18th phase is in progress since January, 2000. Encouraged with the success of the above scheme, the scheme has been extended to 12 more places through the Coaching-cum-Guidance Centres located at Bangalore, Kolkata, Hyderabad, Ranchi, Surat, Kanpur, Guwahati, Imphal, Hissar, Jabalpur, Chennai and Thiruvananthapuram.

4.1.21 Further, a number of welfare schemes for providing medical, housing, educational, recreational and family welfare benefits are being implemented under the Labour Welfare Funds with special dispensation for SC and ST workers engaged in mining. Also, 15 per cent of the houses built by mining managements are reserved for SCs/STs. Under the Integrated Housing Scheme for Beedi Workers, the exclusive ownership of land is not insisted upon in respect of SCs/STs. Under the Scheme 'Award of Scholarships to the Wards of Miners and Beedi Workers', reservation for SC/ST students is provided on the basis of percentage of SC/ST population in the district, subject to a floor of 15 per cent for SCs and 7.5 per cent for STs. The minimum marks for eligibility under the scholarship scheme for SCs are 35 per cent, against 45 per cent in case of other students. Thus, education and housing have been identified as the major thrust areas and the tempo of the welfare schemes relating to them have been substantially stepped up with the consequential benefits flowing in greater measure to the SCs/STs.

4.1.22 The rehabilitation of bonded labour has a special significance for SCs and STs, as these communities constitute 61.5 per cent and 25.1 per cent respectively of bonded labour in the country as per the Report of the National Commission on Rural Labour, 1991. According to reports received from State Governments of Andhra Pradesh, Arunachal Pradesh, Bihar (including Jharkhand), Gujarat, Haryana, Karnataka, Kerala, Madhya Pradesh (including Chhattisgarh), Maharashtra, Orissa, Rajasthan, Tamil Nadu and Uttar Pradesh (including Uttaranchal) as many as 2.8 lakh bonded labourers have been identified and out of these 2.6 lakh have been rehabilitated up to March 2001. A

separate SC Development Planning Cell has been functioning under the Ministry, since 1981 to co-ordinate the policy, planning and monitoring.

Women & Child Development

4.1.23 Programmes for women and children implemented by the Department of Women and Child Development are primarily directed towards the most disadvantaged groups of population like SCs, STs and other economically backward classes living in backward rural areas, tribal areas and urban slums. The basic consideration of all the schemes is to ensure that the benefits flow to women and children belonging to the disadvantaged sections of the population. The Department has been implementing one of the largest area-based programme of Integrated Child Development Services (ICDS). It aims to provide a package of 6 basic services of health, immunisation, supplementary feeding, referral services, non-formal pre-school education and health and nutrition education - for children below 6 years and for expectant and nursing mothers living in the most backward and rural areas and urban slums with high concentration of severely disadvantaged groups. By the end of the Ninth Plan, ICDS is expected to be universalised by covering all the 5,652 Blocks/Wards to benefit 54.3 million children and 10.9 million mothers. Most of the evaluation studies have indicated that out of the total beneficiaries under the schemes, about 78 per cent belong to SCs. Also, under the scheme of Hostels for Working Women implemented by the Department, there are stipulations to reserve 15 per cent of seats for SCs (More details are available under the Chapter on 'Women and Children').

Rural Development

4.1.24 The Ministry of Rural Development plays a vital role in raising the status of the poor above the poverty line and improving the quality of life in rural areas through the implementation of various poverty alleviation programmes and providing avenues for self/wage employment to the most disadvantaged Groups, viz. SCs, STs and others. Under the Jawahar Gram Samridhi Yojana (JGSY), which provides wage employment, 22.5 per cent of Plan allocation is earmarked for SC/ST families living

'Below the Poverty Line' (BPL). During the Ninth Plan, 395.6 million man-days were provided for SCs, accounting for 28.5 per cent of total employment under this scheme. Under the Employment Assurance Scheme (EAS) which is open to all rural poor who are in need of wage-employment, preference is given to SCs/STs and parents of child labour withdrawn from hazardous occupations who are below the poverty line. Around 500 million man-days were provided to SCs during the Ninth Plan under EAS, accounting for 33.7 per cent of total employment provided under the scheme. JGSY and EAS have been brought under the purview of the mega scheme of Sampoorna Gramin Rozgar Yojana (SGRY) since September 2001.

4.1.25 For taking up self-employment and income-generation activities, Swarnajayanti Gram Swarozgar Yojana (SGSY) stipulates that at least 50 per cent of the swarozgaris will be from SCs/STs. Under SGSY, 1.8 million SC swarozgaris accounting for 32.5 per cent of the total number of swarozgaris, benefited during the Ninth Plan. In addition to these poverty alleviation programmes, this Ministry also provides basic amenities like housing, drinking water, etc. Indira Awas Yojana (IAY) has the objective of providing dwelling units to BPL rural households belonging primarily to SCs, along with STs. About 1.8 million dwelling units were constructed for SCs accounting for 47.4 per cent of total houses under the scheme during the Ninth Plan. Around 60 per cent of the total allocation was earmarked for SCs/STs. Under the Credit-cum-Subsidy scheme of rural housing, a minimum of 60 per cent of the funds allocated as subsidy to each state has been earmarked for the construction of houses for SCs/STs.

4.1.26 Under the Accelerated Rural Water Supply Programme (ARWSP), states are required to utilise a minimum of 25 per cent of funds for provision of drinking water supply to SCs. Around 23.1 million SCs have been benefited, accounting for 18.1 per cent of total beneficiaries under ARSWP. Under the Central Rural Sanitation Programme (CRSP), sanitary latrines are provided to rural population with preference to SC/ST families and people below the poverty line. A minimum of 20 per cent of the total funds is earmarked for providing subsidy to individual BPL households belonging to SCs and STs. Where

such households are more than 20 per cent of the total population, earmarking is enhanced at least to match the percentage of SC population. During the Ninth Plan, one million (21.2 per cent) sanitary latrines were provided to SCs.

4.1.27 The National Social Assistance Programme (NSAP), comprising the National Old Age Pensions Scheme (NOAPS), the National Family Benefit Scheme (NFBS) and the National Maternity Benefit Scheme (NMBS) introduces a national policy for social security assistance to the poor SC/ST families and represents a significant step forward. During the Ninth Plan, 7.8 million SCs were covered under NOAPS, accounting for 24.4 per cent of total 32.2 million beneficiaries. Of the total one million beneficiaries of the NFBS, 2 lakh (20.2 per cent) comprised of SC families. NMBS (now transferred to Department of Family Welfare w.e.f. 2001-02) benefited 1.2 million SC women, who accounted for 21.8 per cent of the total 5.6 million beneficiaries.

Urban Development

4.1.28 The special scheme of Urban Self-Employment Programme under Swarna Jayanti Shahari Rozgar Yojana (SJSRY) extends assistance to the urban poor living below the poverty line with special attention to women and persons belonging to SCs and STs to set up gainful self-employment ventures. The benefits for SCs are granted keeping in view the extent of the proportion of their strength in the local population. The National Agenda for Governance identified 'Housing for All' as a major programme with special emphasis on the needs of the vulnerable groups wherein it was proposed to facilitate construction of 20 lakh additional units every year, with emphasis on the Economically Weaker Sections and Low Income Groups as also the needs of SCs/STs. A special Cell in the Ministry of Urban Development and Poverty Alleviation monitors the implementation of the various Government Orders regarding reservation in services for SCs/STs through periodical returns. In addition, the Cell also monitors the filling up of the backlog of vacancies reserved for SCs, STs and OBCs under the Special Recruitment Drive in respect of the Attached/Subordinate Offices and the Public Sector Undertakings of this Ministry.

Social Justice and Empowerment

4.1.29 Supplementing and complementing the efforts of the sectoral Ministries/Departments, the nodal Ministry of Social Justice & Empowerment continued to work through promoting educational and economic development, besides extending necessary protective measures, as detailed below. (Though the Ministry got bifurcated and an exclusive Ministry of Tribal Affairs came into existence in 1999, some of the educational schemes continued, as combined schemes for both SCs and STs till 2000-01).

Educational Development

4.1.30 Greater emphasis was laid in the Ninth Plan on the educational development of SCs. The nation-wide popular scheme of 'Post-Matric Scholarships (PMS) for SC Students', the largest educational scholarship scheme of its kind in the country, continued to promote higher education amongst SCs. The scheme extends scholarships to all eligible SC students who pursue post-matriculation courses in recognised institutions. The revision of the scheme in 1997-98 expanded its scope for enhancing the income ceiling of parents of the beneficiaries and for extending some additional benefits to persons with disabilities amongst SCs. Scholarships are given to all the eligible SC students based on a Means Test which includes provision of maintenance allowance, reimbursement of compulsory non-refundable fees, thesis typing/printing charges, study tour charges, book allowance for students pursuing correspondence courses etc. An expenditure of Rs. 457.29 crore was incurred benefiting around 21 lakh SC students studying at the Post-Matric and above levels, including the professional/technical courses. An evaluation study on the scheme conducted by the Ministry reveals that SC students in some states are facing hardships due to non-payment of scholarships in time, as the State Governments could not meet the expenditure on committed liability under the scheme.

4.1.31 The Scheme of 'Pre-Matric Scholarship for the Children of those engaged in Unclean Occupations' aims to motivate the children of scavengers, sweepers, flayers and tanners to pursue education and also to reduce school drop-

out rates amongst them. Special provisions for students with disabilities were also introduced keeping in line with the provisions of the Persons with Disabilities Act, 1995. Against the total Ninth Plan outlay of Rs. 30 crore, for the scheme, the expenditure was Rs. 36.25 crore. The scheme covered 19.2 lakh beneficiaries, 2.3 lakh more than the target of 16.9 lakh beneficiaries. An evaluation report on the performance of the scheme has revealed that the programme is instrumental in encouraging many people who are living below the poverty line to send their children to the schools.

4.1.32 The scheme of 'Hostels for SC Boys and Girls' launched in 1961-62, being one of the major support services to improve enrolment, aims at reducing the present high drop-out rates and increasing retention amongst SC/ST students by providing them hostel facilities in the middle, secondary and higher secondary schools, colleges and universities. The central assistance to the scheme has been declining, as the State Governments are not able to provide the required matching share under this scheme. Evaluation of the scheme carried out by the Ministry reveals that the performance of some states in providing matching grants, maintenance of services and management of hostels is not encouraging. Also, the basic amenities therein are substandard due to poor maintenance of buildings. As against the total Ninth Plan outlay of Rs. 97.05 crore for the scheme, the expenditure was Rs. 118.10 crore for the construction of 354 girls' hostels and 388 boys' hostels benefiting 25,196 SC girls and 17,244 SC boys.

4.1.33 The scheme of 'Special Educational Development Programmes for SC Girls belonging to Low Literacy Districts', introduced in 1996-97, aims to establish special residential schools for SC Girls who are first generation learners from low literacy pockets where the traditions and environment are not conducive to learning. The scheme covers 48 districts spread over Bihar, Madhya Pradesh, Rajasthan and Uttar Pradesh where the literacy amongst SC girls was less than 2 per cent, as per 1981 Census. Central assistance is given to Zilla Parishads to run the schools by themselves or through credible Non-Government Organisations (NGOs). Of the Ninth Plan allocation

of Rs. 7.70 crore, the expenditure was only Rs. 1.61 crore, and against a target of 140 schools, only 104 schools could be funded.

4.1.34 The 'Book Banks Scheme for SC/ST Students' continued to supply text-books to SC students for pursuing Medical, Engineering, Veterinary, Agricultural, Polytechnic, Chartered Accountancy, Business Administration, Bio-Sciences and Law Courses. Provision has also been made for Braille Books to visually disabled SC students. Against the total Ninth Plan outlay of Rs. 12 crore for the scheme, the expenditure was Rs. 10.61 crore for benefiting about 1.15 lakh SC/ST students.

4.1.35 The scheme of 'Up-gradation of Merit of SC/ST Students' aims to provide remedial and special coaching to SC students studying in classes IX to XII. While the remedial coaching aims at helping SC students weak in some school subjects, special coaching helps them to prepare for appearing in competitive examinations and for admission tests for professional courses like medicine, engineering etc. The Ninth Plan allocation of Rs. 5.26 crore was later raised to Rs. 42.50 crore which was earmarked for 2001-02 with a view to assisting 25,000 SC/ST students from Classes VI to Degree/Diploma-level courses. But, unfortunately, the expenditure was Rs. 4.72 crore only for benefiting 3,755 SC students. Despite the Centre's willingness to bear the entire cost, most of the States/UTs failed to respond favourably for implementing the scheme. Therefore, the scheme had very limited impact in achieving its objective.

4.1.36 Coaching and Allied Scheme for SC/ST students which aims to improve the knowledge and aptitude of SC/ST students by providing special coaching to them through Pre-Examination Training Centres (PETCs), was recast during the Ninth Plan by bringing revision in the unit-cost. Universities and private institutions receive 100 per cent Central assistance on a contractual basis, while State-owned PETCs receive the Central assistance to the extent of 50 per cent of the contractual amount. The scheme, which was common for both SC and ST students till the year 2000-01, is now exclusively meant for SC students, after a separate Ministry of Tribal Affairs was set up in 1999. Of the Ninth Plan

outlay of Rs. 16.71 crore for the scheme, the expenditure was Rs. 11.09 crore for coaching and training for 48,500 SC/ST students.

4.1.37 Educational development of OBCs, which made a beginning during the 1990s, received better attention during the Ninth Plan with many new initiatives coming up in the field of education. Towards ensuring educational development amongst OBCs, schemes for providing scholarships for pursuing both Pre-Matric and Post-Matric as well as other higher education, supported with hostel facilities, were introduced. Besides, children belonging to the OBCs were also allowed to enjoy the existing hostel facilities meant for SC boys and girls. For OBC students to participate effectively in the competitive examinations, Pre-Examination Coaching Centres were also set up in the Ninth Plan.

4.1.38 The scheme of Post-Matric Scholarships for OBC Students is intended to promote higher education amongst OBCs by extending financial support to poor OBC students studying at the level of matriculation and above, including Ph.D degrees etc. Of the Ninth Plan allocation of Rs. 49.90 crore, an expenditure of Rs. 40.57 crore was incurred benefiting 5.8 lakh OBC students. So far, only 15 states viz. Andhra Pradesh, Assam, Bihar, Goa, Himachal Pradesh, Jammu and Kashmir, Jharkhand, Karnataka, Madhya Pradesh, Maharashtra, Manipur, Sikkim, Tripura, Uttaranchal and Uttar Pradesh could avail the benefit of this scheme.

4.1.39 The scheme of Pre-Matric Scholarships for OBC Students aims to motivate children of OBCs studying at pre-matric stage in recognised schools. Of the Ninth Plan outlay of Rs. 49.90 crore for the scheme, the expenditure was Rs. 29.15 crore, benefiting 12.6 lakh OBC students. The states of Andhra Pradesh, Assam, Bihar, Jammu & Kashmir, Jharkhand, Karnataka, Madhya Pradesh, Manipur, Sikkim, Tripura and Uttar Pradesh could utilise the funds under this scheme.

4.1.40 The scheme of Hostels for OBC Boys and Girls, being one of the major support services aims to reduce the high drop-out rate at middle/higher university level education amongst OBCs with the objective of providing accommodation with

congenial atmosphere. Of the Ninth Plan outlay of Rs. 49.90 crore for the scheme, expenditure incurred was only Rs. 20.76 crore, benefiting 11,470 students. The State Governments of Andhra Pradesh, Bihar, Jharkhand, Karnataka, Madhya Pradesh, Manipur, Rajasthan, Sikkim, Tripura, Tamil Nadu and Uttar Pradesh could utilise funds under this scheme.

4.1.41 The scheme for Pre-Examination Coaching for OBCs was introduced with a major objective of providing special coaching/training for OBC candidates to help compete in competitive examinations for recruitment to various services. The candidates, whose parents' total annual income from all sources is below Rs. 1 lakh are eligible for admission to this special coaching scheme. Of the Ninth Plan allocation of Rs. 10 crore, only Rs. 1.03 crore has been spent benefiting 2,480 students. The scheme of Assistance to Voluntary Organisations for the Welfare of OBCs was launched with a major objective of involving the voluntary sector for improving the educational and economic conditions of OBCs. Of the Ninth Plan allocation of Rs. 10 crore, for the scheme, the expenditure was Rs. 1.03 crore to assist 20,880 beneficiaries.

4.1.42 For Minorities, education has become a key input in their development, as a large section amongst them continues to be educationally backward. Improvement in literacy levels, up-gradation of the quality of education and its relevance to the emerging employment opportunities are crucial to their development. Initiatives taken in this direction are enumerated below:

4.1.43 The Maulana Azad Education Foundation was set up as an autonomous organisation in 1992-93 with the objective of promoting education amongst educationally backward sections in general and Minorities in particular. The Foundation provides for remedial coaching, construction/expansion of schools/residential schools/colleges/polytechnics/hostels mainly for girls and purchase of machinery/equipment for laboratories and for setting up/strengthening vocational/technical training centres for women. As against the total Ninth Plan outlay of Rs. 70 crore, Rs. 52.75 crore was spent to assist about 417 NGOs.

4.1.44 The scheme of Pre-Examination Coaching for Weaker Sections, based on economic criteria, is extended to enable them to compete on equal terms with other candidates in competitive examinations for various jobs and it is being implemented through the Institutions of repute. Against a provision of Rs. 12 crore for the Ninth Plan, Rs. 11.29 crore was spent for funding 417 Institutions to train 30,310 students.

Economic Development

4.1.45 The National Scheduled Castes and Scheduled Tribes Finance and Development Corporation (NSFDC) continued to function as a catalytic agent for financing, facilitating and mobilising funds from various sources for promoting economic development activities amongst SCs living below double the poverty line. Financial assistance, at a concessional rate of interest, is extended to the target groups for taking up viable economic activities through the 34 State Channelising Agencies, which include Scheduled Caste Development Corporations (SCDCs) and other recognised financial institutions. Skill and entrepreneurial training is also imparted to unemployed SC youths through reputed training institutions. A micro-credit scheme has also been taken up since 2000-01 for funding Self-Help Groups (SHGs) by which small loans are provided to the target groups through NGOs. The Authorised Share Capital of the Corporation was Rs. 300 crore and it was raised to Rs. 1,000 crore in 1999-2000. Its paid-up share capital is now Rs. 421 crore. The Corporation has so far sanctioned 2,759 projects, which on completion, would enable 3.4 lakh SC beneficiaries to take up various employment-cum-income-generating activities. During the last year of the Ninth Plan (2001-02), NSFDC was bifurcated into 2 separate Corporations - one for SCs and the other for STs viz. National Scheduled Castes Finance and Development Corporation for SCs and National Scheduled Tribes Finance and Development Corporation for STs.

4.1.46 SCDCs are playing a key role at state level as guarantors, promoters and catalysts for generating credit from financial institutions and providing missing inputs by way of margin money loans and subsidy to SCs living below the poverty

line. At present, these Corporations are functioning in 25 States/UTs. This Scheme was revised in 1998-99 with a view to ensuring effective utilisation of central assistance extended to the states. Of the Ninth Plan allocation of Rs. 180 crore, an expenditure of Rs. 173.63 crore was incurred for extending financial assistance to 14.88 lakh SCs.

4.1.47 The National Safai Karamcharis Finance and Development Corporation (NSKFDC) was set up in January 1997 as a non-profit making company exclusively for promoting economic development/self-employment amongst the scavenging communities. NSKFDC acts as an apex institution for channelising funds through the State Channelising Agencies. Financial assistance on concessional rates is provided to persons engaged in scavenging occupations for the establishment of alternative viable income-generation activities. Under the Micro-Credit Scheme, introduced in 2000-01, Safai Karamcharis were organised into SHGs with the help of State Channelising Agencies/NGOs to receive loans to a maximum of Rs. 10,000 per beneficiary for undertaking income-generation activities. Financial assistance is also extended to Co-operatives formed by a group of 25 scavengers for setting up of Sanitary Marts production-cum-service centres and for conversion of dry latrines into wet ones. The Ninth Plan allocation of Rs. 81.75 crore has been released to the NSKFDC and the scheme has benefited 33,725 persons.

4.1.48 The National Backward Classes Finance and Development Corporation (NBCFDC) was set up in 1992 with a major objective of promoting self-employment ventures and income-generation activities among the poorest of OBCs living below double the poverty line. The Corporation provides loans at concessional rates of interest and also arranges training for upgradation of technological and entrepreneurial skills amongst the individuals or groups belonging to OBCs through the State Channelising Agencies. The initial Authorized Share Capital of Rs. 200 crore has been raised to Rs. 700 crore. The Corporation has disbursed term loans to the tune of Rs. 614.08 crore to assist 3.75 lakh beneficiaries during the Ninth Plan. A micro-credit scheme has also been introduced for extending credit facilities to the target groups for small business especially for women beneficiaries through State Channelising Agencies as well as NGOs. It

has also launched a special scheme, viz. 'Swarnima' for providing a loan upto Rs. 1 lakh for self-employment activities. Of the Ninth Plan allocation of Rs. 400 crore for the NBCFDC, Rs. 191.50 crore was spent for the activities, mentioned above.

4.1.49 The National Minorities Development and Finance Corporation (NMDFC) was set up in 1994-95 to promote income generating activities among the poorest of the poor in the minority groups. The Corporation provides loans at concessional rates of interest and organises training programmes, especially for the craftsmen engaged in traditional occupations and trades. The Corporation operates all the programmes through networking with the State Channelising Agencies. The authorised share capital of the Corporation was Rs. 500 crore. The Corporation has a paid-up share capital of Rs. 257.95 crore, of which the Central Government contribution was Rs. 217 crore and the remaining amount was contributed by States/UTs. The scheme of 'micro-financing' has also been introduced in 1998-99 and the same is operated directly through NGOs and SHGs. Of the Ninth Plan allocation of Rs.111 crore for the Corporation, an amount of Rs. 92.26 crore was spent, benefiting 81,695 beneficiaries.

4.1.50 All the above-said 5 apex financial institutions, viz. NSFDC, State SCDCs, NSKFDC, NBCFDC, NMDFC which are expected to be working for the economic empowerment of the socially disadvantaged groups, have been strengthened by increasing their Authorised Share Capital during the Ninth Plan. These Corporations, in collaboration with the State Finance and Development Corporations, are expected to work as catalytic agents besides extending both 'forward' and 'backward' linkages of credit and marketing facilities to micro-level agencies to improve the economic status of these groups. But unfortunately, a critical assessment of the working of all these Corporations over a period of five to ten years has brought forth a most revealing truth that none of them justifies the name of being a Corporation, as they are heavily dependent upon governmental assistance. Generally, these Corporations are expected to become self-reliant over a period of two to three years of their establishment. Instead, they are becoming more and more dependent upon the Government and demanding a hike in the Authorised

Share Capital, from time to time, which is not a healthy sign. For example, the original Authorised Share Capital of Rs. 150 crore for NSFDC has been revised four times to raise it to Rs. 1,000 crore. Further, these Corporations have been maintaining a recovery rate to a maximum of 30 to 50 per cent. A study of the working of all these Corporations during the very first year of the Tenth Plan, with a major objective of introducing necessary reforms has been suggested by the Planning Commission, so as to make them financially viable and become effective instruments in empowering the disadvantaged.

Protective Measures

4.1.51 The Ministry of Social Justice & Empowerment, in its nodal capacity, continued to make special efforts towards ensuring social justice to the weaker sections through enforcement of special legislations and implementation of protective programmes. Towards achieving the major objective of abolishing the practice of untouchability, curtailing/preventing the incidence of crimes and atrocities committed against SCs and ensuring rehabilitation of the affected victims, efforts were made through effective implementation of the Protection of Civil Rights (PCR) Act, 1955 and the Scheduled Castes and the Scheduled Tribes (Prevention of Atrocities) Act, 1989. To ensure speedy disposal of cases under the two Acts, 36 Special Courts were set up under the PCR Act and 113 Special Courts under the SC and ST (POA) Act.

4.1.52 With a major objective of accomplishing complete eradication of the obnoxious and in-human practice of manual scavenging, the National Scheme of Liberation and Rehabilitation of Scavengers and their Dependents was modified in 1998 to accommodate revised norms and involve NGOs in the efforts made for identification, liberation and rehabilitation of scavengers. Though, complete elimination of the practice of manual scavenging could not be achieved by the end of the Ninth Plan (2002) as targeted, yet around 3.84 lakh out of the 6.53 lakh identified scavengers were rehabilitated, while 1.47 lakh were imparted training to take up alternative vocations.

4.1.53 In addition to these efforts made through special legislation and programmes, the four statutory Commissions viz. i) National Commission for SCs and STs; ii) National Commission for Safai Karamcharis; iii) National Commission for Backward Classes; and iv) National Commission for the Minorities also played a very important role in safeguarding the rights and interests of their target groups. Armed with the powers of a Civil Court, the Commissions investigated individual complaints/grievances made on-the-spot visits to the areas where the incidence of crimes/atrocities took place and placed the 'Action Taken Reports' before both Houses of Parliament. The Commission for SCs and STs also played an effective interventionist role in reviewing the progress of the implementation of Special Component Plan (SCP) and Tribal Sub-Plan (TSP) by the Central Ministries/Departments and the State Governments and also the utilisation of Special Central Assistance (SCA) to SCP and TSP. The outstanding contribution of the Commission during the Plan period was holding national-level consultations with District Development Commissioners/Collectors to develop a direct district-wise dialogue for receiving the first-hand report on the progress of the implementation of various policies and programmes in improving the status of these Target Groups. The National Commission for Backward Classes, set up to advise the Government with regard to inclusion of various communities in the List of OBCs and also attend thereto the complaints received, could successfully tender advice to the Government in respect of 1,067 castes/communities. Out of these, 652 castes were included and 415 were rejected. The Commission also initiated action on completing the task within the available time-frame. The other achievements include setting up of a Minority Education Cell by the National Commission for Minorities to look after exclusively the problems faced by the Minority Educational Institutions with regard to recognition, allocation, grant-in-aid etc. The National Commission for Safai Karamcharis, set up in 1994, has been playing its role in promoting as well as safeguarding the interests and rights of Safai Karamcharis, besides investigating specific grievances as well as matters relating to implementation of programmes and schemes for the welfare of the Safai Karamcharis. It also has the responsibility of over-seeing the progress of fulfilling the national commitment of Total Eradication of Manual Scavenging.

Table – 4.1.1
Flow of Funds under SCP and SCA to SCP for SCs during the Ninth Plan (1997-2002)

(Rs. in Crore)

Item	Outlay	Flow to SCP	Percentage (Col. 3 to Col.2)
(1)	(2)	(3)	(4)
Special Component Plan (SCP)			
- Flow from Central Plan (in respect of 14 Ministries/Departments)	15,478.90	1,646.00	10.63
- Flow from State Plan (in respect of 22* States/UTs)	3,46,717.05*	42,308.97*	12.20
Special Central Assistance (SCA) to SCP			
- SCA to SCP (Outlay & Release)	2,092.95	2,004.68	95.78

Note : * Information in respect of five states including the three newly formed states is not available.

Source : Ministry of Social Justice & Empowerment, GOI, New Delhi

Implementation of Special Mechanisms of SCP and SCA to SCP for SCs

4.1.54 The two innovative strategies of SCP for SCs and the SCA to SCP have been receiving special attention right from their introduction in 1979-80, as these are the most effective mechanisms to ensure additional flow of funds/benefits for SCs. SCP demands earmarking of population proportionate funds for the development of SCs from the general development sectors. As per the information available, only 14 Central Ministries/Departments and 22 States/UTs are adhering to the earmarking of funds for SCs.

4.1.55 SCA to SCP is a Central scheme to extend 100 per cent grant as an additive to strengthen the efforts of the states to fill the critical gaps under the family-based income generation projects, to cater to those SC families living below poverty line. SCA to SCP was enhanced from Rs. 1,125 crore in the Eighth Plan to Rs. 2,092.95 crore in the Ninth Plan, indicating an increase by 86 per cent. Details of the flow of funds, under SCP and SCA to SCP, both at central and state levels during the Ninth Plan are given in Table 4.1.1.

4.1.56 As could be seen from Table 4.1.1, funds to the extent of Rs. 1,646.00 crore (10.63 per cent)

from 14 Ministries/Departments at the Central level and funds to the extent of Rs. 42,308.97 crore (12.20 per cent) from 22 States/UTs are flowing to SCP. This indicates that efforts need to be made to improve the implementation of SCP at both the central and state levels to reach the expected level.

4.1.57 A quick review of the earmarking of funds under SCP brings forth certain issues like - while some Ministries/Departments being regulatory in nature are not able to earmark funds for SCP, some others having activities which are non-divisible in nature, are finding it difficult to earmark funds under SCP. In respect of SCA to SCP, it was observed that non-release of SCA funds on time by the State Finance Departments to the State/nodal departments of Welfare has been adversely affecting the smooth running of various income-generation programmes that are undertaken for SC families living below the poverty line. Such delays are not only affecting the beneficiary families but also causing predicament to the nodal department, as they are not able to make full use of the allocated funds, and finally resulting in unspent funds. Often, such unspent SCA funds, as reported, are getting diverted to other purposes leaving the earmarked/intended purposes unattended to.

4.1.58 To look into all the related issues, a Central Standing Tripartite Committee was set up by the

Planning Commission in May 1999 with the representatives of the Planning Commission, National Commission for SCs and STs, the nodal Ministry of Social Justice & Empowerment and the concerned Central Ministries/Departments. The Committee has, so far, reviewed formulations of both SCP and TSP of the 14 Central Ministries/Departments of Agriculture and Co-operation, Environment and Forest, Urban Development and Poverty Alleviation, Rural Development, Indian Systems of Medicine and Homeopathy, Non-Conventional Energy Sources, Water Resources, Public Enterprises, Animal Husbandry & Dairying, Sugar and Edible Oils, Drinking Water Supply, Statistics and Programme Implementation, Food Processing and Power and advised that all the

Ministries/Departments should put in their special efforts to revive the otherwise routinised SCP and TSP. It also suggested that the formulation of SCP and TSP should be right at the plan formulation stage through - identification of schemes and earmarking of funds so that a systematic monitoring of the utilisation of earmarked funds can be planned for. Similar Committees are also coming up at the state level. So far, 6 states viz., Andhra Pradesh, Bihar, Madhya Pradesh, West Bengal, Punjab and Gujarat have set up such Committees. Other States/UTs are also expected to come up soon with such Committees to review the progress of the implementation of SCP, TSP and SCA to SCP and TSP on a continuing basis.

SCP, TSP AND SCA TO SCP & TSP

In search for a solution to revitalise/re-activate the special mechanisms viz. Special Component Plan (SCP) for SCs, Tribal Sub-Plan (TSP) for STs and Special Central Assistance (SCA) for SCP and TSP launched during the 1970s to ensure population-proportionate funds flow for the development of SCs and STs from other development sectors, Planning Commission has set up a Central Standing Tripartite Committee, inter-alia, with the following mandate:

- to look into the reasons for not implementing the Guidelines concerning SCP and TSP and to suggest specific measures for their compliance;
- to identify specific schemes which would benefit SCs and STs under various development sectors, their prioritisation along with earmarking of funds for them; and
- to review the progress of implementation, impact assessment and monitoring of SCP and TSP and utilisation of SCA to SCP and TSP and the Grant-in-Aid under Article 275(1) and advise the Planning Commission on measures which would serve the interests of these communities more effectively.

The Standing Committee has, so far, reviewed the formulation of both SCP and TSP in respect of 14 important Central Ministries/Departments. This Review has brought forth certain important issues relating to the nature of schemes being non-divisible and that being a major obstacle for certain Ministries/Departments not being able to earmark funds under SCP and TSP and also other issues such as late releases, ineffective utilisation, and diversion of SCA etc. The Committee, besides suggesting certain remedial measures, has also advised the Ministries concerned to tie up effectively with the concerned State Governments and also with the State Tripartite Committees which are now coming up. So far, 6 states, viz. Andhra Pradesh, Bihar, Madhya Pradesh, West Bengal, Punjab and Gujarat could set up such Committees, while the others are expected to follow very shortly.

PRESENT STATUS OF THE TARGET GROUPS

Scheduled Castes

4.1.59 As a result of various affirmative actions, pro-active policies and programmatic interventions put into action by the government,

along with the committed efforts of various NGOs, the status of SCs has registered quantifiable improvement during the last five developmental decades. Yet, a lot more needs to be done to fulfil the Constitutional commitment of raising the status of SCs to that of the rest of the population. The gains and gaps, as recorded through various developmental indicators, are detailed below:

Demography and Vital Statistics

Table – 4.1.2
Population and Decadal Growth Rate of SCs and Total Population (1971-2001)

(Figures in Million)

Census	Population		Decadal Growth Rate	
	Total*	SCs	Total*	SCs
(1)	(2)	(3)	(4)	(5)
1971	548.1	80.0 (14.6)	24.8	24.2
1981	683.4	104.7 (15.3)	24.7	30.9
1991	846.3**	138.2 (16.5)	23.9	32.0
2001 (Projected)	1027.0	179.7# (17.5)	21.3	30.0 (estimated)

Note : * Includes SCs.

** Includes the projected population of Jammu & Kashmir

Estimated population based on the trend of the decadal growth rate of SCs between 1961 and 1991.

- Figures within the parentheses indicate percentage to total.

Source : Census of India, 1991 and Census of India, 2001: Provisional Population Totals, Registrar-General & Census Commissioner of India, GOI, New Delhi

Table – 4.1.3
Sex Ratio of SCs and Total Population (1971-2001)

Census	Sex Ratio (No. of Females per 1,000 Males)	
	Total Population*	SC Population
(1)	(2)	(3)
1971	930	935
1981	934	932
1991	927	922
2001	933	Not yet available

Note : * Includes SC population.

Source : Census of India, 1991 and Census of India, 2001: Provisional Population Totals, Registrar-General & Census Commissioner of India, GOI, New Delhi

Table – 4.1.4
Literacy Rates of SCs and Total Population (1971-2001)

(in per cent)

Category	1971	1981	1991	2001
(1)	(2)	(3)	(4)	(5)
Total Population*	29.45	36.23	52.21	65.38
Scheduled Castes	14.67	21.38	37.41	Not yet
Gap between SCs and Total Population	14.78	14.85	14.80	available

Note : * Includes SC population.

Source : 1. Educational Development of SCs and STs, 1995, Department of Education, Ministry of Human Resource Development, GOI, New Delhi.
2. Census of India, 2001: Provisional Population Totals, Registrar-General & Census Commissioner of India, GOI, New Delhi.

4.1.60 SC population as a percentage of total population has increased from 14.6 in 1971 to 17.5 in 2001 (Table 4.1.2). Though the decadal growth rate for SCs, estimated to be 30 per cent, was more than the growth rate of 21.3 per cent of the total population in 2001, yet a decline was noticed between 1991 and 2001.

4.1.61 The sex ratio of SCs as it stood in 1991 was not only adverse, but also showed a declining trend as it fell from 935 in 1971 to 922 in 1991 (Table 4.1.3). In fact, the sex ratio of SCs, which held a better status than that of the total population in 1971, suddenly took a turn to worse in 1981 and continued with the same tempo. This, as a gender concern, needs to be looked into.

Higher mortality amongst females and their limited access to health and family welfare services could be attributed to the causes of this adverse sex ratio. However, this is not an exception to SCs alone, but a common feature in respect of general population also.

Educational Status

4.1.62 Education, being the most important instrument for empowering weaker sections of the society, every effort is being made to improve the educational status of SCs on priority basis. Between 1971 and 1991, the literacy rate of SCs increased by 2.6 times, while that of total population increased by 1.8 times (Table 4.1.4). However, the gap

Table – 4.1.5
Female Literacy Rates of SCs and Total Population (1971-2001)

(in per cent)

Category	1971	1981	1991	2001
(1)	(2)	(3)	(4)	(5)
Total Population*	18.69	29.85	39.29	54.16
Scheduled Castes	6.44	10.93	23.76	Not yet
Gap between Female literacy of SCs and Total Population	12.25	18.92	15.53	available

Note : * Includes SC population.

Source : 1. Educational Development of SCs and STs, 1995, Department of Education, Ministry of Human Resource Development, GOI, New Delhi.
2. Census of India, 2001: Provisional Population Totals, Registrar-General & Census Commissioner of India, GOI, New Delhi.

Table-4.1.6
Gross Enrolment Ratios of SCs and Total Population (1990-91 to 1999-2000)

Year Classes		1990-91		1999-2000	
		I to V	I to VIII	I to V	I to VIII
(1)		(2)	(3)	(4)	(5)
Total Population*	Total	100.1	62.1	94.9	58.8
	Boys	114.0	76.6	104.1	67.2
	Girls	85.5	47.8	85.2	49.7
Scheduled Castes	Total	102.2	47.7	92.4	62.5
	Boys	122.7	61.4	103.6	73.6
	Girls	80.6	33.3	80.5	50.3
GAP	Total	(+) 2.1	(-) 14.4	(-) 2.5	(+) 3.7
	Boys	(+) 8.7	(-) 15.2	(-) 0.5	(+) 6.4
	Girls	(-) 4.9	(-) 14.5	(-) 4.7	(+) 0.6

Note : * Includes SC Population.

Source : Annual Report of respective years, Department of Education, Ministry of Human Resource Development, GOI, New Delhi.

between the literacy rates of SCs and of the total population continued during the two decades between 1971 and 1991 almost at the same level of 14 per cent and above, but with slight variations.

4.1.63 Female literacy, which is another important indicator in the field of education, reveals that the situation in respect of SC females was worse with 6.44 per cent when compared to the total population of 18.69 per cent in 1971. No doubt, SC females made a very good progress in increasing their literacy rate almost by four-folds i.e. from 6.44 per cent in 1971 to 23.76 per cent in 1991, when compared to the two times progress made by the total population, but it still continues to be very low (Table 4.1.5). Similarly, the gap between the literacy rates of SC females and that of the total females has widened from

12.25 per cent in 1971 to 18.92 per cent in 1981 and declined to 15.53 per cent in 1991.

4.1.64 The Gross Enrolment Ratios (GER) of SC boys and girls at the primary level not only declined over 1990-91 to 1999-2000, but they were also lower than those for the total population in 1999-2000 (Table 4.1.6). At the middle level, good pace of progress was maintained by the SCs, especially by the SC girls. In fact, GERs of both SC boys and girls were higher than those for total population, at the middle level in 1999-2000.

4.1.65 The drop-out rate is another crucial indicator in the field of educational development. The figures are still very high - 44.27 in classes I to V; 63.58 in classes I to VIII; and 76.63 in classes I to

Table - 4.1.7
Drop-Out Rates amongst SCs and Total Population (1990-91 and 1998-99)

(in per cent)

Category	Classes (I-V)		Classes (I-VIII)		Classes (I-X)	
	1990-91	1998-99	1990-91	1998-99	1990-91	1998-99
(1)	(2)	(3)	(4)	(5)	(6)	(7)
Total*	42.60	39.74	60.90	56.82	71.34	67.44
SCs	49.40	44.27	72.09	63.58	80.58	76.63
GAP	6.80	4.53	11.19	6.76	9.24	9.19

Note : * Includes SC students.

Source : Educational Profile of States/UTs, Department of Education, Ministry of Human Resource Development, GOI, New Delhi.

X in 1998-99 (Table 4.1.7). This indicates clearly that the problem gets worse at the higher levels of schooling. However, an encouraging sign is the reduction in the gap between the drop-out rates of the total population and SCs at all levels between 1990-91 and 1998-99.

Economic Status

4.1.66 Poverty alleviation programmes put into action both in rural and urban areas since the 1980s have not only helped the poor people to rise above the poverty line, but also brought down the poverty rates quite effectively, as shown at Table 4.1.8.

Participation in Decision-Making

Administration

4.1.68 Participation of SCs in decision-making is a positive indicator of progress made by them. The two Tables 4.1.9 and 1.1.10 reflect the representation of SCs in the All India Services of the Indian Administrative Service (IAS), Indian Police Service (IPS) and Indian Forest Service (IFS) as well as Other categories:

4.1.69 Representation of SCs in All India Services of IAS, IPS and IFS is not very encouraging, as they

Table – 4.1.8
Population Living Below Poverty Line (1993-94 and 1999-2000)

(in per cent)

Category	1993-94		1999-2000		Percentage Decrease (1993-94 to 1999-2000)	
	Rural	Urban	Rural	Urban	Rural	Urban
(1)	(2)	(3)	(4)	(5)	(6)	(7)
Total*	37.27	32.38	27.09	23.62	(-) 10.18	(-) 10.04
SCs	48.11	49.48	36.25	38.47	(-) 11.86	(-) 11.01
GAP	10.84	15.82	9.16	14.85	(-) 1.68	(-) 0.97

Note : * Includes SC population.

Source : Perspective Planning Division, Planning Commission, New Delhi.

4.1.67 The rate of decline in respect of the percentage of SCs living below the poverty line was marginally higher than that of the total population between 1993-94 and 1999-2000. The gap between the total population and the SCs also decreased during the same period in both urban and rural areas. However, the incidence of poverty amongst SCs still continues to be very high with 36.25 per cent in rural areas and 38.47 per cent in urban areas, when compared to 27.09 and 23.62 per cent respectively, in respect of total population in 1999-2000 (Table 4.1.8). This is primarily due to the fact that a large number of SCs who are living below the poverty line are landless with no productive assets and with no access to sustainable employment and minimum wages. The women belonging to these Groups suffer even worse because of the added disadvantage of being denied of equal and minimum wages.

represent 10.6 per cent of the total in the IAS, 12.4 per cent in the IPS and 11.5 per cent in the IFS in 2000 which is still below their expected level (Table 4.1.9). Although, the percentage of SCs in IAS and IPS declined between 1996 and 2000, yet the actual number has increased over the same period.

4.1.70 The rise in the total representation of SCs in Central Government Services covering A to D Groups from 13.66 per cent in 1974 to 16.70 per cent in 1999, is marginally higher than their share in the total population (Table 4.1.10). Although, their representation has shown an increasing trend from 3.25 per cent in 1974 to 11.29 per cent in 1999 in Group A Services, though not the expected level, it does reflect the impact of various affirmative measures taken for bringing them into the mainstream.

Table – 4.1.9
Representation of SCs in the All India Services during 1996 and 2000

Category	IAS		IPS		IFS	
	1996	2000	1996	2000	1996	2000
(1)	(2)	(3)	(4)	(5)	(6)	(7)
Total*	5047	5519	2947	3301	2305	2557
SCs	546 (10.8)	548 (10.6)	381 (12.9)	408 (12.4)	261** (11.3)	295 (11.5)

Note : * Includes SC population

** Derived from Annual Report 2000-01, Ministry of Environment & Forests, GOI, New Delhi.

- Figures within parentheses indicate percentage to total.

Source : 1. Department of Personnel & Training, GOI, New Delhi

2. Ministry of Environment & Forests, GOI, New Delhi

Table – 4.1.10
Representation of SCs in Central Government Services (1974 to 1999)

Category	Groups				Total
	A	B	C	D	
(1)	(2)	(3)	(4)	(5)	(6)
As on 1.1.1974					
Total*	33,672	52,343	15,66,796	12,42,548	28,95,359
SCs	1,094 (3.25)	2,401 (4.59)	1,61,775 (10.33)	2,30,203 (18.53)	3,95,473 (13.66)
As on 1.1.1984					
Total*	-	-	-	-	33,03,342
SCs	-	-	-	-	5,27,573 (15.97)
As on 1.1.1994					
Total*	59,016	1,03,198	23,81,613	10,23,285	35,67,112
SCs	6,046 (10.25)	12,442 (12.06)	3,74,758 (15.73)	2,09,423 (20.47)	6,02,670 (16.90)
As on 1.1.1999					
Total*	93,520	1,04,963	23,96,426	9,49,353	35,44,262
SCs	10,558 (11.29)	13,306 (12.68)	3,78,115 (15.78)	1,89,761 (19.99)	5,91,740 (16.70)

Note : - *Includes SC population

- Data refers to Government of India only

- Figures within parentheses indicate percentage of SCs to the total Central Government Services, excluding Sweepers

Source : Department of Personnel & Training, GOI, New Delhi.

Political

4.1.71 Affirmative discrimination through reservation for SCs in the Lok Sabha, State Legislative Assemblies and in the Panchayati Raj Institutions (PRIs) has established the growing strength of SCs not only in

terms of their participation in the democratic processes of the country since independence, but also their increasing representation in the political decision-making, as shown at Table 4.1.11.

Table - 4.1.11
Representation of SCs in Political Decision-Making Institutions (1995-2001)

Category	Panchayati Raj Institutions (By 2001)				State Leg. Assemblies (By 2000)	Lok Sabha (1999)
	Gram Panchayats	Panchayat Samitis	Zilla Parishads	Total PRIs		
(1)	(2)	(3)	(4)	(5)	(6)	(7)
Total*	25,80,261	1,28,581	13,484	27,22,326	4,072	543
SCs	3,67,941 (14.3)	18,546 (14.4)	1,822 (13.5)	3,88,309 (14.3)	562 (13.8)	79 (14.5)

Note : * Includes SC population.

- Figures within parentheses indicate percentage of SCs to the total

Source : 1. Election Commission, New Delhi
2. Department of Rural Development, GOI, New Delhi.
3. National Informatics Centre, Parliament House, New Delhi.

Table - 4.1.12
Representation of SCs in the Central Council of Ministers (1991 & 1999)

Year	SCs	General	Total
(1)	(2)	(3)	(4)
1991	6 (10.5)	51	57
1999	7 (9.5)	67	74

Note : Figures within parentheses indicate percentage to total.

Source : National Informatics Centre, Parliament House, New Delhi

4.1.72 The representation of SCs in the political decision-making institutions at various levels has been quite impressive, though yet to receive their due share in PRIs, State Legislative Assemblies and Lok Sabha (Tables 4.1.11 and 4.1.12). Further, while in the PRIs, the share of SCs stood at 14.3 per cent in 2001, their share in State Legislative Assemblies was 13.8 per cent in 2000 and 14.5 per cent in the Lok Sabha in 1999. The representation of SCs in the Central Council of Ministers has increased marginally in absolute numbers from 6 to 7 during the period between 1991 and 1999. However, their representation as a percentage to the total has declined from 10.5 per cent to 9.5 per cent over the same period. Of the 7 SCs in the Central Council of Ministers in 1999, 3 are of Cabinet rank and 4 are Ministers of State.

Other Backward Classes

4.1.73 As already explained in the very beginning of this Chapter, no authentic data is available even about the size of the population of OBCs, leave aside on the other aspects of development to assess

their status. However, OBCs by profession, being small cultivators, agricultural labourers, artisans and also being engaged in weaving, fishing, construction work etc. and these occupations being common to SCs and OBCs, the status of OBCs cannot be treated as very much different from that of SCs.

Minorities

4.1.74 Even in the case of Minorities, non-availability of authentic data makes it difficult to assess their socio-economic status. Therefore, one has to depend upon the information generated either by occasional surveys or by various research studies. Based on the data emerging through a survey conducted by the National Council for Applied Economic Research (NCAER), New Delhi in 1994 covering 33,230 rural households in 16 states, Muslims have been identified as backward, both educationally and economically, when compared to the other Minority Groups. The findings of the Survey have been dealt with briefly under the following Section on the 'Persisting Problems' of this Chapter.

However, as the sample of the Survey is so very limited, the findings/conclusions of the Survey cannot be taken as a true reflection of the national profile of the Minorities.

PERSISTING PROBLEMS

4.1.75 Notwithstanding the improvements accomplished in the overall living conditions through various welfare and developmental efforts made so far, the disadvantaged groups continue to remain backward due to certain persisting problems that they have been facing. In fact, these problems which are of considerable complexity and magnitude are standing as major hurdles in empowering these Groups with social justice. The following paragraphs enlist some of those problems which have emerged as critical areas of concern :

Scheduled Castes

4.1.76 Amongst the disadvantaged groups, SCs remain the most backward, as they continue to suffer from various forms of social disabilities as well as economic deprivation, as discussed below:

Educational Backwardness

4.1.77 The educational status of SCs continues to be much lower than that of the rest of society, as figures given earlier show, as they hold very low literacy rates (37.4 per cent for SCs against 52.21 per cent for total population in 1991), enrolment ratios (92.4 per cent for SCs against 94.9 per cent for total population at primary level in 1999-2000) and high drop-out rates (44.27 per cent at primary level, 63.58 per cent at middle level and 76.63 per cent at the secondary level against 39.74 per cent, 56.83 per cent and 67.44 per cent respectively for total population in 1998-99) besides the ever increasing gap between the educational status of SCs and that of the general population. Adding to this are the region/state and caste-wise variations which are quite disturbing as they continue to persist on very unequal terms. Further, the educational status of SC women is also very depressing as it continues to be very low at 23.8 per cent in 1991 when compared to the total female literacy of 39.3 per cent indicating a very wide gap. Owing to their social and economic disability, and inaccessibility to educational facilities, the educational backwardness

of SCs continues to persist as a major handicap in the process of empowering them socially.

Economic Backwardness

4.1.78 Economic conditions of SCs, as already discussed, continue to remain very depressing as 36.3 per cent of SCs in rural areas and 38.5 per cent in urban areas still live below the poverty line, while it was only 27.1 per cent in rural areas and 23.6 per cent in urban areas in respect of total population as per the Poverty Estimates of the Planning Commission in 1999-2000. The reason being SCs still continue to depend upon those very stereo-typed occupations which do not provide any scope or opportunity either for any occupational shift or for upward mobility. Also, the economic backwardness of SCs when compared to others is depressingly obvious as they continue to derive their livelihood from such occupations as could provide neither continuity of work nor minimum subsistence for their survival, including those menial occupations like scavenging, flaying, tanning etc. While the economic scenario of the country has taken striking strides registering change, growth and development, the situation of SCs continued with not much of a change, as reflected in their high poverty rates when compared to the general population, as pointed out in the previous section. Ultimately, unless there is a dramatic change in the economic occupation of SCs, their participation in the other productive sectors of economy will continue to be negligible, implying that the gap between the percentage of SC population and the total population will widen further as they continue to remain in the cycle of deprivation.

Lower Rates of Work Participation

4.1.79 The work participation amongst SCs, as per the 1991 Census, reveals that more than 76 per cent of them are engaged in the primary sector of the economy. Of these, nearly half of them (48.2 per cent) are agricultural labourers and a little more than one-fourth (28.2 per cent) are cultivators. The employment pattern amongst SCs indicates no significant shift during the 1990s. However, there has been a decrease in the number of SC cultivators from 28.17 per cent in 1981 to 25.44 per cent in 1991 and an increase in the percentage of agricultural labourers from 48.22 per cent in 1981

to 49.06 per cent in 1991. It is also likely that some of the SCs who have lost their lands may have also joined the ranks of labourers. Evidently, their hold on agrarian economy has also been declining as the number of cultivators has declined from 38 per cent in 1961 to 25.44 per cent in 1991.

4.1.80 Participation of SC workers in the other upcoming sectors of economy also continues to be negligible, as SCs can neither compete nor sustain in the liberalised market economy, wherein the national/multi-national companies with their cost-effective products are causing a serious threat to the tradition-based economy of SCs. In the absence of backward and forward linkages, SCs are being further marginalised in the new economic regime.

Social Exploitation

4.1.81 Letting certain communities do the job of manual scavenging, especially carrying the night soil as head-loads is no less than any crime that any civilised society can ill-afford to commit. In fact, it was the commitment of the Government to eliminate the practice of manual scavenging totally by the end of the Eighth Plan (1997) and to rehabilitate those liberated scavengers with alternative and viable occupations. This could not be achieved even at the end of the Ninth Plan (2002). Reasons for non-accomplishment of this commitment include tardy progress in the identification of scavengers as well as their rehabilitation; failure to convert the dry latrines into wet; demand for manual scavenging in those areas where the dry latrines still exist; lack of co-ordination between the State Welfare Departments and the Local bodies in respect of conversion of dry latrines; absence of follow-up on the rehabilitated persons etc. So far, out of the total of 6.53 lakh scavengers identified, only 3.84 lakh could be rehabilitated and 1.47 lakh could be trained. Thus, the most inhuman practice of manual scavenging continues to persist as a complex problem of serious concern even today. As a matter of fact, the perpetuation of manual scavenging is also adding to the otherwise existing practice of social segregation and the age-old social evil of untouchability.

Segregation and Deprivation

4.1.82 The SC dwellings, which are located outside the main settlements in rural areas due to

social segregation, continue to be deprived and denied of basic amenities and services. The conditions of SCs living in urban slums are no better as they also lack access to basic minimum services of connecting roads, supply of drinking water, primary health care, sanitation, housing etc. Non-availability of these basic services not only denies these deprived classes the right to lead a minimum standard of living but also has a negative impact on their capabilities, capacity, confidence and efforts to join the mainstream. With the growing population of SCs and the large influx of rural SC population into towns/cities, the problem is getting further compounded through emergence of a large number of SC-concentrated slums in and around the urban cities/urban agglomeration. This, in turn, has given birth to various social problems including resettlement and rehabilitation of migratory SC population.

Crimes and Atrocities

4.1.83 Closely related to the problem of inequalities and low status, are the increasing incidence of crimes and atrocities against SCs. As per the National Crimes Record Bureau (Crime in India – 1999), although the number of crimes against SCs has declined from 27,944 in 1997 to 25,093 in 1999, yet their share of 0.5 per cent in the total incidence of crime in the country remained almost the same in 1999. Some of the major states which had the dubious distinction of higher incidence of crime against SCs include Uttar Pradesh (24.4 per cent); Rajasthan (22.4 per cent); Himachal Pradesh (18.6 per cent); Gujarat (7.1 per cent); Andhra Pradesh (7 per cent) and Tamil Nadu (3.5 per cent). Further, the number of crimes committed under the Special Laws of PCR Act of 1955 and the Prevention of Atrocities Act of 1989, enforced exclusively for SCs and STs, has also shown a declining trend by coming down from 9,286 in 1997 to 7,979 in 1999, but continues to be very high.

4.1.84 Further, of the total crimes of 25,093 registered in 1999, the number of cases registered under the two Special Legislations account for 7,979 (31.8 per cent) having the biggest share and followed by the cases of hurt 3,241 (12.92 per cent); rape numbering 1,000 (3.98 per cent); murder 506 (2.02 per cent); arson 337 (1.34 per cent); kidnap and abduction 228 (0.9 per cent); robbery 109 (0.4

per cent); dacoity 36 (0.1 per cent) and others 11,657 (46.46 per cent) etc. To this effect, the National Commission for Scheduled Castes and Scheduled Tribes has also been documenting in their Annual Reports about several recurring pathologies, such as delays in reporting, refusal to register complaints, half-hearted investigations, poor quality of prosecution, protracted pendency, procedural delays of the Courts etc. Offences committed against the SCs not only reinforce the problem of tyranny and fear psychosis in them, but also further weakens their struggle and aspirations to achieve better quality of life.

Other Backward Classes

4.1.85 As mentioned earlier, no authentic data either on the size of OBC population or on their socio-economic status is available, except for the fact that OBCs constitute a majority of poor and backward population which produces a variety of goods and provides a variety of services, but on terms and conditions unfair to them.

4.1.86 Although OBCs do not suffer from the social disability and economic deprivation of the kind SCs are subjected to, their social and economic backwardness is of nearly similar nature. While they account for major human resource with both skilled and unskilled workforce with artisanship and traditional activities like fishing, carpentry, tailoring, black-smithy, pottery, stone quarrying, they also form the major force of peasantry being engaged in agriculture and its allied activities. Thus, OBCs traditionally and otherwise form the main workforce in almost all the productive and service sectors. But, their socio-economic backwardness is such that it not only incapacitates them to enhance their production and productive capabilities in qualitative and quantitative terms, but also restricts their economic betterment.

Lack of advanced skills and technology

4.1.87 The traditional artisan communities ensuring their livelihood through hereditary occupations have already received a major setback as a result of modernisation and industrialisation. As a large number of OBC artisans engaged in manufacturing sector still continue to depend upon

the traditional methods and techniques that are outdated, they fail to manufacture qualitative products to withstand the challenges posed by the multinationals who through their advanced technology have made inroads into the Indian markets in a big way. Being educationally backward, technically not up-to-date and also lacking in economic capability to improve the quality of goods and artifacts, the dependent artisan families are placed in a very disadvantaged position and thus getting marginalized in the open market.

Minorities

4.1.88 Just as in the case of OBCs, lack of data on Minorities and their constituents, makes it difficult to make an assessment of their socio-economic status. However, as mentioned in the previous section, the study of NCAER indicates that the Muslims who constitute about 70 per cent of the Minority population live in relative socio-economic backwardness. The problems that are typical and specific to Minorities are discussed in the following paragraphs:

Educational Backwardness

4.1.89 Minorities, especially those belonging to the economically weaker sections viz., the Muslims, continue to lag behind when compared to the rest of the population. Non-adoption of modern syllabus in the traditional Madaras not only makes them lag behind the others educationally, but also causes impediments in the process of mainstreaming them. Further, the students from Madaras are unable to take advantage of the up-coming employment opportunities, as they mismatch the qualifying educational requirements.

Women - The Weakest Link

4.1.90 Educationally, women and the girl children of the backward minority communities, especially amongst the Muslims, continue to remain as the weakest link because of the economic inability of the family to support education of women and the girl child due to the inherent social/cultural gender discrimination. The impact of poor educational status, especially as reflected in the high illiteracy rates, ignorance, poor health, large-size families and

high fertility rates, has pushed them further down into a vicious cycle of poverty.

Wide Economic Gaps

4.1.91 The economic status of Muslims when compared to the other Minority Groups presents a depressing scenario. As per the NCAER study (1994), Muslims lag behind when compared to the other Minority Groups in terms of both household and per capita income with a wide gap between Muslims and other Minority Groups. The gap in the per capita income is as wide as Rs. 2,242/- between the Christians holding the highest of Rs. 5,920/- and the Muslims with the lowest of Rs. 3,678/-. While the Muslims are largely engaged as artisans in small production units, mainly at the household level, they lack advanced skills, technical know-how, entrepreneurship, credit and marketing facilities to improve their products qualitatively and optimise their marketability. Like any other traditional artisans, they also get marginalised and fall victim to the onslaughts of the upcoming economic liberalization and invasions of the multinational companies in the consumer market. As referred to earlier, industrialization and modernization has already had the most devastating effect on the economy of the artisans while the opening of the new market economy and liberalization has further compounded their woes and led them to complete pauperisation. Even the one-time flourishing handicrafts and handloom activities, wherein the participation of women workers was prominent and now remains under a serious threat. Also, the steady decline in the prospects of the artisanship-based vocations has been causing increase in the unemployment rates amongst the Minorities.

APPROACH TO THE TENTH PLAN – PATH AHEAD

4.1.92 The long-drawn process of empowering the socially and economically Disadvantaged Groups launched during the Ninth Plan has, no doubt, enabled them to develop their capacities and capabilities to be the active partners and partakers of the country's development, rather than continuing as passive recipients of various developmental benefits. Therefore, the very process of empowering these Disadvantaged Groups, viz. SCs, OBCs and Minorities will continue as the major approach in the

Tenth Plan and beyond till the Constitutional commitment of raising their status to that of the rest of the society is fulfilled.

4.1.93 The first step in this direction will be to initiate action with a holistic approach to alter the harsh conditions in which these Groups live and work so as to accomplish all round development of these weaker sections with an effective inter-sectoral co-ordination inputs from both the governmental and non-governmental organisations. Improvement in the socio-economic conditions of these vulnerable groups will be made possible only by removing the disparities and eliminating exploitation and suppression. To this effect, due weightage and priority will be given to programmes catering to educational and economic development by taking into consideration the varying status of each target group viz. SCs, OBCs and Minorities. Also, every effort will be made to reach the developmental benefits to all the needy persons belonging to these Groups and thus ensure equitable distribution and growth with social justice.

4.1.94 In these efforts, the major focus will be to accomplish the task of providing basic needs to one and all as an essential measure for realizing empowerment amongst these weaker sections. Accordingly, the fulfilment of basic needs viz. food and nutrition, safe drinking water, primary health care, primary education, shelter, sanitation, good environment etc. becomes a priority. To this effect, special attention will, therefore, be paid to attend to the problems of resettlement and rehabilitation of the large influx of rural population belonging to the Socially Disadvantaged Groups congregating into urban slums. Efforts will, therefore, be made through the on-going programme of Pradhan Mantri Gramodaya Yojana to ensure that the above said basic minimum services reach every habitation with concentration of these groups.

4.1.95 Further, while formulating/implementing programmes for these Groups, the Tenth Plan will strive to ensure 'People-Centred Development' and 'People's Participation' with effective involvement of PRIs in pursuance of the 73rd and 74th Constitutional Amendments. Immediate steps will also be taken for the devolution of financial as well as administrative powers to PRIs and Local Bodies so that these marginalised groups will get

APPROACH TO THE TENTH PLAN (2002-07)

The Approach

To continue the process of Empowering the Socially Disadvantaged Groups viz. SCs, OBCs and Minorities which would help develop their capacities and to become active partners and partakers of country's development and thus raise their status to that of the rest of the society

Major Strategies

To adopt a **3-pronged strategy** of empowering the Socially Disadvantaged Groups through:

- **Social Empowerment:** through the removal of all the still existing inequalities, disparities and other persisting problems besides providing easy access to basic minimum services;
- **Economic Empowerment:** through employment-cum-income generation activities with an ultimate objective of making them economically independent and self-reliant; and
- **Social Justice:** through elimination of all types of discrimination against the Socially Disadvantaged Groups with the strength of Constitutional commitments, legislative support, affirmative action, awareness generation, conscientisation of target groups and change in the mind-set of people

opportunity to participate in the formulation of the need-based programmes, as well as in their effective implementation, supervision and monitoring. This will not only go a long way in empowering these Groups, but will also ensure that implementation of various developmental programmes is taken care of in the true sense of decentralised planning.

4.1.96 While SCs, OBCs and Minorities, in general, occupy a lower status in the society, their women and children, especially the girl child

represent the weakest link. Though there has been a perceptible improvement in the overall situation of these women, yet the development indicators that reflect their status imply that they are the most deprived and discriminated, when compared to their counterpart women belonging to other communities. While taking note of their plight, the Tenth Plan proposes to adopt a comprehensive strategy towards ensuring their protection, welfare, development and empowerment through extending special educational, health, nutrition, employment, legal and other services. (For further details, refer to the Chapters on 'Women and Children' and 'Other Special Groups'). The nodal Ministry of Social Justice & Empowerment, in collaboration with the Department of Women and Child Development, will ensure that SC women receive their rightful share, both funds and benefits, from all the other developmental sectors under the Women's Component Plan.

4.1.97 While the above paragraphs outline the general approach towards empowering the Socially Disadvantaged Groups during the Tenth Plan, details of the Group-wise strategy in achieving the much wanted – 'Social Empowerment' through removal of the still existing inequalities, disparities and other persisting problems; 'Economic Empowerment' through various employment-cum-income generation activities with an ultimate objective of making them economically independent and self-reliant; and 'Social Justice' through elimination of all types of discrimination against these Groups with the strength and support of legislative measures, awareness generation and change in the mind-set of the people, are discussed below:

I. Social Empowerment

Scheduled Castes

4.1.98 Education being the best means not only to empower the disadvantaged, but also to provide the essential base for all developmental pursuits, the Tenth Plan will work out special effective interventions to 'reach the un-reached' and thus fill the existing gaps between the SCs and the general population, with a focus on SC women and the girl children. All the efforts in this direction will, therefore, take into consideration the scenario that has emerged i.e. on the one

hand, there exists a definite improvement in the literacy rates of SCs and on the other, there persists a gap between the literacy rates of SCs and the general population, even till today.

4.1.99 Further, the Tenth Plan will endeavour to improve the educational status of SCs on a time-bound basis, in close collaboration with the Department of Elementary Education, as part of the

SOCIAL EMPOWERMENT

Create an enabling environment for the welfare and development of the Socially Disadvantaged Groups by removing the still existing inequalities, disparities and other persisting problems besides providing easy and equal access to basic minimum services through -

- Education being the most effective instrument of empowering the Socially Disadvantaged Groups, all-out efforts will be made to improve the educational status of these Groups, especially of Women and the Girl Child
- Universalisation of primary education by 2007 and at elementary stage by 2010 with a special focus on low literacy pockets, and educationally backward communities viz. SCs, OBCs, Minorities and women with a special focus on the girl child
- Improving enrolment/retention rates of these Groups in schools and thus reduce school drop-out rates through special incentives/support services like hostels, financial assistance, scholarships, free books, uniforms etc and thus improve the educational status of these Groups, especially that of their women and girl children
- Priority to the educational development of the Minorities, especially Muslims, with special focus on women and girl children besides modernising and mainstreaming traditional educational systems/institutions viz. Madaras by adopting regular education syllabi
- Vocational training/education to improve the technical and productive capabilities of these Groups, suiting local needs and market demands
- Expanding/strengthening national health programmes such as control of Blindness and Tuberculosis, Eradication of Leprosy etc. in the SC/OBC/Minority concentrated areas
- Supplementing primary health care services through the Pradhan Mantri Gramodaya Yojana (PMGY) so as to fill the critical gaps, both in the infrastructure and services in the SC/OBC/Minority concentrated areas
- Extending ICDS and RCH to take care of the expectant and nursing mothers and children with a major objective of reducing the existing high Infant/Child and Maternal Mortality Rates amongst these Groups. Also, help stabilise the population of these Groups
- 'Reaching the Un-reached' viz. SC/OBC/Minority groups, those living in the most backward and neglected areas, in general and their women and the girl children, in particular through the Universalised/Expanded programmes of ICDS, RCH, Supplementary Nutrition Programme, Mid-Day Meals, PMGY, NNM etc.
- Encouraging the participation of the Socially Disadvantaged Groups in the planning and developmental processes at every level through ensuring their adequate representation in various democratic decision making Institutions like Panchayati Raj / Local Bodies, State Assemblies/ Parliament etc.

total commitment of making the country fully literate by the year 2007. The Tenth Plan will make special efforts to fulfil this commitment through universalisation of elementary education with a special focus on low-literacy pockets and on the educationally backward SCs, whose literacy rates are very low compared to the rest of the population. The on-going programmes of the Department of Elementary Education viz. Sarva Shiksha Abhiyan, DPEP, Shiksha Karmi, NFE, Mid-Day Meals etc. are going to play a major role in this endeavour.

4.1.100 In fact, the recent directive of the Supreme Court to treat education as a fundamental right imposes an ultimatum on the Tenth Plan to act rigorously to improve the educational status of SCs and thus accomplish social empowerment. The first step in this direction will be to arrest the problem of school drop-outs, and improve enrolment/retention rates by ensuring easy access; and provision of adequate support facilities like hostels, crèches and special incentives to poor students like scholarships, free books, free uniforms, transport charges, besides compensation to families etc. In this context, the earlier initiatives of starting crèches/Anganwadis within the school campus or near to the school will be revived to ensure that the girl children are not deprived of education, while substituting for their mothers when the latter go out to work. To this effect, the scheme of Balika Samridhi Yojana, an exclusive programme for girl children living below the poverty line and the much wanted nutritional support through the popular scheme of Mid-Day Meals will be expanded/universalised to improve both enrolment/retention rates.

4.1.101 Further, steps will also be taken to ensure provision of quality education to equip the educationally backward SCs to enhance their employment prospects with competitive ability and thus mitigate the problems of their marginalisation and deprivation in the employment market. Along with the general education, efforts will also be made to vocationalise education both at the middle and high school levels to enable SC students to enhance their technical and productive capabilities in those vocations that have a direct bearing/relevance to their local needs and market demands. To this effect, job-oriented condensed courses of education and training will be given priority. In all these efforts,

the ultimate objective will be to fulfil the Tenth Plan commitment of minimising the gap between the educational status of SCs and that of the general population.

Other Backward Classes

4.1.102 The new interventions launched during the Ninth Plan for improving the educational status of OBCs, viz. scholarships for both post-matric and pre-matric students and hostels for OBC students, will continue with much larger coverage to enlarge the accessibility to the otherwise educationally backward OBCs. The special programmes of National Literacy Mission and Shiksha Karmi run by the Department of Elementary Education will also take care of the needs and interests of OBCs by extending a special focus as well as the coverage. Steps will also be taken not only to bring about qualitative improvement in the education for OBCs, but will also be enriched through adding vocational education/training which is of great functional utility/value and thus prevent educational wastage. To this effect, the Tenth Plan will make special efforts to expand the on-going schemes and thus extend easy accessibility to OBC students through the existing network of the Ministry of Labour viz. National Vocational Training Institute, Regional Vocational Training Institutes, Industrial Training Institutes and Craft Training Centres spread all over the country. The Tenth Plan will extend priority attention to OBC women and girl children in all the on-going educational and training programmes.

Minorities

4.1.103 Minorities who constitute a sizeable and potential population to contribute to the country's development process will be given prominence and priority in the Tenth Plan through a comprehensive approach towards their educational development, and economic prosperity by maximizing their productive potentialities in various sectors with a special focus on their traditional artisanship. As the crucial drawback in the development of Minorities, especially Muslims, primarily lies in their educational backwardness, exclusive efforts in the Tenth Plan will be made to promote educational development of Muslims, especially of their women and girl children by modernising and mainstreaming their traditional education system and institutions

viz. Madarsas, through adopting syllabi being followed in the regular education system.

4.1.104 To inculcate a sense of security and prevent marginalisation and isolation of Minorities, both protective and promotional measures as per the Constitutional provisions in favour of Minorities, will be taken in educational, economic and legislative spheres. To accomplish their socio-economic upliftment and mainstreaming, steps will be taken to generate responsive awareness amongst the civil society and thus create an enabling/conducive atmosphere for the

advancement of the Minorities. To this effect, involvement of the Minorities, especially their women, in the grassroot level institutions will be encouraged as the best means towards empowering them. Special attention will also be paid to the backward Minority concentrated pockets/ areas in providing basic amenities/services viz. primary education, health, nutrition, safe drinking water, sanitation etc. The Tenth Plan will also ensure effective implementation of the 15-Point Programme which is a comprehensive package of both protective and developmental measures towards improving the status of Minorities.

ECONOMIC EMPOWERMENT

To empower the Socially Disadvantaged Groups economically through promotion of employment-cum-income generation activities with an ultimate objective of making them economically independent and self-reliant through -

- Optimising the traditional ability of SCs/OBCs in agricultural production and maximize their productive capacity through endowing a piece of land, upgradation of skills, modern technology, equipment and ensured irrigation facilities
- Special legislative measures to ensure payment of minimum wages and equal wages with no gender discrimination to the SCs, especially in the informal sector
- Expanding and reinvigorating the on-going poverty alleviation programmes to improve qualitatively the economic conditions of SCs/OBCs/Minorities, through specifically designed activities in the programmes best suited to their skills and requirements
- Motivate the landless and agricultural labourers, especially women to form economically viable Self-Help Groups on the pattern of Swarozgaris to ensure employment and income-generation, on a sustainable basis
- To re-orient the employment opportunities for the disadvantaged to enable them to face the challenges of economic reforms and expanding private sector through equipping them suitably with the technical skills and emerging trades
- Encourage development of small entrepreneurship through formation of Self-Help Groups and with the support of both 'forward' and 'backward' linkages of credit and markets through the corporations, exclusively set up for these Groups
- Modernization of technologies and upgradation of skills in traditional arts and crafts sectors such as handlooms, handicrafts, lace making, glass work, metal work etc. and thus ensure value addition to the products to compete with the quality of the products of modern markets
- To review the working of all the 4 National Finance and Development Corporations for SCs, OBCs, Minorities and Safai Karamcharis and bring forth the most wanted reforms, to play an effective catalytic role in assisting the weakest amongst the disadvantaged to become economically self-reliant
- Definite earmarking of population-proportionate funds under SCP besides effective utilization of funds released under both SCP and SCA to SCP to better the economic status of SCs
- To motivate the private and corporate sectors to invest on the welfare and development of weaker sections and thus fulfill their social obligations/ responsibilities

II. Economic Empowerment

Scheduled Castes

4.1.105 Towards the economic upliftment of SCs, the Tenth Plan will prioritise those activities that ensure employment and income generation which can provide them sustainable income to meet their basic needs. Recognising their traditional ability and skills in the agriculture production, efforts will be made not only to endow every landless SC family with a minimum piece of land with ownership rights but also to maximise their productive capacities through upgradation of their skills, modernisation of methods and equipment and supply of seeds and pesticides etc. Also, the State Departments will be persuaded to ensure that irrigation facilities are extended to the small land holdings of SC farmers, collectively so as to reduce the relative costs. Special legislative measures will also be taken to ensure payment of minimum wages and equal wages for women, with no gender discrimination, especially in the informal/un-organised sector.

4.1.106 The on-going efforts made for uplifting SCs above the poverty line will be further intensified/expanded, with an ultimate objective of enhancing their income levels at a higher pace so that they could be brought above the poverty line on a priority basis. To this effect, all the poverty alleviation programmes would be reinvigorated and expanded to make a better impact on the economic conditions of SCs leading to qualitative betterment in their overall living conditions. Thus, the strategy in the Tenth Plan will be to implement the on-going nation-wide poverty alleviation programmes, with enriched components, best suited to the specific needs and poverty situation of the SCs. This will include organising landless and agricultural labourers to constitute the largest occupational segments amongst SCs on the pattern of swarozgaris of the SGSY with special focus on women.

4.1.107 In the changing economic scenario wherein the private sector is being consciously promoted to take up all production and commercial activities and the role of government sector is getting restricted to core activities, the Tenth Plan will endeavour to reorient SCs to face the challenges arising out of the inevitable economic reforms.

Further, as the services sector today represents the fastest growing sector of the economy whose contribution is going to increase manifold in providing new employment opportunities in the coming years, the strategy to be adopted for empowering SCs will be in consonance with this changing phenomenon.

4.1.108 With the globalisation and liberalisation of economy, new opportunities and avenues, both at the national and international levels, are being opened up substantially. The Tenth Plan will, therefore, endeavour to, in collaboration with the concerned Ministries/Departments, equip SCs with technical knowledge and ability to cope with the upcoming trades and trends in the employment market. Interventions with appropriate training, technology, capacity-building, development of entrepreneurship, either individually or collectively through formation of Co-operatives/Self-Help Groups (SHGs) along with both 'forward and backward' linkages will be made to produce quality goods, as per the demand, and thus exploit the market to the extent possible. To this end, the Tenth Plan will initiate action to tie up with the concerned Ministries dealing with agriculture, fisheries, dairying, animal husbandry, handlooms and handicrafts to open up avenues for exports.

4.1.109 The exclusive Financial Institution working for the economic empowerment of SCs viz. the NSFDC and State-level Corporations, will be geared to function as catalytic agents for accomplishing economic development of respective weaker sections by making them self-reliant and self-sustaining mechanisms. For this purpose, the functioning of this Apex Corporation will be reviewed and necessary reforms be brought into with the strength of professional expertise in marketing and business management to ensure that this exclusive Corporation proves its worth as an effective financial institution in improving the economic status of SCs.

4.1.110 Simultaneous efforts will also be made to ensure effective earmarking and utilisation of funds under the special strategy of SCP, both at the central and state levels, besides the funds released under SCA to SCP to ensure optimum benefit to improve the economic status of SCs through family-oriented income-generation activities. Special efforts will also be made by both Central and State Standing Tripartite Committees (CSSTC) to impress upon

those Ministries/Departments, which are not earmarking funds, under SCP in the name of non-divisibility of the programmes of their Ministries/Departments to do the needful. While the nodal Ministry of Social Justice & Empowerment will keep a close vigil on the utilisation of these special funds, the on-going reviews at the Centre both by the CSSTC and the National Commission for SCs and STs will continue on a regular basis to assess how effective are these instruments in supplementing/complementing the efforts of the nodal Ministry in empowering these disadvantaged groups economically.

Other Backward Classes

4.1.111 Recognising the productive potential of the OBCs who form the major workforce, the strategy for the development of OBCs in the Tenth Plan will be to optimise their productive and technical abilities, so that they can develop the formidable human resource of the country. Thus, efforts will be made for the socio-economic development of OBCs, as a strategic input for building up human resources of the country.

4.1.112 As OBCs engaged in the primary sector also depend upon a broad spectrum of occupations/artisanship and provide a variety of services/products for consumption of the society, efforts of the Tenth Plan will be to encourage those productive sectors that the OBCs are engaged in, especially by extending necessary support including skill up-gradation, capacity building, training, market linkages, credit support etc. so as to accomplish betterment in their economic status. Also, as a majority of OBCs depend upon agriculture, OBC farmers will be encouraged and supported to adopt innovative land-based activities viz., the cultivation of medicinal plants, horticulture, commercial crops etc. with a major objective to bring them above the level of their subsistence economy and rescue them from the risks and uncertainties involved in agricultural practices.

4.1.113 Some of the OBC communities, especially those living in rural areas, depend upon the traditional occupations/artisanship viz. fishing, stone crushing, tailoring, weaving, scavenging, carpentry, pottery, blacksmithy, etc. and are languishing in the

worst forms of social and economic backwardness. Efforts in the Tenth Plan will, therefore, be to encourage occupational mobility for those OBCs, especially the youth, who intend to discontinue their traditional occupations, by providing facilities for appropriate educational and vocational training in modern and up-coming technologies, supplemented with financial and other assistance to enable them to enter successfully into new avenues.

4.1.114 As the New Economic Policy has opened up vast markets abroad for Indian exports, especially in the field of software industry and other Service Sector Enterprises leading to an explosion in job and business opportunities, the Tenth Plan will concentrate on intensifying various training programmes through careful planning to equip these disadvantaged categories to enable them to capitalise on the emerging employment opportunities. In addition, efforts will also be made within the country to open up opportunities for small entrepreneurial ventures to increase the reach of the weaker sections.

4.1.115 Towards ensuring economic development of OBCs involved in the traditional occupations, the Tenth Plan will have a special commitment of ensuring their capacity building through skill up-gradation, training and entrepreneurial development programmes. The strategy of the Tenth Plan will, therefore, be to help/encourage the artisans belonging to these weaker sections to trigger both horizontal and vertical mobility in their occupations. Further, a gradual infusion of technology will be planned for, especially in the handlooms and handicrafts sectors, so that the value is added to the goods produced for effective marketing, both in the national and international markets. In these efforts, NBCFDC is going to play a very major role in tying up both backward and forward linkages of credit and marketing.

Minorities

4.1.116 As a sizeable population of the Minority communities is engaged in the traditional arts and crafts like handlooms, handicrafts, chikan work, zari work, lace making, glass work, metal works etc. and continue to depend upon these low-paid traditional artisanship for their livelihood, the Tenth Plan will

give priority to modernize the technologies especially in the much needed handloom sector to add value to their produce by extending appropriate support in terms of vocational training in the up-coming technologies, skill upgradation, credit facilities etc. Special efforts will also be made to encourage export-oriented handicrafts in view of their increasing demand outside the country. NMDFC will be encouraged to extend financial and other technical support like provision of machinery, expertise, training, market linkages etc. Efforts will also be made to provide technical and vocational education/training facilities to the Minority artisans and craftsmen focusing on their women and girl children engaged in such pursuits. Also, to preserve their traditional skills, they will be encouraged to form into SHGs/Co-operatives for which financial assistance will be extended along with credit and marketing services.

4.1.117 The on-going economic reforms of globalisation, liberalization and privatisation, resulting in the emergence of new opportunities at the national and international levels will be exploited for the economic benefit of the Minorities. Towards this end, modernisation of traditional education, imparting of vocational and technical education, introduction of appropriate technology, and development of entrepreneurship along with necessary financial support will be adopted as one of the key strategies for their economic development during the Tenth Plan. Effective implementation of the existing schemes and programmes for the welfare and development of Minorities and for integrating them into the national mainstream, both economically and socially will be given priority attention in the Tenth Plan. NMDFC will be encouraged to promote self-employment activities amongst the various minority groups and to provide upgraded/ entrepreneurial technical skills, especially focusing on their women, traditional artisans and other occupational groups.

III. Social Justice

4.1.118 A conscious shift in the name and role of the nodal Ministry from 'Welfare' to 'Social Justice and Empowerment' in 1998 is not only to re-affirm the governmental commitment of ensuring social justice, but also to extend a focused attention to these Groups.

4.1.119 Affirmative action and legislative measures being the most powerful instruments to ensure social justice to the Disadvantaged Groups, the Government renews its earlier commitment of instituting a 'National Charter for Social Justice' based on the principles of social harmony with social and gender justice and necessary legal measures to protect their interests. To this effect, implementation of the reservation policy both in the educational institutions and services for SCs, and in services for OBCs will be strictly adhered to by filling up all the reserved posts promptly. Arrangements will also be made simultaneously for quick judicial disposals of complaints and grievances in matters related thereof.

4.1.120 As the most inhuman practice of carrying the night soil manually continues to be a matter of national concern, the Tenth Plan will embark upon a nation-wide programme for total eradication of manual scavenging on a time-bound basis by 2007. To this effect, the Tenth Plan will emphasise preparation of State-specific Plans of Action to initiate time-bound programmes in respect of - conversion of dry latrines into wet ones; identification of scavengers; wean them away from this profession; and rehabilitate them with training and alternative jobs; keep a follow-up of the rehabilitated persons; and bring forth an effective co-ordination between the Welfare Departments of the States and the Local Bodies. In these national endeavours, the National Commission for Safai Karamcharis is going to play a lead role.

4.1.121 Taking note of the urgent need for upholding the Civil Rights on the one hand and preventing/curbing the persistent problems of social discrimination, exploitation, untouchability, and atrocities against these disadvantaged groups, on the other, the Tenth Plan will initiate collaborative efforts with all the concerned for effective implementation of the Indian Penal Code, 1860 and the other two Special Legislations viz. the PCR Act, 1955 and the SC & ST (Prevention of Atrocities) Act, 1989. To this effect, efforts will also be made to prepare state /district-specific Programmes of Action ensuring preventive, investigative and rehabilitative measures in those districts/areas where the incidence of crime/

atrocities/violence against these weaker sections is high. Measures will also be undertaken to ensure that adequate number of Special/ Mobile

Courts are set up with adequate staff in each district to provide both speedy and on-the-spot settlement/redressal of grievances.

SOCIAL JUSTICE

To eliminate all types of discrimination against the Socially Disadvantaged Groups with the strength of legislative support, affirmative action, awareness generation/conscientisation of the target groups, and change in the mind-set of the people through -

- Renewed commitment to institute a 'National Charter for Social Justice' based on the principle of social harmony with social and gender justice and necessary legal measures to protect the interests of SCs, OBCs and Minorities
- Strict implementation of reservation policy in education and services for SCs and in services for OBCs
- Total eradication of the most inhuman practice of manual scavenging continuing still in the present day civilised world on a time-bound basis and with a Mission Mode Approach by 2007, by conversion of dry latrines into wet and weaning away the manual scavengers from this profession and rehabilitate them with alternative attractive and sustainable jobs
- To uphold Civil Rights and prevent/curb social discrimination, exploitation, untouchability and atrocities against the disadvantaged groups through the collaborative efforts for effective implementation of IPC, 1860 and other special legislations viz. PCR Act, 1955 and SC and ST (POA), 1989
- To prepare state/district - specific Programmes of Action (POA) ensuring preventive, investigative and rehabilitative measures in those areas/districts where incidence of crime/atrocities against the disadvantaged sections is high
- To set up adequate number of Special/ Mobile Courts in each District for speedy settlement/redressal of grievances for these groups and extend timely and adequate financial support as a measure of social justice to compensate/rehabilitate the victims
- To develop a community-based defence mechanism by empowering the institutions of local governance and NGOs
- Effective implementation and monitoring of the 20-Point Programme (Point 11.A) for ensuring Social Justice to SCs and the 15-Point Programme for protection and development of Minorities
- Revitalising the already existing 4 Statutory Commissions viz. for SCs and STs, for OBCs, for Minorities, and for Safai Karamcharis and thus make them effective instruments to safeguard the rights and interests of these Groups and thus ensure social justice to them
- Special 3-pronged strategy of '**Awareness Generation**' - through changing the mind-set and attitudes of the people towards these Groups; '**Conscientisation of the Target Groups**'- to make them conscious of their own rights, privileges and governmental support available for them; '**Sensitizing both officials and non-officials**' - with special training programmes so that they can work with right perspective to meet the special needs of these Groups

4.1.122 Further, the problem relating to the practice of untouchability which is still in vogue in certain pockets will be addressed squarely towards total elimination of the same from the face of the society. As an important measure of social justice, special efforts will be made to extend timely and adequate financial support, as per the provisions, to compensate/rehabilitate the victims. Simultaneously, efforts will also be made to develop a community-based defence mechanism by empowering the institutions of local governance and NGOs. As part of these, a few selected local NGOs will also be identified to help assist the victims besides acting as the authorised informants to the Enforcement Authorities.

4.1.123 Simultaneously, the Tenth Plan will also endeavour to reinforce the implementation of both the mechanisms viz. SCP for SCs and SCA to SCP which was launched specially in support of social justice to ensure that adequate funds flow for the development of SCs through various sources. While SCP ensures that additional funds, in proportion to the population of SCs, are earmarked for implementation of various programmes for their development, the SCA to SCP extends additional funds to fill the critical gaps in the family-based income-generation activities being implemented under State SCP. Taking note of the fact that the implementation of these mechanisms is becoming routinised, the Tenth Plan will activate all the concerned, especially the Central Tripartite Committee as well as the nodal Ministry of Social Justice & Empowerment and the State Planning and Welfare Departments to keep continuous monitoring towards more effective implementation of these two mechanisms. In this context, the State Governments which are yet to set up State Tripartite Committees will be involved to initiate necessary action for setting up of these Committees and start the detailed reviews with regard to earmarking of funds under SCP and the utilization of SCA to SCP. Also, the Tenth Plan will take special measures to ensure effective implementation and monitoring of the other two Special Mechanisms viz. the '20-Point Programme' (Point 11-A) for ensuring Social Justice to SCs and the '15-Point Programme' for protection and development of Minorities. Thus, the Tenth Plan will ensure that these special mechanisms justify the purpose for which they were launched by keeping a special vigil on the effectiveness of their implementation.

4.1.124 Further, the Tenth Plan will invoke all the four statutory Commissions viz. National Commission for SCs and STs (1992), National Commission for OBCs (1993), National Commission for Minorities (1992) and National Commission for Safai Karamcharis (1994) to make a detailed review of their work since their inception and revitalise themselves to be able to play their role as Custodians and Public Defenders and thus, ensure Social Justice to the deprived lot.

4.1.125 Special efforts will be made to put into action simultaneously the three-pronged strategy of 'Awareness Generation, Conscientisation and Sensitisation', towards achieving a holistic impact. The first being awareness generation, efforts will be made to change the mind-set and the attitudes of the people towards these Groups as the same is very crucial in creating an enabling environment for empowering them. To this effect, awareness generation programmes/special campaigns will be taken up on a continuing basis all over the country, especially in rural areas by involving effectively both the governmental and the non-governmental organisations and the media towards erasing the long-standing social biases/stigmas like untouchability and thus create the feeling of all being equal. The second being conscientisation of the target groups, simultaneous efforts will be made to make the target groups conscious of their own rights, privileges and the governmental support available for them besides making them realise their own potentials to be self-confident and self-reliant. The third being sensitising both officials and non-officials, special training programmes, both pre-service and in-service, will be undertaken from time to time to sensitise all those working for these Groups so that they can work with right perspectives in handling/meeting the special needs and problems of these marginalised groups and thus ensure social justice. To encourage/reward those officials and non-officials, who are working for the good of these deprived lot by living in the most backward areas, efforts will be made to impress upon the State Governments the urgent need to revive the earlier practice of extending incentives, both in kind and cash.

RESEARCH, EVALUATION AND MONITORING

4.1.126 In the sphere of research and evaluation, the Tenth Plan will re-orient the on-going efforts of

the diagnostic and evaluative studies in response to the existing as well as emerging problems and fill the gaps related to the Socially Disadvantaged Groups. Increased financial support will be extended to conduct research studies on crucial problems related to SCs, OBCs and Minorities. Evaluation studies of the on-going programmes will also be given adequate weightage, as their findings will be of immense value for mid-term corrections.

4.1.127 As paucity of much needed authentic data on OBCs and Minorities is causing constraints to formulate and administer realistic and need based developmental planning, efforts will be made to direct research activities not only to generate a data base reflecting their varied socio-economic situations, but also to provide specific inputs/suggestions to trigger their potentials to accomplish socio-economic development. Further, priority will be accorded only to such research and evaluation projects that are action oriented, keeping in view the policies and programmes requiring governmental intervention.

4.1.128 In the sphere of monitoring, the Tenth Plan will develop effective monitoring and information systems, both at the centre and state levels, with adequate manpower by streamlining and strengthening the existing monitoring mechanisms. Efforts will also be made to link up the central and the state information systems through the existing Network of the National Informatics Centre (NICNET) and the District Planning Programme of NIC (DISNIC) systems facilitating smooth flow of information for effective monitoring. The system thus developed will take care of the much-needed monitoring of earmarking/utilisation of funds under SCP and SCA to SCP, besides monitoring of other important programmes. The Standing Tripartite Committees set up both at the central and state levels and also the National Commission for SCs and STs will continue to review/monitor the progress of the implementation of earmarking of funds for SCs besides utilisation of SCA to SCP.

IMPLEMENTING MECHANISMS

4.1.129 While developmental programmes implemented over a period of 50 years, reflect the progress made in improving the living conditions of these disadvantaged groups, they also bring out the

obstacles, lacunae and impediments inherent in the system being responsible for not achieving the expected results. Thus, there is a growing demand to strengthen and streamline the institutional mechanisms at various levels to function with an exclusive mandate for according undivided attention to the welfare and development of each of the Socially Disadvantaged Groups.

4.1.130 In this context, the supporting institutional structures of the Ministry of Social Justice & Empowerment, such as the National Commissions for SCs, OBCs, Minorities and Safai Karamacharis, will be invoked to probe into and take necessary action to ensure that not only the interest of the concerned weaker sections are protected but also to maximise their role of a watch-dog especially on effective implementation of various welfare and developmental programmes of the Government. Similarly, functioning of the support Financial Institutions, viz. NSFDC, NSKDC, NBCFDC and NMDFC working for the economic upliftment of these weaker sections will be streamlined/optimised by bringing forth necessary modifications/revisions in their modus operandi and thus ensure that they not only perform their due role of being viable and sustainable financial institutions, but also accomplish the task of providing all the necessary inputs to the target groups to achieve their economic upliftment through employment and income generating activities. In this context, the need for re-establishing an independent Division in the Planning Commission to deal exclusively with the welfare and development of SCs, OBCs and Minorities comes up very strongly as an Action Point towards ensuring social justice and empowerment of these disadvantaged groups.

VOLUNTARY ORGANISATIONS

4.1.131 Voluntary Organisations working for the welfare and development of the Socially Disadvantaged Groups have already established their credentials as effective agents of social change and development by virtue of their direct contacts/linkages with the target groups in the implementation of various developmental programmes in the most difficult areas where these Groups reside. In order to accomplish the Tenth Plan objective of empowering these Disadvantaged

Groups, voluntary organisations will be encouraged not only to play a key role in promoting people’s initiative and participation, but also to act as designated informants to assist both the Government and the Target Groups to fight against the social evils like untouchability, crimes/atrocities

against SCs/STs, and economic and social exploitation and thus help ensure social justice to these Groups. In the areas where voluntary action is at a low key, voluntary agencies will be encouraged to make their effective presence as there is a felt need for the same.

VOs : AGENTS OF WELFARE AND DEVELOPMENT

VOs (Voluntary Organisations) have been playing the role of effective agents to bring forth the most desired social change and development by virtue of their direct contact and linkages with the target groups living in the most difficult areas. In fact, they act as a crucial link between the beneficiaries and the administrative mechanisms and facilitate easy flow of services to the needy. The credentials they have established for themselves in changing public perception/opinion about these Groups; reducing the social evils like untouchability; crimes/atrocities; social/economic exploitation is very well known, as they have been working relentlessly for this purpose. They also extend the most wanted support to the government in translating various policies and programmes into action besides implementing/supervising and monitoring the same. Today, though a well-established networking of VOs is working in the field of welfare and development for the Socially Disadvantaged Groups, yet there are a number of areas where the voluntary action is minimal. Thus, the need of the Day is to ensure effective presence through their numbers in the needy areas.

4.1.132 Although the Voluntary Organisations have creditably rendered their supplementary and complementary support to the Government’s efforts towards empowerment of the weaker sections, their spread is very uneven and concentrated largely in urban areas. Therefore, efforts will be made to encourage voluntary organisations to reach those rural and backward areas where the much needed voluntary action is thin, especially focusing on the localities/areas having concentration of the weaker sections.

PLAN OUTLAYS

4.1.133 A total outlay of Rs. 6,526 crore (which includes Rs. 2313.40 crore for SCA to SCP) has been earmarked in the Central Budget of the Ministry of Social Justice & Empowerment (SCs, OBCs and Minorities) in the Tenth Plan. Also, this sector receives plan financial support from the state sector. In preparation to the Tenth Plan, special efforts were made to ensure effective distribution of the otherwise limited resources through the application of Zero Based Budgeting (ZBB). This has brought down the number of 31 on-going schemes of the Ninth Plan to 13 (4 Central Sector and 9 Centrally Sponsored Schemes) for empowering the Socially Disadvantaged Groups in the Tenth Plan. A statement reflecting the final outcome of the application of ZBB and the share of these 13 schemes in the total Tenth Plan outlay of the Ministry, is given in Annexure 4.1.1 and also in the Appendix.

**SCHEME-WISE BREAK-UP OF TENTH PLAN (2002-07) OUTLAY OF MINISTRY OF SOCIAL JUSTICE & EMPOWERMENT
(SCHEDULED CASTES, OTHER BACKWARD CLASSES AND MINORITIES)**

(Rs. in crore)

Sl. No.	Name of the Scheme	NINTH PLAN (1997-2002)		Application of ZBB Techniques	Sl. No.	TENTH PLAN (2002-07)	
		Outlay	Act. Exp.			Name of the Scheme (Final outcome of ZBB)	Outlay
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
I. CENTRAL SECTOR SCHEMES (CS)							
1	Special Central Assistance (SCA) to Special Component Plan (SCP)	2092.95	2008.64	Retained	1	Special Central Assistance (SCA) to Special Component Plan (SCP)	2313.40
2	National SC and ST Finance and Development Corporation (NSFDC)	241.23	156.23	Merged & Retained (Renamed as 'National Finance Development Corporations for Weaker Sections'. Outlay provided for only one year 2002-03. Schemes will continue after recasting based on the findings of the Study).	2	National Finance Development Corporations for Weaker Sections	478.20
3	National Safai Karamachari Finance and Development Corporation (NSKFDC)	81.75	81.75				
4	National BC Finance and Development Corporation (NBCFDC)	400.00	191.50				
5	National Minorities Development and Finance Corporation (NMDFC)	111.00	92.26				
6	Grant-in -Aid to Non Governmental Organisations (NGOs) for SCs	118.03	105.12	Merged & Retained (Renamed as 'GIA to NGOs for SCs, OBCs & Research & Training'. Outlay provided for only one year 2002-03. Schemes will continue after recasting based on the findings of the Study).	3	GIA to NGOs for SCs, OBCs & Research & Training	193.85
7	Research and Training for Scheduled Castes	2.85	1.61				
8	Grant-in-Aid to NGOs for OBCs	10.00	7.07				
9	Special Educational Development Programmes for Girls belonging to SC low Literacy Areas	7.70	1.61	Weeded out		—	—
10	Dr. B.R.Ambedkar Foundation	200.00	54.00	Retained	4	Dr. B.R.Ambedkar Foundation	5.00
11	Strengthening of BC Bureau	0.75	0.00	Weeded out		—	—
12	Equity participation in State BC Corporation	10.00	0.00	Weeded out		—	—
13	Preparation of Multi-Sectoral Plan for Minority Concentration Districts	14.10	0.53	Weeded out		—	—
14	Grant-in-Aid to Maulana Azad Education Foundation	70.00	52.75	Weeded out (To be an Independent body)		Grant-in-Aid to Maulana Azad Education Foundation	30.00 *
Total - I		3360.36	2753.07				3020.45

* Spill-over of the total Corpus of Rs. 100 crore to be paid to the Foundation and to be weeded-out during 2002-03.

(Rs. in crore)

Sl. No.	Name of the Scheme	NINTH PLAN (1997-2002)		Application of ZBB Techniques	Sl. No.	TENTH PLAN (2002-07)	
		Outlay	Act. Exp			Name of the Scheme (Final outcome of ZBB)	Outlay
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
II. CENTRALLY SPONSORED SCHEMES (CSS)							
15	Post-Matric Scholarships for SC Students	614.16	457.29	Merged & Retained (Renamed as 'Post-Matric Scholarships & Book Banks for SC Students'.)	5	Post-Matric Scholarships & Book Banks for SC Students	1558.00
16	Book Banks Scheme for SC Students	12.00	10.61				
17	Pre-Matric Scholarships for Children of those families engaged in Unclean Occupations	30.00	36.25	Retained	6	Pre-Matric Scholarships for Children of those families engaged in Unclean Occupations	87.00
18	Hostels for SC Boys	52.05	64.97	Merged & Retained (Renamed as 'Hostels for SC, OBC & Minority Boys & Girls'.)	7	Hostels for SC, OBC and Minority Boys & Girls	347.00
19	Hostels for SC Girls	45.00	53.13				
20	Hostels for OBCs Boys and Girls	49.90	20.76				
21	Scheduled Caste Development Corporations (SCDCs)	180.00	173.63	Retained	8	Scheduled Caste Development Corporations (SCDCs)	150.00
22	Coaching & Allied Scheme for SCs	16.71	11.09	Merged & Retained (Renamed as 'Coaching for SCs, OBCs & Other Weaker Sections for Competitive Exams'.)	9	Coaching for SCs, OBCs & Other Weaker Sections for Competitive Exams.	97.55
23	Pre-examination Coaching for OBCs	10.00	1.03				
24	Pre-examination Coaching for Weaker Sections based on economic criteria	12.00	11.29				
25	Upgradation of Merit of SC Students	5.26	4.72	Retained	10	Upgradation of Merit of SC Students	346.50
26	Implementation of PCR Act, 1955 & SC & ST (POA) Act, 1989	121.81	113.17	Retained	11	Implementation of PCR Act, 1955 & SC/ST (POA) Act, 1989	170.00
27	National Scheme of Liberation & Rehabilitation of Scavengers & their Dependents	335.00	236.02	Retained	12	National Scheme of Liberation & Rehabilitation of Scavengers & their Dependents	460.00
28	Post-Matric Scholarships for OBCs	49.90	40.57	Merged & Retained (Renamed as 'Scholarships for OBC and Minority Students'.)	13	Scholarships for OBC and Minority Students	289.50
29	Pre-Matric Scholarships for OBCs	49.90	29.15				
	Merit-based Scholarships for OBCs	*	*				
	Merit-based Scholarships for Minorities	*	*				
30	Mobile Schools, Shelter etc. for Nomadic Tribes	1.00	0.00	Weeded out		—	—
31	Residential Schools for OBC Boys and Girls	40.00	0.00	Weeded out		—	—
	Total - II	1624.69	1263.68				3505.55
	GRAND TOTAL - I+II	4985.05	4016.75				6526.00

* New Schemes in the Tenth Plan

Note : Total outlay of the Ministry includes earmarked outlay for the North Eastern States

CHAPTER 4.2

SCHEDULED TRIBES

INTRODUCTION

4.2.1 The Government has special concern and commitment for the well-being of the Scheduled Tribes (also referred to as STs/Tribals) who suffer as a Group due to their social and economic backwardness and relative isolation. According to the 1991 Census (data of 2001 Census is not yet available), they account for 67.76 million and represent 8.08 per cent of the country's total population. Of these, 1.32 million (1.95 per cent) belong to the Primitive Tribal Groups (PTGs) whose conditions are even worse than those of the rest of the tribals. In the absence of the data of 2001 Census, population of STs is estimated to have reached 88.8 million by 2001, representing 8.6 percent of the country's total population (projected on the basis of the trend of decadal growth rate of STs).

POPULATION PROFILE

4.2.2 According to the 1991 Census, STs are inhabited in all the states except Haryana, Punjab, Chandigarh, Delhi and Pondicherry. While the highest concentration of the ST population is found in the North Eastern states of Mizoram (94.8 per cent); Nagaland (87.7 per cent); Meghalaya (85.5 per cent); and Arunachal Pradesh (63.7 per cent) and in the UTs of Lakshadweep (93.2 per cent); and Dadra and Nagar Haveli (79.0 per cent), there are high concentrations in the states of Madhya Pradesh (23.3 per cent); Orissa (22.2 per cent); Gujarat (14.9 per cent); Assam (12.8 per cent); Rajasthan (12.4 per cent); Maharashtra (9.3 per cent); Bihar (7.7 per cent); and Andhra Pradesh (6.3 per cent) and Andaman & Nicobar Islands (5.5 per cent).

CONSTITUTIONAL SAFEGUARDS

4.2.3 Recognising the special needs of STs, the Constitution of India made certain special safeguards to protect these communities from all

the possible exploitation and thus ensure social justice. While Article 14 confers equal rights and opportunities to all, Article 15 prohibits discrimination against any citizen on the grounds of sex, religion, race, caste etc; Article 15(4) enjoins upon the State to make special provisions for the advancement of any socially and educationally backward classes; Article 16(4) empowers the State to make provisions for reservation in appointments or posts in favour of any backward class of citizens, which in the opinion of the State, is not adequately represented in the services under the State; Article 46 enjoins upon the State to promote with special care the educational and economic interests of the weaker sections of the people and, in particular, ... the STs and promises to protect them from social injustice and all forms of exploitation. Further, while Article 275(1) promises grant-in-aid for promoting the welfare of STs and for raising the level of administration of the Scheduled Areas, Articles 330, 332 and 335 stipulate reservation of seats for STs in the Lok Sabha and in the State Legislative Assemblies and in services. Finally, the Constitution also empowers the State to appoint a Commission to investigate the conditions of the socially and educationally backward classes (Article 340) and to specify those Tribes or Tribal Communities deemed to be as STs (Article 342).

4.2.4 The Fifth Schedule to the Constitution lays down certain prescriptions about the Scheduled Areas as well as the Scheduled Tribes in states other than Assam, Meghalaya, Tripura and Mizoram by ensuring submission of Annual Reports by the Governors to the President of India regarding the Administration of the Scheduled Areas and setting up of Tribal Advisory Councils to advise on matters pertaining to the welfare and advancement of the STs (Article 244(1)). Likewise, the Sixth Schedule to the Constitution also refers to the administration of Tribal Areas in the states of Assam, Meghalaya, Tripura and Mizoram by designating certain tribal

areas as Autonomous Districts and Autonomous Regions and also by constituting District Councils and Regional Councils (Article 244(2)). To ensure effective participation of the tribals in the process of planning and decision-making, the 73rd and 74th Amendments of the Constitution are being extended to the Scheduled Areas through the Panchayats (Extension to the Scheduled Areas) Act, 1996.

POLICIES AND PROGRAMMES : A REVIEW

4.2.5 The Constitutional commitments, referred to above, prompted the policy-makers and the planners to accord high priority to the welfare and development of STs right from the beginning of country's developmental planning, launched in 1951. Accordingly, the First Plan (1951-56) clearly laid down the principle stating that 'the general development programmes should be so designed to cater adequately to the backward classes and special provisions should be used for securing additional and more intensified development for STs'. Unfortunately, the same could not take place. The Second Plan (1956-61), which laid emphasis on economic development, gave a special focus on reducing economic inequalities in the society. Further, development programmes for STs have been planned for, based on respect and understanding of their culture and traditions and with an appreciation of their social, psychological and economic problems. In fact, the same was planned in tune with 'Panchsheel' - the philosophy of tribal development as enunciated by the first Prime Minister of the country. An important landmark during the Second Plan was the opening of 43 Special Multi-purpose Tribal Blocks, later termed as Tribal Development Blocks (TDBs). Each TDB was planned for about 25,000 people as against 65,000 in a normal Block. The Third Plan (1961-66) continued with the very same principle of advocating reduction in inequalities through various policies and programmes to provide equality of opportunity to STs. The Fourth Plan (1969-74) proclaimed that the 'basic goal was to realise a rapid increase in the standard of living of the people through measures which also promote equality and social justice'. An important step in this direction was setting up of six pilot projects in Andhra Pradesh, Bihar, Madhya Pradesh and Orissa in 1971-72 with a separate Tribal Development

IMPORTANT LANDMARKS IN TRIBAL DEVELOPMENT

Recognising the special needs and problems of tribals, a special niche was accorded to tribal development in the country's Development Agenda from the very beginning of the Plan Era. Some important landmark achievements in Tribal development are as below :

- Programmes were designed with a special focus on STs (1951)
- Adoption of 'Panchsheel' – the five Guiding Principles of the process of Tribal development (1956)
- Opening of Multi-Purpose Tribal Development Blocks for intensified development of STs (1961)
- Introduction of Special Strategies of TSP and SCA to TSP to ensure flow of population-proportionate funds from other developmental sectors for tribals (1974)
- Poverty alleviation programmes for at least 50 per cent of tribal families to cross poverty line and expansion of infrastructural facilities in tribal areas (1985)
- Setting up of special financial institutions viz. Tribal Co-operative Marketing Development Federation (1987) and National Scheduled Castes and Scheduled Tribes Finance and Development Corporation (1989)
- Ensure participatory development of STs at the grass root levels involving PRIs and Gram Sabhas as per the 73rd and 74th Amendment of the Constitution (1993) and the Panchayats (Extension to the Scheduled Areas) PESA Act, (1996)
- A major shift in the approach from 'Welfare' to 'Development' and to 'Empowerment of Tribals' (1997); setting up of an exclusive Ministry of Tribal Affairs (1999) and instituting a separate National Scheduled Tribes Finance and Development Corporation (2001)

Agency for each project. The Fifth Plan (1974-78) marked a shift in approach as reflected in the launching of the Tribal Sub-Plan (TSP) for the direct benefit of the development of tribals. The TSP stipulated that funds of the centre and the states should be quantified on the population proportion basis with budgetary mechanisms to ensure accountability, non-divertability and utilisation for the welfare and development of STs.

4.2.6 The Sixth Plan (1980-85) sought to ensure a higher degree of devolution of funds so that at least 50 per cent of tribal families could be provided assistance to cross the poverty line. In the Seventh Plan (1985-90), there was substantial increase in the flow of funds for the development of STs resulting in the expansion of infrastructural facilities and enlargement of coverage. Emphasis was laid on the educational development of STs. For the economic development of STs, two national-level institutions were set up viz. (i) Tribal Cooperative Marketing Development Federation (TRIFED) in 1987 as an apex body for State Tribal Development Cooperative Corporations, and (ii) National Scheduled Castes and Scheduled Tribes Finance and Development Corporation (NSFDC) in 1989. The former was assigned to provide remunerative prices for the forest and agriculture produce of tribals, while the latter was intended to provide credit support for employment generation. In the Eighth Plan (1992-97), efforts were intensified to bridge the gap between the levels of development of STs and the other sections of the society. The Plan not only emphasised elimination of exploitation, but also paid attention to the special problems of suppression of rights, land alienation, non-payment of minimum wages and restrictions on the right to collect minor forest produce etc. However, attention on priority basis, was continued to be paid on the socio-economic upliftment of STs.

4.2.7 The Ninth Plan (1997-2002) aimed to empower STs by creating an enabling environment conducive for them to exercise their rights freely, enjoy their privileges and lead a life of self-confidence and dignity, on par with the rest of society. This process essentially encompassed three vital components, viz. i) Social Empowerment; ii) Economic Empowerment; and iii) Social Justice. To this effect, while ST-related line Ministries/

Departments implement general development policies and programmes, the nodal Ministry of Tribal Affairs implements certain ST-specific innovative programmes, as per the details given below:

Education and Literacy

4.2.8 The special commitment of the National Policy on Education, 1986 (revised in 1992) to improve the educational status of STs continues to be the major strength in launching special interventions and incentives to improve the accessibility for the tribals who live in the far-flung remote areas and remain isolated. Therefore, efforts for universalising primary education continued, especially through the programme of Sarva Shiksha Abhiyan. One of the special features of this programme is the participation of ST parents/guardians in the activities of schools, which ensures ownership of the programme, even by the most disadvantaged. The National Programme of Nutritional Support to Primary Education or the Mid-Day Meals acts as a support service to increase retention rates.

4.2.9 In the field of higher and technical education, special provisions such as reservation of seats, relaxation in minimum qualifying cut-off percentages, remedial coaching and scholarships were being extended by the Department of Secondary and Higher Education. Similar concessions were also given to ST students for improving their skills in the up-coming/modern trades which have better employability. (As the educational programmes and the special concessions given by the Departments of Elementary Education & Literacy and Secondary & Higher Education are common to SCs, STs and the other Disadvantaged, more details are available under the Chapter on 'Socially Disadvantaged Groups').

Health & Family Welfare

4.2.10 The National Health Policy, 1983 (being revised), categorically emphasises the urgent need for improving the tribal health especially through detection and treatment of endemic and other diseases specific to tribals. In pursuance of the

policy commitments, the Ministry of Health and Family Welfare continued to give focused attention to improve the health conditions of STs by implementing various health care programmes besides relaxing norms with a major objective to attend to the health needs of STs. A separate Tribal Development Planning Cell has been functioning under the Ministry since 1981 to co-ordinate the policy, planning, monitoring and evaluation of the health care schemes for the welfare and development of STs. Keeping in view that most of the tribal habitations are concentrated in far-flung areas, forest land, hills and remote villages, the population coverage norms have been relaxed as – i) for a Sub-Centre, the average norm for Hilly/Tribal areas has been fixed at 3,000 as against 5,000 for plains; ii) for Primary Health Centre (PHC) 20,000 coverage norm is fixed for Hill/Tribal areas as against 30,000 for plains; and iii) the norm of Community Health Centres (CHCs) is fixed at 80,000 for Hilly/Tribal areas as against 1,20,000 for plains. Similarly, Multipurpose Workers are appointed for 3,000 population in tribal areas as against the norm of 5,000 population for general. Under the Minimum Needs Programme, 20,769 Sub-Centres, 3,286 PHCs and 541 Community Health Centres (CHCs) had been set up by June 1999 in tribal areas.

4.2.11 Also, the State Governments have been advised to introduce schemes for compulsory annual medical examination of ST population in rural areas. Under these schemes, Mobile Health Check-up Teams are deputed to villages according to a schedule drawn up annually. In case of a need for further investigation or treatment, tribal patients are entitled to avail of free facilities in Government/Referral hospitals. To reach the health-care services to STs especially those living in the most backward remote areas, 52 districts in 13 states (Andhra Pradesh-6, Bihar-6, Gujarat-3, Kerala-5, Madhya Pradesh-4, Maharashtra-6, Manipur-4, Orissa-8, Rajasthan-2, Tamil Nadu-2, Tripura-4, Uttar Pradesh-1 and West Bengal-1) were identified by the Central Planning Committee. The State Governments were also asked to take special steps to check deaths of children due to malnutrition, epidemics etc. in identified areas by the Central Planning Committee during summer/monsoon seasons by establishing adequate number of Sub-

Centres, PHCs and CHCs as per the relaxed norms in tribal areas. Besides, a focused attention was also paid to the deployment of medical and para-medical personnel in line with the recommended staffing pattern and regular field visits by them, stocking of essential medicines/drugs, provision of Mobile Health Units where feasible, spraying of DDT and chlorination of wells, etc.

4.2.12 Along with the National Malaria Eradication Programme, the other programmes to control Filariasis, Japanese Encephalitis and Kala-azar were also implemented by States/UTs with 50 per cent central assistance for spraying insecticides, supply of Anti-Malaria drugs etc. in tribal areas. The 100 hard-core identified tribal districts in the states of Andhra Pradesh, Bihar, Gujarat, Madhya Pradesh, Maharashtra, Orissa and Rajasthan were also covered under the enhanced Malaria Control Project with World Bank support. In order to address the problem of high incidence of Leprosy amongst tribals, the National Leprosy Eradication Programme was implemented with 100 per cent central assistance for detection and treatment of leprosy cases especially covering the entire tribal population. Similarly, the National Tuberculosis Control Programme was also implemented with 100 per cent central assistance for the supply of anti-TB drugs, equipment etc. in tribal areas.

4.2.13 Amongst the tribals, PTGs and the nomadic groups are passing through the most fragile health conditions, when compared to the others. Therefore, a new Scheme called 'Medical care for Remote and Marginalised and Nomadic Communities' was launched during the Ninth Five Year Plan with an approved outlay of Rs.5 crore. Under this Scheme, the following projects were taken up towards - i) Prevention and control of Hepatitis 'B' infection amongst the PTGs of Andaman & Nicobar Islands; ii) Intervention for hereditary common haemolytic disorders amongst tribals of Sundergarh district in Orissa; iii) Intervention programme for Cholera and Parasitism, Vitamin 'A' deficiency disorders among some PTGs of Orissa; and iv) Intervention programme for Nutritional Anaemia and Haemoglobinopathies amongst primitive tribal population. For the exclusive benefit of the backward tribal dominant districts of Orissa viz. Kalahandi,

Bolangir and Koraput, a long term Action Plan was taken up rigorously with the aim of pooling the available resources and integrating them scientifically for speedy development. Health has been an important activity in this area and in order to provide immediate relief to tribals at the door-steps, 53 mobile Health units have been functioning.

4.2.14 The programme of Reproductive and Child Health (RCH), which takes care of the maternal and child health needs, also made some special provisions for those living in remote areas, where the existing services at PHC level are under-utilised. A scheme for holding special camps was initiated during the year 2000-01. The scheme is being implemented in 102 districts in 8 states that are weak in implementation of RCH and 7 North Eastern states and some more districts will be added in the subsequent years. (More details are available under the Chapters on 'Health' and 'Family Welfare').

Labour and Employment

4.2.15 The Ministry of Labour implements special training programmes for upgradation of skills of STs, besides improving the working conditions of ST workers. The Scheme of 'Coaching-cum-Guidance Centres for Scheduled Castes and Scheduled Tribes' implemented through 22 Coaching-cum-Guidance Centres spread all over the country takes care of the special needs of educated ST job seekers. Of these, 13 Centres provide facilities for training in shorthand and typewriting. These Centres provide occupational information as well as individual guidance and conduct confidence building programmes for the benefit of the ST job seekers. The applicants are provided guidance at the time of their registration with the Employment Exchanges and also when they are sponsored against notified vacancies. The Centres also keep a follow up with the employers for placement against vacancies reserved for ST candidates.

4.2.16 To facilitate recruitment of STs against reserved vacancies in various Central Government Ministries/Departments, another scheme viz. 'Special Coaching Scheme' was implemented for ST job seekers registered with

the employment exchanges to enable them to appear in Competitive Examinations/Selection Tests conducted for recruitment in Group C and equivalent posts. (More details are available under the Chapter on 'Socially Disadvantaged Groups').

Women and Child Development

4.2.17 The National Nutrition Policy, 1993 recognises the problem of malnutrition and under-nutrition prevalent amongst tribal women and children and strongly advocates the need for controlling the same. In pursuance of the commitments of the Policy, the Department of Women and Child Development through its nationwide programme of Integrated Child Development Services (ICDS) continued to provide the much needed nutritional and health inputs/services for the benefit of tribal children, adolescent girls and expectant and nursing mothers living in the remote tribal areas with relaxed norms. Of the total 4,608 ICDS projects in action by the end of the Ninth Plan, 758 (13.4 per cent) were Tribal Projects through which a package of 6 services viz. health check-ups; immunisation, supplementary feeding; referral services; non-formal pre-school education and health and nutrition education were being extended to 4.77 million children and 0.96 million mothers. The concept of Mini-Anganwadis introduced in the tribal areas was only to ensure that ICDS services reach the tribal women and children even in the remotest tribal areas. (More details are available under the Chapter on 'Women and Children')

Rural Development

4.2.18 As majority of tribals live in abject poverty, the Ministry of Rural Development plays a vital role in raising their status above the poverty line through implementation of various poverty alleviation programmes and providing them with financial and other support for taking up self-employment and income-generation activities. In addition to the poverty-alleviation programmes, this Ministry also provides basic amenities like housing, drinking water, etc. Under the Integrated programme of Swarnajayanti Gram Swarozgar Yojana (SGSY), 50

per cent of benefits were earmarked for STs along with SCs. Under SGSY, 7.49 lakh ST *swarozgaris*, accounting for 13.2 per cent of the total number of *swarozgaris*, were benefited during the Ninth Plan.

4.2.19 Under the Jawahar Gram Samridhi Yojana (JGSY), which provides wage employment, 22.5 per cent of Plan allocations were earmarked for STs/SCs. During the Ninth Plan, 220 million man-days were provided for STs accounting for 15.9 per cent of total employment under this scheme. Under the Employment Assurance Scheme (EAS), which is open to all rural poor including STs, 308 million man-days were provided for STs, accounting for 20.8 per cent of the total employment under this scheme during the Ninth Plan. The two schemes of JGSY and EAS were brought under the purview of the mega scheme of Sampoorna Grameen Rozgar Yojana (SGRY) in September 2001. The SGRY focuses on generation of wage employment, creation of durable rural assets and infrastructure and provision of food security to the rural poor including STs.

4.2.20 Under the Indira Awas Yojana, about 60 per cent of the total allocation was earmarked for STs and SCs. During the Ninth Plan, a total of 7.68 lakh dwelling units were constructed for STs, which accounts for 20.3 per cent of the total houses constructed under the scheme. Similarly, under the Accelerated Rural Water Supply Programme, 10 per cent of total funds was earmarked for STs. During the Ninth Plan a total population of around 11.9 million STs (9 per cent of total beneficiaries) were benefited. Also, under the Central Rural Sanitation Programme, sanitary latrines are provided to rural population and 20 per cent of total funds are earmarked for providing subsidy to individual households of STs and SCs living below the Poverty Line. During the Ninth Plan, as many as 3.1 lakh (6.4 per cent) sanitary latrines were provided to STs.

4.2.21 Under the National Old Age Pension Scheme, 2.4 million STs were covered during the Ninth Plan, accounting for 7.4 per cent of the total beneficiaries. Similarly, while 1 lakh ST families were benefited under the National Family Benefit Scheme accounting for 10.2 per cent, 4 lakh ST women were benefited under the National Maternity Benefit

Scheme (NMBS) accounting for 7.4 per cent of the total beneficiaries during the Ninth Plan (NMBS now stands transferred to the Department of Family Welfare with effect from 2001-02).

Urban Development

4.2.22 Under the Urban Self-Employment Programme of Swarna Jayanti Shahari Rozgar Yojana, financial assistance is extended to STs to try various small-scale entrepreneurial ventures. (For details refer to Chapter on 'Socially Disadvantaged Groups').

Tribal Affairs

4.2.23 The nodal Ministry of Tribal Affairs laid greater emphasis in the Ninth Plan on the educational and economic development of Scheduled Tribes. The scheme of 'Post-Matric Scholarships' (PMS) continued to be an important centrally sponsored scheme to promote higher education among STs. Under this, scholarships are extended to all the eligible ST students who pursue post-matriculation courses in recognised institutions within the Country. The scheme was revised in 1997-98 for extending some additional benefits to persons with disabilities amongst STs and the ceiling of income limits of parents etc. The Ninth Plan saw an impressive increase in the allocation of funds for scholarships awarded to STs, when compared to the previous Plans. Under PMS, a total expenditure of Rs.176.56 crore was incurred to benefit around 5.31 lakh ST students. The scheme of Book Banks facilitates easy access to the prescribed text-books to ST students who are pursuing professional/technical courses like medical, veterinary science, agriculture, polytechnic, engineering and bio-sciences, law, chartered accountancy, business administration etc. and cannot afford to purchase costly professional books. The scheme of 'Up-gradation of Merit of ST Students' extends special coaching to ST students of classes IX to XII. The other scheme of 'Coaching and Allied Scheme for STs' also extends special coaching to ST students to help them appear in competitive examinations. Progress in terms of both physical and financial achievements in respect of the above-mentioned 3 schemes viz. Book Bank Scheme, Upgradation of Merit of ST

Students and Coaching and Allied Scheme for STs has been included under the Chapter on 'Socially Disadvantaged Groups' as these schemes continued as combined schemes for both SCs and STs till 2000-01.

4.2.24 The scheme of 'Hostels for ST Girls and Boys', being one of the major support services, aims to reduce the present high drop-out rates and increase the retention rates at the middle/ higher level education amongst STs. The pace of progress of this scheme has been very slow during the Ninth Plan as there was no encouraging response from the states/UTs due to the financial crisis. Of the Ninth Plan outlay of Rs. 73.30 crore, an expenditure of Rs. 53.20 crore was incurred for the construction/ expansion of 289 hostels benefiting 10,649 ST girl students and Rs. 32.12 crore for 317 hostels to accommodate 13,958 ST boy students.

4.2.25 The scheme of Ashram Schools, was launched in 1990-91, with an objective of extending educational facilities to ST boys and girls through residential schools with conducive environment to their learning. A review of the functioning of the Ashram Schools has revealed that most of them are very badly maintained and do not have even the basic facilities. Against the Ninth Plan allocation of Rs. 44.86 crore for opening 250 Ashram Schools, the expenditure was Rs. 23.97 crore to construct 294 Ashram Schools to accommodate around 14,310 ST students. The scheme of Educational Complexes in low-literacy pockets has been launched with a specific objective of promoting education amongst ST girls. The scheme imparts education to tribal girls, especially those belonging to primitive tribes, in 134 districts in 11 states where the literacy rate amongst the ST women is less than 10 per cent as per the 1991 Census. With an expenditure of Rs. 11.71 crore against an outlay of Rs. 23.20 crore, 306 complexes were established by the end of Ninth Plan. In addition, coaching facilities are being extended to ST students through Pre-Examination Training Centres to enable them to compete with others in various competitive examinations. Vocational Training Centres (VTCs) is yet another scheme which aims to impart vocational training to ST students to increase their employability. Against the Ninth Plan outlay of Rs. 30.25 crore, an expenditure of Rs. 16.78 crore was

incurred to establish 235 VTCs. (More details are available under Chapter on 'Socially Disadvantaged Groups').

4.2.26 In the sphere of economic development, NSFDC continued to function as a catalytic agent for financing, facilitating and mobilising funds from various sources for promoting economic development activities of STs living below 'double the poverty' line through 47 State Channelising Agencies, of which 19 were working exclusively for STs. Financial assistance at concessional rate of interest is extended to STs for taking up technically feasible and financially viable income-generating self-employment activities. In order to give focused attention to STs, the NSFDC was bifurcated, to set up an exclusive Corporation for STs in April, 2001 with an authorised share capital of Rs. 500 crore. Through the combined NSFDC, a sum of Rs. 379.75 crore has been invested in 934 income-generation projects benefiting 38,436 STs. The State ST Development Corporations (STDCs) function as channelising agencies in identifying eligible families and extending financial aid and other assistance to help undertake income-generation projects through credit support.

4.2.27 Another national-level organisation viz. TRIFED continues to offer remunerative prices for Minor Forest Produce (MFP) collected and the surplus agricultural items produced by the tribals, besides protecting them from exploitation by middlemen. Further, Grant-in-Aid to State Tribal Development Cooperative Corporations (STDCCs) is provided for strengthening their share capital base. This would help increase the volume of procurement of MFP from tribals at remunerative prices, construction of warehouses/godowns, establishing processing industries and research and development activities of the 16 STDCCs.

4.2.28 The scheme of Development of Primitive Tribal Groups (PTGs), launched in the Ninth Plan (1998-99), for the development of 75 PTGs spread over 15 States/UTs, aims at improving the lot of PTGs who are still leading a precarious and fragile life and some of whom are even on the verge of extinction due to hunger, diseases and ill health. Hundred per cent central assistance was given to States/UTs and to NGOs for implementing an

integrated action plan incorporating supply of safe drinking water, food and nutrition security, health coverage, educational facilities etc. The scheme had an in-built flexibility to cater to the specific needs of each tribe and its environment. Against the Ninth Plan allocation of Rs. 22 crore, an expenditure of Rs. 27.42 crore was incurred. For storage of foodgrains as a safety net against starvation deaths amongst STs and also for improving nutritional standards amongst the children of STs living in remote and backward tribal villages in the starvation prone belts, the Village Grain Banks have been established in tribal villages spread over 12 states in 1998. Of the Ninth Plan allocation of Rs. 12.80 crore, an expenditure of Rs. 10.95 crore was incurred to set up 1,234 Grain Banks in tribal villages. In order to promote voluntary action in the tribal areas, especially in the remote and far-flung areas, 893 socio-economic development projects undertaken by the Voluntary Organisations were supported under Grant-in-Aid to NGOs for STs. An amount of Rs. 79.31 crore was spent against the Ninth Plan allocation of Rs. 92.09 crore.

Implementation of TSP and SCA to TSP

4.2.29 The Tribal Sub-Plan (TSP) for STs and the Special Central Assistance (SCA) to TSP launched during the early 1970s, have proved to be the most effective strategies to ensure the

additional flow of population-proportionate funds for STs from the other general development sectors. According to the information available, earmarking of funds under TSP is being followed by 25 Ministries/Departments at the Centre, while at state level only 20 States/UTs are adhering to this (no information is available in respect of the 3 new states viz., Chhattisgarh, Jharkhand and Uttaranchal). The Tribal Sub-Plan strategy has been in effective operation in the country through 194 Integrated Tribal Development Projects, 259 pockets of tribal concentration (Modified Area Development Approach – MADA), 82 clusters and the Projects for 75 PTGs.

4.2.30 SCA to TSP is being extended as an additive to strengthen the efforts of the states by filling the critical gaps under the family-based income generation projects, catering to those living below poverty line. SCA was enhanced from Rs. 1,250 crore in the Eighth Plan to Rs. 2,010 crore in the Ninth Plan, indicating an increase of 60.8 per cent to benefit 6.75 million ST families living below the poverty line. Details of the flow of funds both at the central and state levels during the Ninth Plan, are given at Table 4.2.1.

4.2.31 As could be seen from Table 4.2.1, while the flow to TSP at the central level stood at 5.85 per cent with 25 contributing Ministries/Departments, it

Table – 4.2.1
Flow of Funds through TSP and SCA to TSP during the Ninth Plan (1997-2002)

(Rs. in Crore)

Item	Outlay	Flow to TSP	Percentage Col.3 to Col.2
(1)	(2)	(3)	(4)
Tribal Sub-Plan (TSP)			
- Flow from Central Plan (in respect of 25 Ministries/Departments)	1,10,454.10	6,462.00	5.85
- Flow from State Plan (in respect of 20 States/ Union Territories)	2,96,911.20	22,314.22	7.52
Special Central Assistance (SCA) to TSP			
- SCA to TSP (Outlay & Release)	2,010.00	2,009.61	99.98

Source : Ministry of Tribal Affairs, GOI, New Delhi

was 7.52 per cent at the state level with only 20 states contributing to it. Besides, the flow was also not in proportion to the population of STs (8.08 per cent). Though the releases of SCA to TSP was as high as 99.98 per cent of the earmarked outlay, yet what matters was its utilisation.

4.2.32 As the strategies of TSP for STs and SCP for SCs and SCA to TSP and SCP have been developed and are being implemented with a common philosophy, issues related thereto also happen to be more or less the same in nature. Therefore, issues and concerns that came up in answer to the enquiry made into the question - as to why earmarking of funds under TSP by the Central Ministries/Departments and by states/UTs was not upto the expected level and what action was taken thereafter was already discussed in the previous Chapter on 'Socially Disadvantaged Groups'. The same is applicable to STs also.

Grant-in-Aid under Article 275(1) of the Constitution

4.2.33 Under the Article 275(1) of the Constitution, Grant-in-Aid (GIA) from the Consolidated Fund of India is extended annually to various State Governments having ST population. The major objective of the scheme is to raise the level of administration in the Scheduled Areas to that of the rest of the State, besides promoting the welfare of the STs living therein. The scheme covers all the TSP areas and also four tribal majority states in the country. Grants to the extent of 100 per cent are released by the nodal Ministry of Tribal Affairs under the central sector scheme. With a view to providing accessibility to quality education to ST students, it was decided to establish 100 residential schools under this scheme on the pattern of Navodaya Schools with a non-recurring grant of Rs. 2.50 crore during the Ninth Plan period. Year-wise details of

the allocations and releases during the Ninth Plan period, are given in Table 4.2.2:

Table - 4.2.2
Year-wise Allocation and Releases under Article 275(1) of the Constitution during the Ninth Plan (1997-2002)

(Rs. in crore)

Year	Allocation	Grant-in-aid (Released)
(1)	(2)	(3)
1997-1998	75.00	75.00
1998-1999	75.00	75.00
1999-2000	100.00	100.00
2000-2001	200.00	191.29
2001-2002	300.00	225.56

Source : Ministry of Tribal Affairs, GOI, New Delhi.

4.2.34 Against the earlier practice of releasing lump-sum funds to individual states, from 2001-02, releases are being made against specific developmental works/projects identified by State Governments. However, one of the major constraints in the implementation of this programme is that the State Governments do not release funds in time.

PRESENT STATUS OF THE SCHEDULED TRIBES

4.2.35 Efforts made from the beginning of the planned era (1951) through various developmental plans, policies, special strategies and programmes, have registered a definite quantifiable improvement in the socio-economic status of the tribals. However, the progress made by them could not bring them anywhere nearer to the mainstream society as the gap in their socio-economic status continued to prevail, not only as a matter of prime concern, but also as a task to accomplish during the Tenth Plan. Achievements and the persisting gaps under the three core sectors of education, health and economic development are detailed below:

Table – 4.2.3
Population and Decadal Growth Rate of STs (1971-2001)

(Figures in Million)

Census Year	Population		Decadal Growth Rate	
	Total*	STs	Total*	STs
(1)	(2)	(3)	(4)	(5)
1971	548.1	38.0 (6.9)	24.8	26.3
1981	683.4	51.6 (7.6)	24.7	35.8
1991	846.3	67.8 (8.08)	23.9	31.4
2001 (Projected)	1,027.0	88.8** (8.6)	21.3	31.0 (estimated)

Note : * Includes ST population.

** Estimated population based on the trend of the decadal growth rate of STs between 1961 and 1991
- Figures within parentheses indicate percentage to total.

Source : Census of India, 1991 and Census of India, 2001: Provisional Population Totals, Registrar-General & Census Commissioner of India, GOI, New Delhi.

4.2.36 As given in Table 4.2.3, percentage of ST population has increased from 6.9 per cent in 1971 to 8.6 per cent in 2001. While the ST population as a whole maintains a positive growth rate, the population of certain Primitive Tribes like the Great Andamanese and Sentinelese of the

Andaman & Nicobar Islands are reported to be declining.

4.2.37 Although, the sex ratio of 972 amongst STs in 1991 was much higher than that of the general population, which was 927, (Table 4.2.4), yet it started showing a declining trend. This adverse sex ratio, and its decline from 982 in 1971 to 972 in 1991 could be attributed to higher mortality amongst females and their limited access to health services. This calls for a deeper analysis of gender issues amongst STs.

Table – 4.2.4
Sex Ratio (1971-2001)

Census Year	Sex Ratio (No. of Females per 1000 Males)	
	Total Population*	ST
(1)	(2)	(3)
1971	930	982
1981	934	984
1991	927	972
2001	933	Not yet available

Note : * Includes ST population.

Source : Census of India, 1991 and Census of India, 2001: Provisional Population Totals, Registrar-General & Census Commissioner of India, GOI, New Delhi.

Educational Status

4.2.38 Although, there has been a substantial increase in the literacy rates of STs during the last three developmental decades, the gap between the literacy rates of STs and those of the general population is not only persisting, but also found to be widening. Adding to this, are the problems of intra and inter-state/district variations in the literacy rates amongst STs. The progress made by STs in comparison to the general population is as shown below:

Table – 4.2.5
Literacy Rates of STs and Total Population (1971-2001)

(in per cent)

Category	1971	1981	1991	2001
(1)	(2)	(3)	(4)	(5)
- Total Population*	29.45	36.23	52.21	65.38
- Scheduled Tribes	11.30	16.35	29.60	Not yet
- Gap between STs and the Total Population	18.15	19.88	22.61	available

Note : * Includes ST population.

Source : 1. Educational Development of SCs and STs, 1995, Department of Education, Ministry of Human Resource Development, GOI, New Delhi.
2. Census of India, 2001: Provisional Population Totals, Registrar-General & Census Commissioner of India, GOI, New Delhi.

4.2.39 As shown in Table 4.2.5, the most discouraging sign was the increasing gap between the literacy rates of STs and of the general categories between 1971 and 1991. While the literacy rate for the general population including STs stood at 52.21 per cent, the same for STs was 29.60 per cent in 1991.

4.2.40 Contrary to the efforts of reducing the existing gaps/disparities between STs and the rest

of the society, the data in Table 4.2.6 reveals that although the female literacy rate, which is an important indicator in the field of education, amongst STs has increased substantially from 4.85 per cent in 1971 to 18.19 per cent in 1991, but the gap between ST females and the general population has also been widening during the same period, though with a slight decrease between 1981 and 1991.

Table – 4.2.6
Female Literacy Rates of STs and Total Population (1971-2001)

(in per cent)

Category	1971	1981	1991	2001
(1)	(2)	(3)	(4)	(5)
- Total Population*	18.69	29.85	39.29	54.16
- Scheduled Tribes	4.85	8.04	18.19	Not yet
- Gap between STs and the Total Population	13.84	21.81	21.10	available

Note : * Includes ST population.

Source : 1. Educational Development of SCs and STs, 1995, Department of Education, Ministry of Human Resource Development, GOI, New Delhi.
2. Census of India, 2001: Provisional Population Totals, Registrar-General & Census Commissioner of India, GOI, New Delhi.

Table – 4.2.7
Gross Enrolment Ratios of STs and Total Population (1990-91 to 1999-2000)

Year Classes		1990 – 91		1999 – 2000	
		I to V	I to VIII	I to V	I to VIII
(1)		(2)	(3)	(4)	(5)
Total Population*	Total	100.1	62.1	94.9	58.8
	Boys	114.0	76.6	104.1	67.2
	Girls	85.5	47.8	85.2	49.7
Scheduled Tribes	Total	103.4	39.7	97.7	58.0
	Boys	126.8	51.3	112.7	70.8
	Girls	78.6	27.5	82.7	44.8
GAP	Total	(+) 3.3	(-) 22.4	(+) 2.8	(-) 0.8
	Boys	(+) 12.8	(-) 25.3	(+) 8.6	(+) 3.6
	Girls	(-) 6.9	(-) 20.3	(-) 2.5	(-) 4.9

Note : * Includes ST population.

Source : Annual Report of respective years, Department of Education, Ministry of Human Resource Development, GOI, New Delhi.

4.2.41 While considerable progress has been registered in the literacy rates amongst STs, their enrolment ratios when compared to the total population present a mixed picture (Table 4.2.7). The pace of progress of enrolment of both ST boys and girls at the middle level between 1990-91 and 1999-2000 has been quite impressive, as compared to that of the total population. What is worth noting is that the ST girls maintained a good pace, especially at the middle level. However, the enrolment ratio of ST girls both at primary and middle levels was lower than that of the total population in both the years.

4.2.42 The drop-out rate, which is another crucial indicator in the field of educational

development also shows that there has been a steady decline in respect of both general and ST categories (Table 4.2.8). The problem of drop-outs happens to be a common feature for both general and ST students. While both the categories have been showing a decreasing trend during 1990-91 to 1998-99, the problem still appears to be the worst with regard to STs, as they hold very high drop-out rates of 57.36 in classes I to V, 72.80 in classes I to VIII and 82.96 in classes I to X during 1998-99. Also, the gap between the general population and STs was found to be widening from 13.67 in 1990-91 to 15.52 in 1998-99 at the secondary level, which is a cause for much concern.

Table – 4.2.8
Drop-Out Rates amongst STs and Total Population (1990-91 and 1998-99)

(in per cent)

Category	Classes (I-V)		Classes (I-VIII)		Classes (I-X)	
	1990-91	1998-99	1990-91	1998-99	1990-91	1998-99
(1)	(2)	(3)	(4)	(5)	(6)	(7)
Total	42.60	39.74	60.90	56.82	71.34	67.44
STs	62.52	57.36	78.57	72.80	85.01	82.96
GAP	19.92	17.62	17.67	15.98	13.67	15.52

Note : * Includes ST students.

Source : Educational Profile of States/UTs, Department of Education, Ministry of Human Resource Development, GOI, New Delhi.

Table – 4.2.9
Population Living Below Poverty Line (1993-94 and 1999-2000)

(in per cent)

Category	1993-94		1999-2000		Percentage Change (Col. 2-4) (Col. 3-5)	
	Rural	Urban	Rural	Urban	Rural	Urban
(1)	(2)	(3)	(4)	(5)	(6)	(7)
Total*	37.27	32.38	27.09	23.62	(-) 10.18	(-) 10.04
STs	51.94	41.14	45.86	34.75	(-) 6.08	(-) 6.39
GAP	14.67	7.48	18.77	11.13	(+) 4.10	(+) 3.65

Note : * Includes ST population.

Source : Perspective Planning Division, Planning Commission, New Delhi.

Economic Status

4.2.43 The strategy of promoting employment-cum-income generating activities to alleviate poverty amongst STs has proved to be effective in raising a large number of ST families above the Poverty Line during the period between 1993-94 and 1999-2000, as quantified at Table 4.2.9 :

4.2.44 Along with the general population, the percentage of ST families living below the poverty line has also shown a declining trend between 1993-94 and 1999-2000 (Table 4.2.9). However, it is discouraging to note that the rate of decline in respect of STs is much lower than that of the general population. Also, the gap between the poverty rates of the general population and of the STs has increased during the same period. Further, the incidence of poverty amongst STs still continues to be very high with 45.86 and 34.75 per cent living below the poverty line in rural and urban areas

respectively when compared to the figures of 27.09 and 23.62 per cent, in respect of general population in 1999-2000. This is primarily because a large number of STs are landless with no productive assets and with no access to sustainable employment and minimum wages. The ST women suffer from the added disadvantage of being denied of both equal and minimum wages.

Participation in Decision-Making

Administration

4.2.45 Participation of STs in administration is another indicator of positive impact of developmental planning on the status of STs. Tables 4.2.10 and 4.2.11 reflect the representation of STs in the All India Services of Indian Administrative Service (IAS), Indian Police Service (IPS) and Indian Forest Service (IFS) and Other categories:

Table – 4.2.10
Representation of STs in the All India Services of Administration (1996-2000)

Category	IAS		IPS		IFS	
	1996	2000	1996	2000	1996	2000
(1)	(2)	(3)	(4)	(5)	(6)	(7)
Total*	5,047	5,519	2,947	3,301	2,305	2,557
STs	270 (5.3)	261 (5.1)	208** (7.1)	229 (6.9)	158# (6.9)	179 (7.0)

Note : * Includes STs

** Derived from Annual Report 2000-01, Ministry of Personnel, Public Grievances and Pension, GOI, New Delhi

Derived from Annual Report 2000-01, Ministry of Environment & Forests, GOI, New Delhi.

- Figures within parentheses indicate percentage to total.

Source : 1. Department of Personnel & Training, GOI, New Delhi
2. Ministry of Environment & Forests, GOI, New Delhi

Table – 4.2.11
Representation of STs in Central Government Services (1974 - 1999)

Category	Groups				Total
	A	B	C	D	
(1)	(2)	(3)	(4)	(5)	(6)
As on 1.1.1974					
Total	33,672	52,343	15,66,796	12,42,548	28,95,359
ST	155 (0.46)	258 (0.49)	33,383 (2.13)	47,679 (3.84)	81,475 (2.81)
As on 1.1.1984					
Total	-	-	-	-	33,03,342
ST					1,49,391 (4.52)
As on 1.1.1994					
Total	59,016	1,03,198	23,81,613	10,23,285	35,67,112
ST	1,727 (2.92)	2,902 (2.81)	1,28,228 (5.38)	62,945 (6.15)	1,95,802 (5.49)
As on 1.1.1999					
Total	93,520	1,04,963	23,96,426	9,49,353	35,44,262
ST	3,172 (3.39)	3,512 (3.35)	1,45,482 (6.07)	66,487 (7.00)	2,18,653 (6.17)

Note : - Data refers to Government of India only

- Figures in parentheses indicate percentage of STs to the total Central Government Services, excluding Sweepers

Source : Annual Reports of respective years, Ministry of Personnel, Public Grievances & Pension, GOI, New Delhi.

4.2.46 Although, the total representation of STs in services covering A to D Groups has risen from 2.81 per cent in 1974 to 6.17 per cent in 1999, they are yet to reach their expected level (Table 4.2.11). A similar situation exists with regard to their representation in the All India Services of IAS, IPS and IFS also (Table 4.2.10). However, the increasing participation of STs in Group 'A' Services, that is from a mere 0.46 per cent in 1974 to 3.39 per

cent in 1999 reflects the impact of various affirmative measures taken in bringing them into the mainstream. At the same time, the data also reveals the big gaps that need to be bridged with more effective interventions, if STs have to be brought on par with the general population, especially in respect of Group A posts, the level at which decision-making takes place.

Political

4.2.47 Affirmative discrimination through reservation for STs in the Lok Sabha, State Legislative Assemblies and in the PRIs has established the growing strength of STs not only in terms of their participation in the democratic

processes of the country since independence, but also in their representation in the political decision-making institutions, i.e. Parliament, Legislative Assemblies and in the grass root democratic institutions viz., Panchayats and Local bodies, as shown below:

Table - 4.2.12
Representation of STs in Political Decision-Making Institutions (1995-2001)

Category	Panchayati Raj Institutions (By 2001)				State Leg. Assemblies (By 2000)	Lok Sabha (1999)
	Gram Panchayats	Panchayat Samitis	Zilla Parishads	Total PRIs		
(1)	(2)	(3)	(4)	(5)	(6)	(7)
Total*	25,80,261	1,28,581	13,484	27,22,326	4,072	543
STs	2,35,445 (9.1)	7,237 (5.6)	1,170 (8.7)	2,43,852 (9.0)	530 (13.0)	41 (7.5)

Note : - Figures in parentheses are percentage to total

Source : 1. Election Commission, New Delhi

2. Department of Rural Development, GOI, New Delhi.

3. National Informatics Centre, Parliament House, New Delhi.

Table - 4.2.13
Representation of STs in the Central Council of Ministers (1991 and 1999)

Year	STs	General	Total
(1)	(2)	(3)	(4)
1991	3 (5.3)	54	57
1999	3 (4.1)	71	74

Note : Figures within parentheses indicate percentage to total.

Source : National Informatics Centre, Parliament House, New Delhi

4.2.48 As seen in Table 4.2.12, on the whole, representation of STs in the political decision-making institutions at various levels has been quite impressive, as they are holding seats more than their due share, except in Panchayat Samitis. While the share of STs in the PRIs stood at 9.0 per cent in 2001, their share in State Legislative Assemblies was 13 per cent in 2000. In Lok Sabha, however, their share was only 7.5 per cent. While the number of STs in the Central Council of Ministers remained the same between 1991 and 1999, their representation as a percentage of the total has declined from 5.3 per cent to 4.1 per cent over the same period (Table 4.2.13). Of the 3 STs in the Central Council of Ministers in 1999, 2 are of Cabinet rank and one is a Minister of State.

UNRESOLVED ISSUES AND PERSISTING PROBLEMS

4.2.49 Tribal communities continue to be vulnerable even today, not because they are poor, asset-less and illiterate compared to the general population; but often their distinct vulnerability arises from their inability to negotiate and cope with the consequences of their integration with the mainstream economy, society, cultural and political systems, from all of which they were historically protected by their relative isolation. The requirements of planned development brought with them the dams, mines, industries and roads, all located on tribal lands. With these came the concomitant processes of displacement followed by

a conflict between development and protection of tribal rights and interests. Tribal institutions and practices were forced into uneasy co-existence, which paved the way to market or formal State institutions. Also, the tribals found themselves at a great disadvantage in the face of an influx of better-equipped outsiders into tribal areas. The repercussions for the already fragile socio-economic sustenance base of the tribals were devastating - ranging from the loss of livelihoods and land alienation on a vast scale to hereditary bondage.

4.2.50 As the tribals grapple with these tragic consequences, a small clutch of bureaucratic programmes could do little to resist the precipitous pauperisation, exploitation and disintegration of tribal communities. As a result of this, the tribals continue to suffer and bear with a number of 'Unresolved Issues' and 'Persisting Problems', which require immediate attention of the Government. The following paragraphs explain the seriousness of some of the Unresolved Issues and Persisting Problems :

UN-RESOLVED ISSUES

Displacement of Tribals

4.2.51 Displacement or forced/voluntary eviction of tribals from their land and their natural habitats and subsequent rehabilitation has been a serious problem that remains to be addressed by the Government. As per the information readily available, a population of 21.3 million have been displaced between 1951 and 1990 in the states of Andhra Pradesh, Bihar, Gujarat, Maharashtra, Madhya Pradesh, Rajasthan and Orissa. Of whom, 8.54 million (40 per cent) are tribals and of those only 2.12 million (24.8 per cent) tribals could be resettled, so far. Displacement took place mainly on account of development projects, which include - large irrigation dams, hydro-electric projects, open-cast and underground coal mines, super-thermal power plants and mineral-based industrial units. In large mining projects, tribals lose their land not only to the project authorities, but even to non-tribal outsiders who converge into these areas and corner both land and the new economic opportunities in commerce and petty industry. The incomplete rehabilitation of the displaced tribals has further

compounded their woes as they are pushed into a vortex of increasing assetlessness, unemployment, debt bondage and destitution. Women and children as ever are the worst affected.

Tribal Land Alienation

4.2.52 Land is not only the most important productive resource base for the tribals, but also occupies an important place in their psyche as the mainstay of their social and religious practices. Over a period of time, this resource base of the tribal communities has tended to get eroded not only through acquisition for public purposes but also through fraudulent transfers, forcible eviction, mortgages, leases and encroachments. As per the information available with the Ministry of Rural Development, as many as 4.65 lakh cases of alienation of tribal land covering an area of 9.17 lakh acres were registered in the states of Andhra Pradesh, Assam, Bihar, Gujarat, Himachal Pradesh, Karnataka, Madhya Pradesh, Maharashtra, Orissa, Rajasthan and Tripura in January 1999. Against this, only 2 lakh cases were disposed of in favour of 1.56 lakh tribal families covering an area of 5.31 lakh acres. Of these, the states affected by large-scale tribal land alienation include Andhra Pradesh (2.79 lakh acres), Madhya Pradesh (1.58 lakh acres), Karnataka (1.30 lakh acres), and Gujarat (1.16 lakh acres). Various studies have pointed out that the lack of political and administrative will continues to be the cause for perpetuation of the problem of land alienation amongst the tribals as reflected in the reluctance to amend legal provisions and plug the existing loopholes and swift administrative action to identify alienated land, and restoring it to the tribals with delivery of possession.

Indebtedness

4.2.53 The problem of indebtedness amongst tribals is not only an indication of their poverty but also reflects the wider economic malaise, i.e., lack of education, low purchasing/bargaining power and lack of resources for engaging in gainful activity and meeting emergent expenditure. Therefore, the problem continues to persist with increasing menace as the indebtedness pushes the tribals further into extreme conditions of poverty and forces them to dispense with their meagre resources, including the

small bits and pieces of land to pay off the loans at exorbitant rates of interest. The initiation of commercial vending of liquor in tribal areas has started impoverishing the tribal population, making them victims of indebtedness and exploitation. Although the States and UTs have broadly accepted the Guidelines (relating to the Excise Policy in Tribal Areas, 1975, issued by the Ministry of Social Welfare), effective follow-up action is not taken for their implementation. Under the Fifth Schedule to the Constitution, the Governors of states with Scheduled Areas were given powers for making regulations and for placing restrictions on money-lending activities in the Scheduled Areas. Relevant Laws/Regulations exist in 16 TSP states/UTs to regulate the business of money-lending and to give debt-relief. However, the legal measures to curb the activities of money-lenders and traders have failed to have much impact on the severity of the problem due to the ineffective enforcement machinery and lack of alternative sources of credit for meeting the tribals' consumption and productive needs. Lack of a sound policy to support consumption credit to tribals has tended to make them dependent on usurious money-lenders, resulting in debt-bondage. The problem of tribal indebtedness often gets aggravated and compounded with the government subsidy-cum-loan schemes which further lead the tribals into deep indebtedness.

Shifting Cultivation

4.2.54 Shifting Cultivation, which is not ecologically sound, is still being practised by the tribals living on the higher slopes of hilly areas of the country. As estimated, more than 6 lakh tribal families in the North Eastern states, Orissa, Andhra Pradesh and Himachal Pradesh practise shifting cultivation on a continuous basis. This shifting cultivation is integrally linked to the tribal economy in the areas where it is practised and their social and economic activities and rituals are also centred around this practice. The problem of shifting cultivation is a very complex one, involving economic, social and psychological aspects of the tribal communities. Although shifting cultivation is one of the prime sources of living for the tribals, yet the same has been severely restricted. The Ministry of Agriculture has been implementing a scheme for

control and transformation of Shifting Cultivation in the North Eastern states, but the pace of its implementation has been very slow.

Deprivation of Forest Rights

4.2.55 Forests and Tribals share a symbiotic relationship. Tribals continue to live in forest areas, though in isolation, yet in harmony with environment. Recognising this dependency, the National Forest Policy, 1988, stipulated that all agencies responsible for forest management should ensure that the tribal people are closely associated with the regeneration, plantation, development and harvesting of forests so as to provide them gainful employment. Despite these special safeguards, tribals continue to struggle for mere survival as they face formidable problems and displacement due to development of national parks and wild-life sanctuaries and other environmental restoration projects, lack of development in forest villages etc. The protection of rights of tribals in forests is key to the amelioration of their conditions.

4.2.56 While the 'Un-resolved Issues' need to be attended to on a priority basis, the on-going efforts along with new initiatives for empowering the tribals will continue simultaneously with added thrust so as to mitigate the 'Persisting Problems' in the critical areas of education, health, livelihood, poverty, vulnerability, violence, unrest etc. so as to accelerate the process of empowering STs towards accomplishing the task of raising their status on par with rest of the society. Prominent amongst such Persisting Problems requiring the most concerted and time-bound efforts, are discussed below:

PERSISTING PROBLEMS

Low Literacy and High Drop-out Rates

4.2.57 Despite the programme of Universalisation of Primary Education, which has been in effective operation since 1986, the literacy rate of STs remained as low as 29.6 per cent, while the general literacy rate reached 52.2 per cent in 1991. Similarly, the female literacy rate of STs stood at 18.2 per cent which is also much lower in comparison with 39.3 per cent in respect of general category. As the 1991 Census

data reveals, there are tribal districts like Koraput in Orissa where the literacy rate of STs is as low as 8.9 per cent, while there are districts like Aizawl in Mizoram with as high as 88.8 per cent. Similarly, there are districts like Jalor in Rajasthan with as low as 0.6 per cent of ST female literacy rate, while Aizawl in Mizoram has female literacy rate as high as 85.7 per cent. Further, the gap between the general population and that of STs was also found to have widened from 19.9 per cent to 22.6 per cent between 1981 and 1991, as discussed earlier. Adding to this are the problems of intra and inter-state/district and inter-community variations in the literacy rates of STs. Although, the drop-out rates have been showing a declining trend amongst STs in Classes I to VIII from 78.6 per cent in 1990-91 to 72.8 per cent in 1998-99, yet the same is still very high, when compared to 60.9 per cent and 56.82 per cent of general categories, respectively for the same years indicating a gap of 17.7 and 16.6 per cent.

Inadequate and Inaccessible Health Services

4.2.58 Although the National Health Policy, 1983 accords high priority to extending organised services to those residing in the tribal, hilly and backward areas as well as to the detection and treatment of endemic diseases affecting tribals, yet the tribals continue to be one of the fragile population, mainly due to their poor health and nutritional status. Tribal health is one of the important areas for action in the health sector. The major contributors to the increased disease risk amongst tribal communities include - i) poverty and consequent under-nutrition; ii) poor environmental sanitation, poor hygiene and lack of safe drinking water leading to increased morbidity from water and vector-borne infections; iii) lack of access to health care facilities resulting in the increased severity and duration of illnesses; iv) social barriers and taboos preventing utilisation of available health care services; v) vulnerability to specific diseases like G-6 PD deficiency, Yaws, and other endemic diseases like malaria etc. Also, the tribal population, being heterogeneous, there are wide variations in their health status, access to and utilisation of health services.

Nutritional Deficiencies and Diseases

4.2.59 Malnutrition is fairly common amongst the tribals, especially their children and women, debilitating their physical condition and lowering their resistance to disease, leading at times even to permanent brain impairment. As most tribal women suffer from anaemia which lowers resistance to fatigue, this affects their working capacity and increases susceptibility to disease particularly for those having closely-spaced frequent pregnancies. The nutritional status of tribal women directly influences their reproductive performances and the birth weight of their children, which is crucial to the infant's chances of survival, growth and development. Almost all the tribals in the country do not have a satisfactory dietary pattern as their diets are frequently deficient in calcium, Vitamin A, Vitamin C, Riboflavin and animal protein. The tribals are thus caught in a vicious cycle of malnutrition and ill-health.

Lack of Adequate Irrigation Facilities

4.2.60 Tribals in India primarily depend upon agriculture for their subsistence, which constitutes their mainstay. According to the 1991 Census, 42 per cent of the ST population are Main Workers. Of these, 54.5 per cent are cultivators and 32.7 per cent agricultural labourers. Thus, more than 87 per cent of the tribal main workers are dependent on agriculture. Further, while 42.9 per cent of the operational holdings of tribals belong to the category of marginal farmers with less than 1 hectare, 24.1 per cent are of small farmers category with 1 to 2 hectares; and only 2.2 per cent STs have large operational holdings with more than 10 hectares. The tribals generally live in most inhospitable terrain and practise shifting cultivation on higher slopes and dry-land cultivation in plains and lower slopes where productivity and output are very low. Lack of proper irrigation facilities, decline in soil fertility, and risks and uncertainties involving damages caused by the wild animals, pests, cyclones, droughts etc. have further deteriorated the agricultural yield. The growing tribal population and the declining agricultural productivity have become a serious threat to the subsistence base of the tribal communities, endangering their self-supporting food security system.

Extreme/Abject Poverty

4.2.61 The impact of various poverty alleviation programmes put into action during the last two developmental decades has, no doubt, brought down the poverty levels among STs from 51.94 per cent in 1993-94 to 45.86 per cent in 1999-2000 in rural areas and from 41.14 per cent to 34.75 per cent in urban areas over the same period. But, it is much higher when compared to 27.09 per cent in rural and 23.62 per cent in urban areas in respect of general categories during 1999-2000. Therefore, there has been an increasing unrest amongst the tribals and also in tribal areas in the recent past. Radical/Extremist movements are already operating in some parts of the country; the root cause for all these is the perceived dissatisfaction with the existing conditions and failure to receive benefits and facilities promised to them. Therefore, there is an urgent need to critically review the approach adopted so far for tribal protection and development, and reorient the same, wherever needed, so as to ensure flow of development benefits within a definite time-frame and restore the faith of the tribals in the capability of the government to deliver.

Endangering of Intellectual Rights

4.2.62 Having lived closely with forests and also interacting constantly with various flora and fauna, the tribals have developed invaluable indigenous knowledge. This indigenous knowledge amongst the tribal communities is passed on from generation to generation through the medium of oral tradition, folklore and practice, which find a place in various life-cycle events including treatment of diseases/ailments, without any codified text or rights to accredit their legitimate ownership. As tribal communities have a very close dependence on biological resources, their livelihood and life-style often depend upon and are shaped by these resources. Therefore, their survival and sustenance is closely linked to conservation and utilisation of these resources. Corporate protectionism in terms of patents and Intellectual Property Rights arising out of various international treaties/instruments on trade and common property resources such as the Trade Related Aspects of Intellectual Property Rights

(TRIPS) under the World Trade Organisation (WTO) represents a real threat to economic livelihood of these communities. They are also a source of potential exploitation of the tribal resource base as bio-diversity expressed in life forms and knowledge is sought to be converted into private property and treated as an open access system for free exploitation by those who want to privatise and patent it. There is an urgent need to provide appropriate legal and institutional arrangements for recognising and acknowledging the rights of tribal communities to such resources and knowledge.

Crimes/Atrocities against STs

4.2.63 As per the National Crimes Record Bureau, New Delhi, the number of crimes against STs indicated a decline from 4,644 in 1997 to 4,450 in 1999. However, although the share of crimes committed against STs remained the same in 1997 and 1998 at 0.07 per cent, yet, it showed a contrary trend with an increase to 0.09 per cent in 1999. The number of crimes attracting the provisions of Special Legislations of the Protection of Civil Rights (PCR) Act, 1955 and the Scheduled Castes and the Scheduled Tribes (Prevention of Atrocities) (POA) Act, 1989 has shown an increase from 731 in 1997 to 759 in 1998 and a decline to 619 in 1999. Further, though there was a decline in the number of crimes committed against STs in 1999, the number of violent crimes viz., murder, rape, hurt, dacoity, robbery, arson etc. have registered a steady increase from 491 in 1997 to 511 in 1998 and to 577 in 1999. The increase in the number of crimes against STs has been continuing, despite effective enforcement of Special Legislations and existence of 118 Special Courts in 12 states to deal with the cases exclusively related to STs.

Neglect of Forest Villages

4.2.64 As the 5,000 identified Forest Villages are located in the remote interiors, and are declared revenue villages, the 2.5 lakh families who inhabit these villages are deprived of even the basic minimum services available to residents of Revenue Villages. While the forest resource base, on which inhabitants traditionally depended, is fast eroding and adversely affecting the very survival of the tribals, alternative sources of income extended

through the implementation of various social forestry activities by the Department of Forests are also not ensured throughout the year. Some of the major problems faced by the Forest Villages include lack of infrastructure facilities viz. approach roads, electricity, drinking water, schools, hospitals, and irrigation tanks; lack of fair price/food-grain shops; lack of stable land tenure system; and lack of proper credit facilities and bank loans as the villagers do not have the papers related to the land which are necessary in getting the loans sanctioned. This is due to the fact that the land has the status of Reserved Forests attracting the Indian Forest Act, 1927 and especially the Forest (Conservation) Act, 1980; and the departmental rivalry between the Forest and Revenue Departments resulting in the exploitation and negligence of Forest Villages.

Extinction of Primitive Tribal Groups

4.2.65 The Government of India identified 75 tribal communities as Primitive Tribal Groups (PTGs) with a total estimated population of 1.32 million in 1991 spread over 15 States/UTs. There is a marked

A PLAN OF ACTION FOR PTGs

The Government of India identified 75 tribal communities as Primitive Tribal Groups (PTGs) with a total estimated population of 1.32 million in 1991, spread over 15 States/Union Territories based on a four-point criteria viz. - i) smallness in size and diminishing in number; ii) backwardness and isolation; iii) use of pre-agricultural technology; and iv) very low literacy.

As the PTGs live in more interior pockets which are generally inaccessible and with declining sources of sustenance, they become more vulnerable to hunger/starvation, malnutrition and ill-health. Some of them are even on the verge of extinction. They include Shompens, Jarawas, Sentinelese of the Andaman and Nicobar Islands; Bondos of Orissa, Cholanaickans of Kerala, the Abujhmarias of Chhattisgarh; and Birhors of Jharkhand. To save these Groups, what is required is the preparation of a National Plan of Action for their 'Survival, Protection and Development'.

difference between the conditions of the relatively advanced tribal groups and the PTGs. As they live in the most interior and inaccessible forests, they are subjected to extreme backwardness, when compared to the other tribals. A decline in their sustenance base and the resultant food insecurity, malnutrition and ill-health force them to live in the most fragile living conditions and some of them are even under the threat of getting extinct. Prominent examples in this context are the Bay-Islanders like the Great Andamanese, Shompens, Jarawas, Sentinelese of the Andaman & Nicobar Islands. Even some of the mainland groups which can be cited in this context like the Bondos of Orissa, Cholanaickans of Kerala, the Abujhmarias of Chhattisgarh, the Birhors of Jharkhand are also dwindling. As adequate information on the demographic, educational, health and economic aspects of individual primitive tribes is not available, immediate steps need to be taken for building up a comprehensive information/data base on PTGs and wherever necessary to conduct intensive studies and prepare detailed Status Reports. This should eventually form the basis for need-based planning to improve their conditions.

Ineffective Implementation of PESA, 1996

4.2.66 There is no doubt that the 73rd and 74th Constitutional Amendments of 1993 followed by their extension to Scheduled Areas through the Panchayats (Extension to the Scheduled Areas) PESA Act, 1996, are landmark achievements in conferring powers and authority to the Panchayats and Gram Sabhas. But, unfortunately, the same are not being enforced in the right spirit, as the PRIs are yet to stabilise on a firm footing. The State Governments should, therefore, take appropriate measures immediately to translate the legislation into reality so that tribals will have full say in their own affairs.

Routinised Mechanism of TSP

4.2.67 The special strategy of Tribal Sub-Plan (TSP) has been under implementation since 1975 both at the central and state levels with the objective of ensuring that the benefits from various developmental sectors do not by-pass STs and accordingly funds, in population proportion, are earmarked for the development of STs. Only 25

Central Ministries/Departments and 20 States/UTs, have been earmarking funds for TSP. Despite repeated suggestions to the State Governments to adopt the Maharashtra Model of resource allocations and utilisation, not many states have done so far. In Maharashtra, funds under TSP are pooled under the administrative control of the nodal state department in-charge of tribal development and utilised in the identified/needly areas. The strategy of TSP, as is implemented, has also become very much routinised. Thus, its impact on improving the conditions of STs is not being felt.

APPROACH TO THE TENTH PLAN – PATH AHEAD

4.2.68 In the context of the above-mentioned Un-resolved Issues and the Persisting Problems becoming not only a challenge of the day, but also getting manifested into movements of tribal unrest, the best approach to the Tribal Development in the Tenth Plan will be to tackle these Issues and Problems on a time-bound basis, besides providing adequate space and opportunity for the Tribals to empower themselves with the strength of their own potentials. Thus, the Tenth Plan approach towards 'Resolving the Un-resolved Issues' and 'Solving the Persisting Problems' will be as follows:

I. Resolving the Un-resolved Issues

4.2.69 Displacement of tribals and their rehabilitation being a matter of great concern, the Tenth Plan will try to expedite the finalisation of the National Policy for Rehabilitation of the Displaced Persons with a special focus on the displaced tribals, ensuring that there is no deterioration in their living conditions by providing them 'land for land' and 'item for item' – last possessed before displacement. Further, towards protecting the interests of the tribals who are under the threat of displacement, effective steps need to be ensured as per the provisions of the Fifth Schedule to the Constitution on Scheduled Areas and the PESA Act, 1996.

4.2.70 Taking note of the most devastating impact of the growing incidence of tribal land alienation and the present day serious situation, the Tenth Plan accords high priority to prevent the same and restore the alienated land to the tribals and, if possible, to put

a total ban on the transfer of tribal land to non-tribals or even to the Government in accordance with the Supreme Court's judgement in the Samatha vs. State Government of Andhra Pradesh and Others case 1997, whereby restrictions are imposed on transfer/leasing of land in Scheduled Areas to non-tribals or the Government for mining purposes. To this effect, efforts of the Tenth Plan will be towards maximising the effects of the provisions of the Fifth Schedule relating to direct interventions by the respective State Governors, either individually or collectively. The Tenth Plan will also endeavour to revive the earlier practice of not only submitting the Reports on the governance of the Scheduled Areas and the well-being of the tribals living therein in pursuance of the Fifth Schedule, but also the follow-up action on the recommendations of those Reports. If necessary, steps will also be taken to amend the legal provisions for plugging the existing loopholes, take swift administrative action in identifying the alienated land and restoring it to the tribals with delivery of possession and ownership rights.

4.2.71 In addition, efforts will also be made to persuade all the concerned State Governments to bring forth necessary amendments in their existing laws and regulations concerning tribal land to ensure - i) total ban on transfer of tribal land to non-tribals; ii) stringent penal provisions for non-tribal persons found in possession of tribal land once restored; iii) land alienation laws to cover non-Scheduled Areas; iv) effective machinery for quick disposal of cases and restoration of land possession; v) strengthening of traditional tribal Panchayats/councils with adequate legal awareness and legal aid provisions; vi) constitution of committees with tribal representatives to review the projects involving land alienation where it becomes inevitable, and the resultant rehabilitation of the affected tribals; and vii) awareness generation and legal aid for the implementation of legal provisions concerning land alienation.

4.2.72 In view of the vicious cycle and the crisis syndrome of indebtedness/debt-bondage that the tribals are subjected to, efforts in the Tenth Plan will be to enforce effectively all the legal/protective measures along with the provisions and powers bestowed upon the Governors under the Fifth Schedule of the Constitution. Besides enforcing the protective legislation in preventing tribal

APPROACH FOR EMPOWERING TRIBALS

Towards empowering tribals, the major Approach in the Tenth Plan will be to 'Resolve the Unresolved Issues' and 'Solve the Persisting Problems' through continuing the on-going 3-pronged strategy of – i) Social Empowerment; ii) Economic Empowerment; and iii) Social Justice, as detailed below:

● Resolving the Un-resolved Issues through:

- Taking effective steps to prevent the serious problem of displacement of tribals and ensuring their effective rehabilitation through a laid-down Rehabilitation Policy
- Taking effective steps to prevent the growing incidence of tribal land alienation and restoration of alienated land to the tribals in accordance with the provisions of the Fifth Schedule
- Effective enforcement of existing legal/protective measures along with the provisions made under the Fifth Schedule to prevent tribal indebtedness, bonded labour and other exploitation
- Involving tribals, especially those engaged in shifting cultivation, closely and gainfully in joint forest management, social forestry, agro-forestry etc. and facilitate rightful collection and gainful disposal of minor forest produce (MFP) and other produce
- Strengthening the grassroot democratic institutions viz., PRIs and Gram Sabhas as per the provisions of 73rd and 74th Amendments and PESA Act, 1996

● Solving the persisting problems through:

- Providing basic minimum services viz. food, nutrition, safe drinking water, primary health care, education, safe environment, productive assets at least at the level of survival and sustenance with a special focus on women, children and PTGs
- Promoting educational development among the tribals especially through reducing drop-out rates and encouraging enrolment/retention with a special focus on women and the girl child
- Making education relevant and suitable to their milieu, local situations and functional needs besides vocationalisation of education to equip the tribal youth with the most wanted technical knowledge and upgradation of skills
- Developing Forest Villages, on priority basis, by ensuring basic infrastructure and with basic minimum services for those tribals living therein
- Ensuring food and nutrition security so as to prevent deficiency diseases due to hunger, under-nutrition, starvation and malnutrition through expansion of the on-going programmes of Supplementary Nutrition Programme, Integrated Child Development Services, Mid-Day Meal, Targetted Public Distribution Scheme and Village Grain Banks
- Review and reform of the working of the financial and other support mechanisms (NSTFDC, TDCCs, TRIFED etc.) not only to function as self-reliant institutions but also to maximise their efforts in accomplishing economic development amongst tribals in real terms
- Effective implementation of the Indian Penal Code, the PCR Act 1955 and the SC/ST (Prevention of Atrocities) Act, 1989 in order to protect the rights and interests of the tribals and ensure their safety and security
- Effective and meaningful implementation of the special strategies of SCP and TSP both at central and state levels and ensuring operational optimisation/maximisation of ITDPs.

indebtedness, there is also a need for improving the economic lot of the tribals simultaneously, through employment-cum-income-generation activities and productive asset endowments. Further, efforts of the Tenth Plan will be to persuade those States/UTs which are yet to enact necessary legislations to prevent the extortion by money lenders, besides amending the existing legislations, if necessary, to plug the loopholes in the existing legislations as per the legal framework provided under Para 5(2)(c) of the Fifth Schedule and relevant Sections of the PESA Act, 1996 with clear-cut stipulations on the interest rates to be charged and the manner of payment of loans, recoveries etc.

4.2.73 As Agriculture continues to remain the primary economic occupation of tribals, the Tenth Plan will endeavour to boost agricultural production in tribal areas through effective operationalisation of the National Water Policy and improve the extension of irrigation facilities. There will be a special thrust on - i) watershed management, rain water harvesting and water saving practices in tribal areas; ii) promotion of micro-irrigation systems; iii) management of irrigation projects by the local tribal farmers; iv) involvement of Water Users' Associations; and v) mass education and public awareness amongst the rural and tribal population for effective water resource management. Also, efforts will be made to wean away 6 lakh families in a phased manner from the practice of Shifting Cultivation which has serious environmental impact. Towards this, the on-going scheme of Watershed Development Project in Shifting Cultivation Areas of the Ministry of Agriculture will be expanded to bring the entire area of shifting cultivation under the ambit of this programme.

4.2.74 While recognising the deep-rooted relationship between tribals and forests, the National Forest Policy, 1988, has already articulated the protection of the interests of tribals as much that of the forest and the forest environment. Therefore, the Tenth Plan will adopt an effective strategy which takes into account the prospects of the tribals as well as protection of forests together, complementing each other in such a way that the tribals are closely and gainfully involved/associated with all the activities related to regeneration, afforestation, protection and management of forest areas under Joint Forest Management (JFM). This will be taken up through

earmarking of forest areas to define tribal user-groups and awarding them with the legitimate voice and choice in the decision-making. Measures will also be initiated to strengthen the on-going efforts of promoting commercial cultivation and collection of medicinal plants as one of the avenues for promoting tribal economy in close co-operation and co-ordination amongst the three Ministries of Environment & Forests, Tribal Affairs and the Department of Indian Systems of Medicines and Homeopathy (ISMH). The efforts of the Department of ISMH will be further strengthened and expanded not only to involve more and more tribals in developmental activities, but also to keep them gainfully engaged. Efforts will be made to ensure that the interests of the tribals are protected and linked with the bio-diversity and environment restoration projects viz., JFM, Social Forestry, Agro-Forestry, etc.

II. Solving the Persisting Problems

4.2.75 The basic necessities for a normal living viz. – food and nutrition, safe drinking water, education, health care and productive assets, at least at the level required for survival and sustenance could not be assured for the tribals even till today due to obvious reasons like physical isolation and lack of social and economic ability to avail of/acquire these basic minimum needs. Therefore, the tribals, especially women and children, are subjected to deprivation and consequential hazards of backwardness. Hence, efforts in the Tenth Plan will be not only to identify the priority groups requiring the basic needs and living in different geographical regions with varied socio-economic conditions, but also to attend to the same in an accelerated manner with added inputs in solving the persisting problems on a time-bound basis.

4.2.76 Keeping in line with the general approach narrated above, the Tenth Plan will initiate action to give a boost to the on-going programmes in both the tribal-specific and tribal-related Ministries/Departments, as per the details given below:

4.2.77 Education being the most effective instrument for empowering the tribals, all out efforts will be made to improve their educational status, especially that of the tribal women and the girl child. Introduction of certain innovative components relevant to the tribal milieu and genius under the on-

going programmes will be one of the measures during the Tenth Plan. Vocationalisation of education at high school/higher secondary level will be given high priority so that the local youth can be kept gainfully engaged with the technical know-how gained through advanced technology. In view of the impediments faced in reaching the educational facilities to the remote areas, efforts will be made to mobilise the local resources to develop educational infrastructure, besides utilising the services of the educated local tribals. Special efforts for improving the educational status of PTGs and the tribals living in the Forest Villages will also be attempted through residential schools, mobile schools and community-based educational programmes. Efforts will also be made towards developing teaching material and instruction medium in tribal languages/dialects up to primary level, so as to help the tribal children feel at ease to understand what is taught.

4.2.78 Health being the fundamental requirement for the tribals to survive, especially for PTGs, special strategies with preventive-cum-curative-cum-remedial measures with improved extension of health knowledge, infrastructure, immunisation services will be adopted during the Tenth Plan. These strategies will have a special focus on PTGs and Forest Villages. Indian System of Medicine and other alternative medicinal systems, especially the indigenous medicines and the traditional knowledge and methods of healing will be encouraged in attending to the health needs of tribals. Further, primary health care services in tribal areas will be extended by involving local NGOs to cover all terrains in all seasons with a special focus on women, children and PTGs. Also special schemes in close collaboration with the Department of ISMH will be developed to involve tribals not only in preserving/growing medicinal plants, but also in processing the much wanted indigenous medicines.

4.2.79 Food and Nutrition Security is of vital importance for survival as well as for good health of the Tribals, especially that of PTGs as some of them are getting extinct due to hunger, starvation and malnutrition. Therefore, special efforts will be made to reach the programmes of Special Nutrition Programme (SNP) through ICDS, for children below 6 years, expectant and nursing mothers, Mid-Day

Meals for school-going children and Targeted Public Distribution System to strengthen the house-hold food security to the tribals living in far-flung remote areas and especially PTGs. Opening of Mini-Anganwadis on a large scale with much relaxed norms and enriched expansion of Village Grain Banks are some of the practical strategies to 'Reach the Un-Reached'. The most vulnerable PTGs and tribals living in the forest villages will be assured of total food security through supply of food grains under PMGY and SGRY. Further, efforts will also be made to cover all the Scheduled/Tribal Areas under the Expanded Programme of Grain Banks for Tribal Areas recently announced by the Prime Minister and thus ensure food security in all the tribal areas during the Tenth Plan period.

4.2.80 To protect the tribals from the adverse effects of the on-going liberalisation and globalisation, promotion of activities of national, multi-national and trans-national corporations will be attended to very cautiously. Keeping in view the special interests of the tribals, viz., their habitat, resource-base and Intellectual Property Rights, especially with regard to indigenous medicines, every precaution will be taken in granting patent rights so that the very existence of the tribals and their traditional knowledge are not exploited by modern economic activities. To protect the indigenous knowledge of tribals - in regard to their 'properties' and 'application' - including methods of cultivation, conservation, collection, utilisation, treatment/ processing methods and techniques - acquired through the generations, the Tenth Plan will initiate action on priority basis for providing a legal and institutional framework to recognize/ acknowledge the Intellectual Property Rights of tribals to such resources and knowledge and accord these communities legal recognition and protection of their ownership rights. Necessary measures will also be taken urgently in view of the fast depleting bio-diversity, large-scale bio-piracy and exploitation of tribal people by commercial agencies.

4.2.81 Further, economic empowerment of the tribals will be promoted through employment-cum-income-generation activities with the ultimate objective of raising them above the Poverty Line. All agencies working for prevention of their exploitation by middlemen and promoting self-

employment and income-generating activities including the tribal-specific and tribal-related Corporations and Cooperatives especially NSFDC and TRIFED will be strengthened and streamlined further to make them more effective in improving the economic conditions of the tribals. While making these Corporations function as viable, sustainable and economically self-reliant, they will also be made to develop both forward and backward linkages to extend credit and marketing facilities through the medium of Self-Help Groups (SHGs). To this effect, cultivation and production of indigenous herbal medicines, which have a growing demand in the foreign market will be promoted in the tribal areas by involving the tribals themselves and thus preserve their Intellectual Property Rights. While the tribals and their forest eco-system will be put to gainful use for producing qualitative indigenous herbal medicines, the existing Tribal Corporations will be made to function as supporting mechanisms for providing all the necessary marketing facilities, especially in the export market.

4.2.82 The major strategy of creating employment-cum-income-generation activities to alleviate poverty amongst STs has proved its impact in raising a large number of ST families above the level of Poverty Line. Therefore, special efforts will be made in collaboration with the Department of Rural Development to provide employment and income-generation opportunities, especially to those living below the Poverty Line either through wage or self-employment avenues, for a minimum period of 300 days a year to raise their economic status and thus liberate them from the shackles of poverty and indebtedness. In this direction, the Tenth Plan will also endeavour to link up micro-credit both for self-employment ventures and consumption credit, when no work opportunities are available. Both the National and the State Tribal Development Corporations will take the lead not only in promoting employment-cum-income-generation activities, but also in developing both 'forward and backward' linkages to ensure sustainable source of income especially during the lean period.

4.2.83 As the increasing incidence of crimes/atrocities against STs has proved to be detrimental to their development, the Tenth Plan takes special cognisance of this fact and initiates action to

reactivate the Enforcement Machinery to ensure effective implementation of Special Legislation viz. the SC & ST (Prevention of Atrocities) Act of 1989 which was specially enacted to protect these vulnerable groups by extending more stringent punishment than provided under IPC. The Comprehensive Rules framed under the SC/ST (Prevention of Atrocities) Act, 1989 will continue to provide relief and rehabilitation to the affected persons. Efforts will also be made to involve NGOs as Authorised Agencies to act as Informants besides helping the victims with various procedures, right from filing the First Information Report. Steps will also be taken to spread the Legal Literacy through simple and illustrated versions in regional languages in order to educate the STs about their rights and privileges, besides the legal sanctions.

4.2.84 As the Forest Villages and the people living therein are denied even the basic minimum services, the Tenth Plan will take up the development of these villages, on a priority basis. These villages will be provided benefits/services just as in the case of Revenue Villages, besides a package of basic minimum services viz. food, safe drinking water, health care, primary education, approach roads and other infrastructural facilities. The Department of Forests will be made responsible for attending to the specific needs and problems of the Forest Villages and the tribals living there.

DEVELOPMENT OF FOREST VILLAGES

Development of 5,000 Forest Villages and the 2.5 lakh tribal families living therein continued to remain as one of the weakest links in the whole process of tribal development. The Tenth Plan will, therefore, take up the development of 'Forest Villages' on priority basis and ensure extending benefits/services just as in the case of Revenue Villages and reaching a comprehensive package with basic minimum services of food, safe drinking water, health care, primary education, approach roads and other infrastructural facilities. To this effect, efforts will be made to develop effective co-ordination to converge not only the existing services but also the men and machinery of the related State Departments. In this endeavour, the State Departments of Forests are going to play a major role.

Further, the Tenth Plan will attempt for the first time, to launch a Special Training Programme to sensitise the staff of the Forest Department, besides developing effective linkages to co-ordinate and converge not only the services, but also the men and machinery for the benefit of tribals.

4.2.85 Taking note of the precarious conditions of a majority of PTGs, the Tenth Plan will set as its first priority the preparation of a National Plan of Action (NPA) for the survival, protection and development of PTGs, in consultation with the State Tribal Research Institutes (STRIs) and Experts on the subject. Keeping in view the socio-cultural conditions and special needs of the PTGs, the proposed NPA will have an in-built flexibility with sub-plans to cater to the specific needs of each such tribe and its environment, besides ensuring the basic minimum services. Also, the on-going scheme for the development of PTGs will be expanded with effective involvement of voluntary organisations. If possible, the scheme will be revised to extend a package of basic minimum services along with income-generation activities. The priority services will include health care, immunisation, drinking water supply, nutrition, shelter etc. to save those PTGs which are facing extinction.

4.2.86 Notwithstanding the shortcomings in the implementation of the Tribal Sub-Plan Strategy, efforts in the Tenth Plan will be to motivate and gear up all the concerned Ministries/Departments both at the central and state levels to play their due roles meaningfully in the socio-economic development of the tribals through effective earmarking of funds/benefits, not merely on the basis of the proportion of tribal population, but on the basis of their actual needs. Also, the support mechanisms and institutions such as Integrated Tribal Development Projects (ITDPs), Integrated Tribal Development Agencies (ITDAs) and PRIs, Gram Sabhas will be activated with all the necessary support of both technical and manpower resources to perform their role effectively in bringing about the most wanted socio-economic development/empowerment of tribals. In this context, rationalisation of the Scheduled Areas in states having Scheduled Areas and declaration of tribal majority areas as Scheduled Areas in other states will be contemplated in the

Tenth Plan so that the benefits of the Fifth Schedule in respect of providing effective protection and promoting development through economic programmes under the TSP is also ensured to those who are not covered so far. The administrative reorganisation of the TSP areas in general will also be taken up, so that there are viable administrative units through which the protective measures and developmental programmes can effectively be implemented.

4.2.87 The Special Central Assistance (SCA) will continue to be provided to supplement the overall Plan efforts of the states only after due assessment of its financial situation and the needs of development. While designing and implementing development programmes including family-oriented programmes under SCA to TSP, care will be taken to ensure that differences within the community are not allowed to grow and an egalitarian structure of the community is maintained. Also, every effort will be made to ensure that the SCA to TSP is never diverted or misutilised.

4.2.88 The Tenth Plan recognizes the need for a separate Personnel Policy for Tribal Areas to ensure that all the Officers and the staff who are posted with the Ministries/Departments and those handling the welfare/development work of STs elsewhere, should necessarily undergo, as a pre-requisite, sensitisation training programmes at the STRIs and other Academies to develop professionalism in tribal development. This would also enable them not only to develop empathy for the tribal community, but also to function more effectively. Further, the Policy should be able to prescribe mandatory postings with a minimum number of years and incentives and disincentives for working and not working in a tribal area.

4.2.89 Keeping in view the prominent and productive role of women in tribal society, special focus will be given to enhance their capacity in the society and surrounding environment by taking effective steps to improve their status, in addition to the steps already proposed under education, health and nutrition sectors, through - i) promoting leadership role in JFM ; ii) issue of Joint *Pattas* in the name of both husband and wife; iii) protecting the rights of tribal women in the customary laws

regarding share in property and obligations to look after their interests and to enforce the same with the help of the community and social sanctions; iv) training of tribal women to take up leadership role and occupy elected posts in PRIs to ensure that the appropriate proportion of seats are reserved/occupied and the interests of tribal women are taken care of; v) legal and administrative measures to check the practice of victimising women suspected of witchcraft, along with a massive campaign for social awareness and rehabilitation of victimised women, preferably through women's organisations; vi) effective legal and rehabilitative measures to check sexual exploitation of tribal women, especially the migrant women at work place; vii) organising poor and assetless tribal women into SHGs for accessing micro-credit and income-generation activities; viii) opening of Sale Outlets to make essential commodities and other raw materials required in their day to day life easily accessible; and ix) flow of population-proportionate percentage of benefits to tribal women from the women-specific/women-related Ministries/Departments of Women and Child Development, Education, Health and Family Welfare, Rural Development, Labour etc.

4.2.90 To ensure survival, protection and development of the tribal children, concerted efforts will be made to expedite coverage of ICDS in all the Tribal Development Blocks/Tribal Pockets and Habitations all over the country. The innovative concept of 'Mini-Anganwadis' specially adopted in 1997 with the sole objective of 'Reaching the Un-reached Tribal Pockets' will receive special thrust during the Tenth Plan. Keeping in view the human resource development potentials of the tribal youth - both girls and boys - steps will be taken to extend job-oriented education/training with the objective of utilising their services for the good of their own community. This would also help reduce the problem of non-availability of officers/workers to serve in the tribal areas viz. Indigenous Health Workers, Trained Ayaahs, Auxiliary Nurse Midwives, Primary School Teachers, etc.

4.2.91 The landmark achievement of the 73rd and 74th Amendments to the Constitution in 1993 and the enactment of the Panchayats (Extension to the Scheduled Areas) Act, in 1996, has brought

forth a definite shift in the strategy of the Government to bring the people, especially the tribals into the main arena of planning and implementation of various development programmes. This, in fact, acts as the means for achieving social justice and empowerment of tribals at the very grassroot levels where their life and activities operate and their communities function. Therefore, strengthening, authorising and empowering the grassroot democratic institutions viz. Panchayats and Gram Sabhas in line with the Constitutional provisions, will be the basic premise on which the Tenth Plan approach would operate upon. Thus, Gram Sabhas/ Panchayats will become the basic units of planning and operation of every welfare and development activity, besides functioning as the authorised custodians of tribals and their rights.

EMPOWERING TRIBALS IN GOVERNANCE

Empowerment of tribals, in actual terms, can be realised only when the tribals themselves are bestowed with the right to participate in decision-making besides being equipped to find answers to their own problems. An answer to this was bringing the people-oriented 73rd and 74th Constitutional Amendments of 1993 into action, besides extending the same to the tribal areas through the **Panchayats (Extension to the Scheduled Areas) Act of 1996, (popularly known as PESA Act).**

With the strength and support of PESA Act, 1996 the traditional Gram Sabhas in the tribal areas are being endowed with special functional powers and responsibilities to ensure effective participation of the Tribal Societies in their own development and in harmony with their culture so as to preserve/ conserve their traditional rights over natural resources. All states, except Bihar have, so far, enacted parallel State legislations to give effect to the provisions of the PESA Act, 1996.

Thus, the PESA Act, 1996 is a landmark legislation which is going to legitimise the involvement of tribals in their own empowerment process not only as active participants, but also as effective decision-makers, implementors, monitors, supervisors and evaluators.

4.2.92 Also, through the PESA Act, 1996, the Fifth Schedule Areas will be effectively brought under the Panchayati Raj System with specific powers and responsibilities to Gram Sabhas so as to ensure closer and effective participation of the tribals in their own development by harmonizing with their own culture. The Gram Sabhas as the institutions of self and good governance will effectively be given functional powers by the concerned State Governments by passing necessary legislations to legitimise the tribal people's involvement in the process of their own empowerment as active participants rather than passive beneficiaries. For implementing projects in the North Eastern region successfully, traditional institutions like the Village Durbar in Khasi Hills, Village Councils of Nagas, Awunga of Thangkhus, Kebang and Moshup of Adis, Mulijum of Khamtis, Morung and Nuthum of Noctes, etc. will be involved effectively, along with the dedicated NGOs.

4.2.93 As the empowerment of tribals goes beyond the existing framework of the welfare and development, the efforts of the Central and State Governments will be to adopt both effective and innovative strategies/action plans by involving the tribal people and their institutions at all levels and the executive governmental agencies in a synchronizing manner. Consultation with the tribal people before taking decisions about their welfare and development will, therefore, become a functional pre-requisite for ensuring both acceptance/involvement of the tribal people besides effective implementation of programmes towards empowering them.

4.2.94 Finally, the absence of a laid-down national policy for empowerment of tribals has been the most obvious missing link and also a big gap in the planning process of empowering the tribals. Therefore, the efforts of the Tenth Plan will be to expedite the process of formulating a 'National Policy for Empowering the Tribals of India'. No doubt, the pronouncement of a National Policy with set objectives and time-bound targets will definitely activate all the concerned to maximise their efforts with a much clearer vision and direction towards achieving the Constitutional commitment of raising the status of tribals on par with the rest of the society.

4.2.95 For effective implementation of the proposed Policy, a National Plan of Action (NPA) also needs to be formulated by taking into consideration all the tribal-specific issues viz., high rates of illiteracy; health and nutritional deficiencies; lack of employment, and income-generation opportunities; lack of basic amenities like - housing, drinking water, sanitation, communication linkages; land alienation; indebtedness; social exploitation through debt bondage (bonded labour)/migrant labour; displacement; tribal unrest etc. Thus, the proposed NPA would require to specify clearly the sector-wise Action Points along with allocations required, agencies responsible, the time-frame set, mechanisms for implementation and monitoring etc.

RESEARCH, EVALUATION AND MONITORING

4.2.96 Research and Evaluation, both at the central and state levels, has been an on-going activity in the field of Tribal Development. At the centre, while the research and evaluation studies are being carried out through various Universities/Colleges and through some independent agencies, at the state level, the STRIs located in 14 major states have been actively engaged in diagnostic research on various problems related to tribals. As the state of affairs in the existing Research Institutes is not very encouraging, the Tenth Plan will commission a review of the working of all the 14 STRIs and attempt to re-activate these Institutes, especially those which are not carrying on the duties and responsibilities originally entrusted to them.

4.2.97 As Monitoring has been the weakest link in the whole process of Tribal Development, the Tenth Plan will attempt to develop an Information Network System in collaboration with National Informatics Centre (NIC) through which a regular flow of information is ensured both vertically and horizontally on the implementation of all the Tribal Development schemes, especially the two mechanisms of TSP and SCA to TSP. The Central Tripartite Committee set up at the centre and the State Committees, which are now coming up, will have to work in close co-ordination to ensure that funds released under SCA to TSP

and under Article 275(1) are utilised properly and with no diversions. Thus, the Tenth Plan will take the responsibility of streamlining the on-going activities of research, evaluation and monitoring of Tribal Development.

IMPLEMENTING MECHANISMS

4.2.98 The exclusive Ministry of Tribal Affairs set up in 1999, as mandated, will continue to play the role of a nodal Ministry in ensuring the well-being of STs. In executing this special task, it will continue to receive assistance from the National Commission for SCs and STs which will be re-activated to act as a watch-dog and keep a close vigil on the protection of the rights and interests of tribals besides investigating into the individual complaints. While an exclusive National Finance and Development Corporation for STs has already come into action in 2001, the Tenth Plan may also see, if necessary, the emergence of an exclusive National Commission for STs. The National Scheduled Tribes Finance and Development Corporation along with the State-level Tribal Development Corporations will continue to assist the Ministry in supporting various income and employment-generating activities for the economic betterment of the tribals. Towards strengthening the state sector, efforts for empowerment of tribals through setting up of exclusive Departments and Directorates for Tribal Development in all the states will be contemplated in the Tenth Plan.

VOLUNTARY ACTION

4.2.99 Recognising the catalytic role played by the Voluntary Organizations in the upliftment of STs, one of the major strategies in the Tenth Plan will be to promote voluntary action in the far-flung and inaccessible tribal areas, as voluntary organizations are the only medium to reach the un-reached and experiment/develop alternative models to match the local tribal people and their needs. The Voluntary Organisations will be encouraged in the functional areas of education, health, nutrition, women and child development, awareness generation, environment, human rights, employment generation, techno-vocational training, promotion of cooperatives, culture and

VOLUNTARY ORGANISATIONS (VOs)

Voluntary Organisations (VOs) have been playing a very important role in sharing the responsibility of the Government in 'Reaching the Services to the Un-reached' in far-flung inaccessible areas and in developing and experimenting alternative project models to match the needs of the local people. Voluntary Organisations are effective agents in bringing forth the most desired social change and development by virtue of their direct contact and linkages with the tribals. VOs will, therefore, be encouraged to play an effective role in improving the status of tribals in the areas of education, health, nutrition, employment and income-generation, besides sensitizing the administrative machinery and conscientizing the tribals to realize their rights and potential besides safeguarding them from social and economic exploitation.

sports, strengthening traditional Panchayats and social values to assist in countering militancy and promote national integration etc. with necessary safeguards and with a particular focus on those areas, where voluntary action is still thinly spread.

PLAN OUTLAYS

4.2.100 A total outlay of Rs. 1,754 crore (which excludes Rs. 2,500 crore as SCA to TSP and Rs. 1,500 crore as GIA under Article 275(1), subject to changes) has been earmarked in the Central Budget of the Ministry of Tribal Affairs in the Tenth Plan. In preparation to the Tenth Plan, special efforts were also made to ensure the effective distribution of the otherwise limited resources through the application of Zero Based Budgeting (ZBB). This has brought down the number of the on-going schemes of the Ninth Plan from 25 to 14 (10 Central Sector and 4 Centrally Sponsored Schemes) for empowering the Tribals in the Tenth Plan. A Statement reflecting the final outcome of the application of ZBB and the share of 14 schemes in the total Tenth Plan outlay of the Ministry is given in Annexure 4.2.1 and also in the Appendix. In addition, tribal development programmes receive plan financial support from the state sector also.

SCHEME-WISE BREAK-UP OF TENTH PLAN (2002-07) OUTLAY OF MINISTRY OF TRIBAL AFFAIRS

(Rs. in crore)

Sl. No.	Name of the Scheme	NINTH PLAN (1997-2002)		Application of ZBB Techniques	Sl. No.	TENTH PLAN (2002-07)	
		Outlay	Act. Exp.			Name of the Scheme (Final outcome of ZBB)	Outlay
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
I. CENTRAL SECTOR SCHEMES (CS)							
1	Grant-in-Aid to NGOs for STs	92.08	79.31	Merged & Retained (With Sl.No. 20 of CSS and Renamed as 'GIA to NGOs for Coaching ST Students for Competitive Exams.')	1	Grant-in-Aid to NGOs for Coaching ST Students for Competitive Exams.	178.98
2	Special incentives to NGOs performing exemplary tasks.	0.01	0.00				
3	Vocational Training Centres in Tribal Areas	30.25	16.78	Retained	2	Vocational Training Centres in Tribal Areas	67.12
4	Educational Complexes in Low-Literacy Pockets	23.20	11.71	Retained	3	Educational Complexes in Low-Literacy Pockets	44.74
5	Investment in TRIFED	29.25	29.25	Merged & Retained (Renamed as 'Investment in TRIFED and Price Support')	4	Investment and Price support to TRIFED	33.63
6	Price support to TRIFED	13.00	11.97				
7	Grant-in-Aid to STDCs for MFP	45.48	44.26	Retained	5	Grant-in-Aid to STDCs for MFP	78.31
8	Village Grain Banks	12.80	10.95	Retained	6	Village Grain Banks	231.00
9	Development of Primitive Tribal Groups (PTGs)	22.00	27.42	Retained	7	Development of Primitive Tribal Groups (PTGs)	111.87
10	National ST Finance & Development Corporation	0.00	0.19	Merged & Retained (With Sl.No.25 of CSS and Renamed as 'National ST Finance & Development Corporation and GIA to State ST Dev. & Finance Corporations')	8	National ST Finance & Development Corporation and GIA to State ST Dev. & Finance Corporations	178.99
11	Special Central Assistance (SCA) to Tribal Sub-Plan (TSP)	2010.00	2009.61	Retained	9	Special Central Assistance (SCA) to Tribal Sub-Plan (TSP)	2500.00 *
12	G.I.A. under Art.275(1) of the Constitution	750.00	666.85	Retained	10	G.I.A. under Art.275(1) of the Constitution	1500.00 *
13	Information and Mass Education	0.00		Merged (With Sl.No.24 of CSS)			
14	Organisation of Tribal Festivals	0.00	1.07				
15	Exchange of visits by Tribals	0.00					
16	Rehabilitation of Tribal Villages of Protected Areas	2.00	0.00	Weeded out			
Total - I		3030.07	2909.37				924.64

* Worked out on the basis of the allocation made in the Annual Plan for the year 2002-03. But the same can be changed based on the year to year allocation.

* Not included as the funds under these two schemes are being released to States/UTs as Special Central Assistance (SCA) through the Ministry of Tribal Affairs.

(Rs. in crore)

Sl. No.	Name of the Scheme	NINTH PLAN (1997-2002)		Application of ZBB Techniques	Sl. No.	TENTH PLAN (2002-07)	
		Outlay	Act. Exp.			Name of the Scheme (Final outcome of ZBB)	Outlay
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
II. CENTRALLY SPONSORED SCHEMES (CSS)							
17	Post-Matric Scholarships (PMS) for ST Students	@	90.80	Merged & Retained (Renamed as 'Scheme of PMS, Book Banks and Upgradation of Merit of ST Students')	11	Scheme of PMS, Book Banks and Upgradation of Merit of ST Students	383.09
18	Book Banks Scheme for ST Students	@	0.37				
19	Upgradation of Merit of ST Students	@	0.25				
20	Coaching and Allied Scheme for ST Students	@	0.22	Merged (With Sl.No 1 of CS)		—	—
21	Hostels for ST girls	36.77	24.43	Merged & Retained (Renamed as ' Scheme of Hostels for ST Students')	12	Scheme of Hostels for ST Students	134.24
22	Hostels for ST boys	36.53	28.77				
23	Ashram Schools in TSP Areas	44.86	23.97	Retained	13	Ashram Schools in TSP Areas	78.30
24	Research and Training for STs	25.90	10.54	Merged & Retained (Merged with Sl.No.13, 14 & 15 of CS and Renamed as 'Research & Mass Education, Tribal Festivals and Others')	14	Research & Mass Education, Tribal Festivals and Others	58.73
25	G.I.A. to State Scheduled Tribes & Finance Development Corporations (STDCs)	@	2.60	Merged (With Sl.No.12 of CS)		—	—
	—	—	—	—	—	Lump-sum provision for North East	175.00
	Total - II	144.06	181.95				829.36
	GRAND TOTAL - I + II	3174.13	3091.32				1754.00

@ The Scheme was common for SCs and STs under the M/SJ & E upto 1999-2000.

CHAPTER 4.3

OTHER SPECIAL GROUPS

INTRODUCTION

4.3.1 The fast changing socio-economic scenario in the country and its impact on urbanisation, industrialisation and modernisation of the economy has resulted in increasing trends of rural-urban drift in search of livelihood. This, in fact, has tended to put a strain on the already limited urban facilities, resulting in serious problems of over-crowding, emergence/increase in slum/pavement dwellers, unemployment, poverty, destitution etc. All these factors have exposed the vulnerable and the disadvantaged to the increasing incidence of social deviance and maladjustment. The traditional social structures like the joint family system, and their accompanying support services, and societal checks and balances which hitherto regulated social behaviour and extended care and protection to these Groups are no longer forthcoming. Consequently, the welfare and development needs of these Groups have now become the major responsibility of the State.

4.3.2 Thus, these Other Special Groups requiring care and protection of the State include - Persons with Disabilities, viz., loco-motor, visual, hearing, speech and mental disabilities; the Social Deviants who come in conflict with law viz., juvenile delinquents/vagrants, drug addicts, alcoholics, sex workers, beggars etc; and the Other Disadvantaged viz., the aged, children in distress such as street children, orphaned/abandoned children etc.

DEMOGRAPHIC PROFILE

4.3.3 Except for the Disabled (barring the mentally disabled) and the Aged for whom Population Census is undertaken, there is no authentic data available regarding the size of the

Other Special Groups. An added constraint is the uneven geographical spread of these groups, and the absence of precise definitions regarding the characteristics and composition of certain groups, e.g. street children, mentally disabled etc.

Persons with Disabilities

4.3.4 Persons with Disabilities are defined as those suffering from 4 types of disabilities viz. visual, loco-motor, hearing and speech and mental disabilities. No Census since Independence, barring the 1981 and 2001 Census, has ever enumerated the population of Disabled. As the 2001 Census figures are not yet available, one has to depend on the occasional sample surveys of the National Sample Survey Organisation (NSSO). The NSSO's countrywide surveys on the magnitude of the problems of disability show that the disabled population (excluding the mentally disabled) increased from 13.67 million (1.8 per cent of total population) in 1981 to 16.36 million in 1991 (1.9 per cent). Pending the availability of figures of the 2001 Census, the disabled population (estimated) in the country has been placed at 20.54 million, representing 2 per cent of the total population. Table 4.3.1 gives the magnitude and the size of various disabilities, as revealed by the NSSO Surveys of 1981 and 1991 and the estimated figures of 2001.

The Social Deviants

4.3.5 The social deviants include alcoholics and other substance abusers, beggars, juvenile delinquents, adult and child sex workers. On the periphery of this group are some sections of street children who very often resort to petty criminal activities for their sustenance. In the

Table - 4.3.1
Population of the Physically Disabled Persons (excluding Mental Retardation) during 1981-2001

(Figures in million)

Type of Disability	1981*	%	1991**	%	2001***
(1)	(2)	(3)	(4)	(5)	(6)
Loco-motor (with or without other disability)	5.43	39.7	8.04	49.2	10.1
Visual (with or without other disability)	3.47	25.4	3.63	22.2	4.6
Hearing (with or without other disability)	3.02	22.1	2.92	17.8	3.7
Speech (with or without other disability)	1.75	12.8	1.77	10.8	2.2
Total	13.67 (1.8)	100.0	16.36 (1.9)	100.0	20.5 (2.0)
Disabled (with more than one of the 4 disabilities mentioned above)	-	14.5	-	12.4	-

Note : Figures in parentheses indicate the percentage of the Disabled to the total population of the country.

Source : * NSS 36th Round;

** NSS 47th Round;

*** Estimated on the basis of the figures derived from the Annual Report 2000-01 of the Ministry of Social Justice & Empowerment. An average 2 per cent of the population is estimated to be disabled (other than mentally disabled) and inter disability break-up is assumed at 1991 levels.

absence of information on the size of the population of these Groups, one has to depend upon the data generated either by the occasional surveys or by research studies. According to the Selected Socio-Economic Statistics (2000) of the Central Statistical Organisation (CSO), New Delhi, there were 18,500 juvenile delinquents in the country in 1999. Similarly, the survey conducted by the Central Social Welfare Board (CSWB), New Delhi in 1991 in the six metropolitan cities of Kolkata, Mumbai, Chennai, Delhi, Hyderabad and Bangalore indicated a figure of 100,000 women sex workers and 39,000 child sex workers in these cities. In the case of the drug addicts, the United Nations International Drug Control Programme, New Delhi, in its Report on Drug Demand Reduction - South Asia in 1998 had estimated that about 3 million persons are addicted to different kinds of drugs.

The Other Disadvantaged

4.3.6 The improvement in nutrition and health facilities has had a direct impact on the changing demographic scenario and age structure in terms of decline in the crude death rate from 25.1 in 1951 to 9 in 1999. Thus, the population of the Older Persons (60+ years) has increased from 42.5 million in 1981 to 55 million in 1991 and is now placed at 70.6 million in the 2001 Census, representing 6.9 per cent of the country's total population. In absolute numbers, the population of the Aged has registered a very significant increase of nearly 70 per cent in the last two decades. In the coming years also, the country will continue to face an aging demographic profile. In case of the other disadvantaged groups, such as street children, estimates are based on research studies and surveys. Table 4.3.2 indicates the size of the population of these groups:

Table – 4.3.2
Estimated Size of the Population under Other
Disadvantaged Groups

(In million)

Sl.No.	Groups	Population
(1)	(2)	(3)
1.	Child Workers *	11.29
2.	Aged **	70.57
3.	Street Children #	0.42

Source : * Annual Report, 2000-01, Ministry of Labour, GOI, New Delhi.

** Report of the Technical Group on Population Projection, 1996, Registrar General of India, GOI, New Delhi.

As per survey conducted by Ministry of Social Justice & Empowerment, in collaboration with UNDCP, UNICEF, 1988-93 in 8 metropolitan cities of Bombay (Mumbai), Calcutta (Kolkata), Madras (Chennai), Bangalore, Ahmedabad, Delhi, Kanpur and Indore.

CONSTITUTIONAL PROVISIONS : THE STRENGTH AND SUPPORT

4.3.7 The State's commitment towards the well being of the disadvantaged/deprived sections of society is evident from the specific constitutional provisions made in favour of these Groups. Article 14 of the Constitution of India guarantees that no person will be denied equality before the law. The State is directed to offer relief and help to the disabled and the unemployable, vide Entry 9 in the List II of Seventh Schedule. Article 41 states that the State shall, within the limits of its economic capacity and development, make effective provisions for securing the right to work, to education and to public assistance in cases of unemployment, old age, sickness and disablement. In order to control the harmful effects of addictive substances, Article 47 enjoins the State to prohibit the consumption of intoxicating drinks and drugs injurious to health and raise the level of nutrition and standard of living to improve public health.

POLICIES AND PROGRAMMES : A REVIEW

4.3.8 Deriving strength and support from the Constitutional commitments, the State brought into effect many policies and programmes to improve

the lot of the Welfare Groups, right from the First Plan (1951-56). The first step in this direction was setting up of a national level apex body, the CSWB in 1953 to look after the welfare interests of the disabled. In the Second and Third Plans (1956-61 and 1961-66), welfare activities for the disabled were further expanded through extension of basic services like education and rehabilitation facilities. The State's intervention in the social defence sector was initiated through enacting important legislations for the care and protection of women, girls and children in distress and in social and moral danger. A Central Bureau of Correctional Services (CBCS) was set up in New Delhi in 1961 for conducting research and training besides helping the Government to formulate need-based policies and programmes for the social defence groups.

4.3.9 The Fourth and Fifth Plans (1969-74 and 1974-78) saw further expansion of welfare activities for the disadvantaged groups. Apart from strengthening the CSWB, the three National Institutes – one each for the Blind (later changed to Visually Handicapped), Deaf and the Orthopaedically Handicapped were also set up to take care of specialised research, training and designing exclusive aids, appliances and programmes for each individual category. To help the disabled in placement services, Special Employment Exchanges came into being. Prevention of disabilities received its first impetus with the launching of Integrated Child Development Services (ICDS) in 1975. Under this, a package of 6 services viz. health check-ups, immunisation, supplementary feeding, referral services, non-formal pre-school education and health and nutrition education were provided to children under 6 years and expectant and nursing mothers. The Sixth and Seventh Plans (1980-85 and 1985-90) saw a significant regional focus and growth in the programmes and services for the disabled. These included the support to District Rehabilitation Centres, Regional Rehabilitation Training Centres, and setting up of two more National Institutes viz., the Institute for Physically Handicapped and the National Institute for Rehabilitation, Training and Research. A major achievement in this period was raising the status of the CBCS to that of a national apex body and renaming it as the National Institute of Social Defence.

4.3.10 Human development being the main thrust of the Eighth Plan (1992-97), the well being of the emerging problem groups such as street children, drug addicts, child sex workers, destitutes, aged came into the serious reckoning of the planned development, giving rise to specific programmes for the welfare and development of these groups. The landmark legislation for the disabled viz. The Persons with Disabilities (PWD) (Equal Opportunities, Protection of Rights and Full Participation) Act, 1995 also came into action by bringing into sharp focus the State's responsibility to empower the disabled with equal opportunities, protection of rights and full participation in the country's development process.

4.3.11 In the Ninth Plan (1992-97), the earlier paradigm shift in approach from 'welfare' to 'development' was moved further to 'empowerment' which is more holistic by including both welfare and development perspectives. In the Ninth Plan, the approach to Social Welfare was both different and distinct from the earlier Plans, as it sought to adopt a three-fold strategy specific to each individual Group viz., i) Empowering the Persons with Disabilities; ii) Reforming the Social Deviants; and iii) Caring for the Other Disadvantaged through various preventive, curative, rehabilitative and developmental policies and programmes, as discussed below:

Persons with Disabilities

4.3.12 The Ninth Plan reaffirmed the earlier commitment of making as many disabled as possible active, self-reliant and productive contributors to the national economy through the enactment of the comprehensive legislation viz. the PWD Act, 1995. This Act, which came into force in 1996, aims to empower the disabled with the right to demand an enabling environment wherein they can enjoy protection of rights, equal opportunities and full participation in various developmental activities of the country. To give added thrust to the various provisions and the institutional framework, besides including a few additional features to empower the disabled, the Government attempted to bring forth a few amendments to the Act. The proposed amendments advocate a multi-collaborative approach through delineation of responsibilities to the concerned Ministries/

Departments and introduction of some special features like affirmative action, social security and a barrier-free environment to strengthen further the empowering process of the disabled.

4.3.13 The PWD Act provides for a wide range of activities which include - prevention and early detection of disabilities; safe living and working environment of the disabled; pre-natal and post-natal care for the mother and child; right to free education for every child; increase in employment opportunities by reserving 3 per cent jobs in poverty alleviation programmes and Government jobs; affirmative action like allotment of concessional land; research and manpower development; social security provisions such as unemployment allowance and insurance within the limits of economic capacity etc.

4.3.14 The implementation of the PWD Act, 1995, being a multi-sectoral and collaborative endeavour of all the concerned Ministries/Departments, efforts were made by all the partner Ministries/Departments with the nodal Ministry of Social Justice & Empowerment playing a lead role, to adhere to the prescriptions of the Act. The progress achieved during the Ninth Plan is summed up below:

Social Justice and Empowerment

4.3.15 In consonance with the policy of providing a complete package of welfare services and to deal effectively with the multi-dimensional problems of the disabled population, the nodal Ministry of Social Justice and Empowerment has been implementing a variety of programmes for their treatment, rehabilitation, welfare and development. The five National Institutes viz. - the National Institute for the Visually Handicapped, Dehradun (1979); the National Institute for the Orthopaedically Handicapped, Kolkata (1978); National Institute for the Hearing Handicapped, Mumbai (1983); National Institute for the Mentally Handicapped, Secunderabad (1984) and National Institute for Multiple Disabilities (being set up in Chennai) and the two apex level Institutes, viz. the National Institute of Rehabilitation, Training & Research, Cuttack (1984) and the Institute for the Physically Handicapped, New Delhi (1976) continued to develop technical manpower through full-fledged courses in various aspects of prevention, education, treatment, rehabilitation for the disabled

and provide outreach and extension activities to needy areas such as slums, tribal belts, semi-urban and rural areas. Out of the total Ninth Plan outlay of Rs. 103.83 crore, Rs. 59.08 crore was spent for providing the above said multifarious services to the Disabled.

4.3.16 The Indian Spinal Injuries Centre (ISIC), New Delhi, one of the premier institutions of excellence, provides comprehensive treatment, rehabilitation services, vocational training and guidance to patients with spinal injury. Poor and indigent patients with various types of spinal injuries and problems were benefited by the free services offered by the ISIC with the continuing support from the Government for maintaining 30 free beds as well as the out-patient services. An expenditure of Rs.15.06 crore was incurred against the Ninth Plan outlay of Rs. 23.28 crore for providing in-patient facilities to 1,000 patients and 11,000 patients with OPD facilities, annually.

4.3.17 The Rehabilitation Council of India (RCI) was set up in 1986 to ensure quality of service in the crucial area of licensing, accreditation, recognition and enforcing minimum uniform standards for rehabilitation professionals in the field of disability. During the Ninth Plan, the RCI developed/approved 59 short/long-term training programmes for 16 categories of rehabilitation professionals, registered 18,182 professionals/personnel in the Central Rehabilitation Register and gave recognition to 154 institutions for training of rehabilitation professionals. In 1998-99, RCI also started Bridge Courses in 21 states through 120 institutions for training of Special Teachers and rehabilitation workers who do not have any formal training in the field of disability. While 48 per cent of these courses were held in rural areas, an average of 500-600 persons were trained every month. The orientation course in Disability Management for Medical Officers/Para-Medical Staff working in Primary Health Centres (PHC) is being operated in 19 states and has so far trained 1,980 medical officers. Of the total outlay of Rs. 26.41 crore for the Ninth Plan, a sum of Rs. 12.01 crore was spent for regulating, monitoring and training of rehabilitation professionals.

4.3.18 The Artificial Limbs Manufacturing Corporation (ALIMCO), Kanpur, set up in 1976,

manufactures and supplies Aids and Appliances to the disabled. During the Ninth Plan, the Corporation set up 4 Auxiliary Production Centres in Bhubaneswar, Jabalpur, Rajpura (Punjab) and Bangalore to increase production and sale of wheel chairs and tri-wheelers to the orthopaedically disabled. Its regional marketing centres in Kolkata, Chennai, Mumbai, Delhi and Bhubaneswar help to market its products through dealer network and also distribute aids and appliances under the Assistance to Persons for Purchase of Aids and Appliances (ADIP) programme to individual beneficiaries. ALIMCO, which was earlier running on losses made significant achievements by improving its performance during the Ninth Plan and achieving a turn-over of over Rs. 74 crore. Of the Ninth Plan outlay of Rs. 28.20 crore, the expenditure was Rs. 17.60 crore to manufacture 21 lakh aids and appliances. Under the ADIP scheme, financial assistance is provided to voluntary organisations for providing aids and appliances and holding exhibitions and workshops, especially at the district levels. Against the total Ninth Plan outlay of Rs. 109.78 crore, a sum of Rs. 133.80 crore was spent on assisting NGOs for organising camps where these aids and appliances are distributed and fitted.

4.3.19 The National Handicapped Finance Development Corporation (NHFDC), instituted in 1997 as an apex level financial institution for routing funds through channelising agencies in States/UTs, promotes economic development through self-employment for the economic rehabilitation of the disabled. The Corporation provides loans to persons having disabilities of 40 per cent or more and whose annual income does not exceed Rs. 1 lakh per annum in urban areas and Rs. 80, 000 in rural areas. Under the micro-financing scheme of NHFDC, loans up to Rs. 10,000 per beneficiary were made available to disabled persons for undertaking income-generating activities such as small business/trade, cottage industry, agricultural allied activities, etc. NHFDC also provided loans to Parents' Associations of mentally retarded persons to set up income-generating activities for the benefit of mentally retarded persons. Out of the total Ninth Plan outlay of Rs. 226.40 crore, a sum of Rs. 51.30 crore was spent, benefiting 9,755 disabled persons. (Outlays for two years, 2000 to 2002 were not released to the Corporation as it was able to fund its programmes through its own internal resources).

4.3.20 To help persons with disabilities in getting placements, 40 Special Employment Exchanges and 41 Special Cells have been in action all over the country. There were 54,076 disabled job seekers on live registers of all the Employment Exchanges and Cells in the country during the Ninth Plan, of whom 5,706 were offered placements. Out of the total Ninth Plan outlay of Rs. 5 crore, a sum of Rs. 3.61 crore was spent for running the exclusive Employment Exchanges for the Disabled. This Scheme is now being transferred to the state sector.

4.3.21 In order to simplify and streamline procedures besides enlarging the scope of activities, four on-going schemes viz. – assistance to voluntary organisations for disabled persons, rehabilitation of leprosy-cured persons, rehabilitation of persons with cerebral palsy and mental retardation and assistance for starting special schools for handicapped children were merged into one single Umbrella scheme called 'Promote Voluntary Action for Persons with Disabilities' in 1998. The recast umbrella scheme also covers new areas like providing legal aid, recreation, research, etc. Out of the total Ninth Plan outlay of Rs. 201.80 crore, a sum of Rs. 232.99 crore was spent for assisting 600 organisations and benefiting 63,629 persons.

4.3.22 As part of implementation of the PWD Act of 1995, a few programmatic interventions were launched during the Ninth Plan. They included the following :

- The National Programme for Rehabilitation of Persons with Disabilities (NPRPD) was launched in 1999-2000 as a state sector programme. The scheme envisages support to State Governments for setting up of hierarchical service delivery systems for rehabilitation of persons with disabilities starting from district level. So far, over 100 districts have been identified for this purpose and 82 districts are being financially assisted. An expenditure of Rs. 104.13 crore was incurred against the Ninth Plan outlay of Rs. 94.05 crore to ensure local capacity building for the much-needed rehabilitation structure right from grassroot levels.
- Another scheme to set up six Composite Regional Centres was also launched in 1999-2000 to act as extended arms to the existing national-level institutions. These Centres would undertake a package of functions including human resource development, research and technology inputs, as well as rehabilitation services for all categories of the disabled at the regional level. Five such Composite Regional Centres have started functioning at Srinagar, Lucknow, Bhopal, Guwahati and Sundernagar. For those with spinal injuries requiring treatment and long time specialised rehabilitation services and management for life, four Regional Rehabilitation Centres are being set up with technical know-how from ISIC. These Centres are expected to be functional soon at Jabalpur, Mohali, Bareilly and Cuttack.
- The much-neglected problems of the mentally disabled received special priority with setting up of the National Trust for the Welfare of the Persons with Autism, Cerebral Palsy, Mental Retardation and Multiple Disabilities in Delhi in 1999. The Trust, which is a statutory body, will primarily seek to uphold the rights, promote development and safeguard the interests of these groups and their families. To facilitate activities to be taken up by the Trust, a Corpus Fund of Rs. 100 crore was instituted. The National Trust is implementing an Umbrella Scheme called Reach and Relief Scheme for the Welfare of Persons with Autism, Cerebral Palsy, Mental Retardation and Multiple Disabilities. The scheme provides for long-term and permanent state institutions, day care centres, augmentation of home visits, etc. To ensure that these services reach the target groups, 257 local level Committees were set up at the district level to monitor and review the progress of the scheme. The National Institute for Multiple Disabilities, shortly to come up in Chennai, will provide technical support to the Trust in terms of training, research, curricula and other technological developments.

4.3.23 Besides the above specific programmes, a number of other measures were also undertaken by

the nodal Ministry of Social Justice & Empowerment to streamline the administrative and institutional mechanisms and to constitute various committees/expert groups and formulate procedural guidelines to assist in implementing the provisions of the PWD Act, 1995. These include review of inter-sectoral achievements by the Statutory Committees set up under the Act, viz., the Central Co-ordination Committee and Central Executive Committee; Committee under the Director-General of Health to review guidelines for evaluation of various disabilities; Expert Committee to review identification of posts for the disabled; Standing Committee of Secretaries to continuously review the provisions for reservations in jobs for the disabled; Committee of Experts for identifying jobs in the private sector, which recommended 120 occupations at the Senior Management level and 945 occupations at the skilled/semi-skilled and unskilled levels, suitable to be handled by the disabled; suitable modification of guidelines for issue of identity cards to the disabled to include disabled soldiers; and disposal of 1,470 petitions regarding the rights and demands of the disabled by the Office of the Chief Commissioner for Persons with Disabilities.

Health

4.3.24 A number of on-going national health programmes, which have a direct bearing on the prevention and reduction of incidence of various disabilities, at the PHC level were continued and expanded to uncovered areas. As Cataract is the leading cause of blindness amongst 55 per cent of the visually handicapped, an average of 3 to 3.5 million operations were conducted annually during the Ninth Plan under the Cataract Blindness Control Project component of the National Programme for Control of Blindness, against the 1.6 million operations per year in the Eighth Plan. Other interventions for prevention of blindness included the upgradation of equipment and other facilities in PHCs, district hospitals, mobile units etc. and assisted programmes for technical training, surveys, and super specialty research in this field. India accounts for 70 per cent of the global recorded leprosy cases, of which 20 per cent are children. To tackle this problem, 12.76 million cases have been treated under the National Leprosy Eradication Programme, of which 8.90 million cases were cured

with Multi Drug Therapy. Other programmes for prevention of disabilities included - National Immunisation Programme for eradication of Pulse Polio and the National Iodine Deficiency Disorder Control Programme to reduce the incidence of mental/neuro-motor defects. As a result of the Pulse Polio programme, the incidence of polio cases has reduced from 2,275 to 270 and coverage of oral polio vaccines increased from 89 per cent to 93 per cent of the target group during the Ninth Plan.

4.3.25 A pilot project against micro-nutrient malnutrition was also implemented in a number of states to improve the iron and vitamin-A status amongst school-going children, mothers, women and the aged etc. in order to prevent problems of low vision. To ensure health of the mother and child, the Reproductive and Child Health (RCH) programme laid emphasis on pre-natal and post-natal health check-ups/screening of the mothers. The Indian Council of Medical Research (ICMR) has constituted a Task Force for the Prevention of Disability among pre-school children which will include a module on screening of children for detection of inherent or potential disabilities.

4.3.26 The National Mental Health Programme conducted training programmes and Information, Education and Communication (IEC) activities under the District Mental Health Programme in 22 districts covering 20 states to educate the public about the treatment and rehabilitation of the mentally disabled. Workshops were also held to lay down minimum standards of care in mental hospitals in order to improve and upgrade the services there.

Women & Child Development

4.3.27 The ICDS network was utilised to help the family, especially mothers to ensure effective health and nutrition care, early detection and timely treatment of ailments. Special attention was paid to meet the health, nutritional and educational needs of children below 6 years, pregnant women and nursing mothers for their holistic development, especially those residing in the most backward rural and tribal areas and slums and those living below the poverty line. These integrated child development services will, in fact, help the children to get into the right path right from the pre-school age. The programme benefited 54.3 million

children (0-6 years) and 10.9 million mothers through 5,652 projects. The National Institute of Public Cooperation and Child Development (NIPCCD) has also drawn up an action plan for conducting training/orientation programmes in the field of disability for the grassroot-level ICDS workers. The revised guidelines and the training curricula for Anganwadi workers incorporate a module on the prevention and early detection of disabilities among children. A Core Group on 'Women and Children with Disabilities' consisting of experts, Non-Government Organisations (NGOs) and officials was set up in 1998 to formulate schemes for providing Working Women's Hostels for the Disabled Women and Crèches for their Children, including disabled children.

Education

4.3.28 The National Policy on Education, 1986 (revised in 1992), advocates equal educational opportunities for persons with disabilities through the programme of Universalisation of Elementary Education. In 2000, the Department of Education introduced another umbrella scheme called Sarva Shiksha Abhiyan, which aims at providing elementary education to all children including the disabled in the age-group 6-14 years by 2010. As part of this programme, the District Primary Education Programme (DPEP) continued its efforts for integrated education for the disabled children, including a distance education component, in the rural areas. In the secondary education sector, the programme of Integrated Education for Disabled Children (IEDC), covering 28 States/UTs catering to around one lakh disabled students in 22,000 schools continued to provide educational opportunities for disabled children in regular schools by giving them the special inputs to facilitate their retention. Special education handbooks for the hearing and visually impaired children have been developed to facilitate their education.

4.3.29 To encourage more children to avail of educational facilities, the Kendriya Vidyalaya Sanghathan reserves 3 per cent of seats for the disabled. Suitable modifications were also made in the examination systems to help disabled children perform better with extended time and amanuensis for blind students. The curriculum is also being restructured by NCERT, especially in the case of imparting science education for visually impaired

persons. To enable disabled children with good academic record to continue their education, the University Grants Commission (UGC) provides 30 scholarships to disabled persons every year. It also introduced two special schemes - Teachers Preparation in Special Education and Higher Education for Persons with Special Needs — with the aim of developing a band of trained teachers for the disabled. Separate modules for training of resource teachers and orientation of general teachers has also been taken up in collaboration with the RCI. The UGC has also enhanced reader allowance to Rs. 6,000 per month to blind teachers working in colleges. To integrate the physically disabled into the mainstream of technical and vocational education, 50 polytechnics have been identified which will benefit 1,250 students with disabilities in diploma level courses and 5,000 students in the technical/vocational courses.

Urban Development

4.3.30 The Swarna Jayanti Shahari Rojgar Yojana (SJSRY) and its two special schemes, - Urban Self Employment Programme (USEP) and the Urban Wage Employment Programme (UWEP) seek to provide gainful self and wage employment with requisite vocational and entrepreneurial skills to the urban poor. This includes 3 per cent reservation of the benefits for the disabled. As part of providing a barrier-free environment for the disabled, the symbols/signages related to the built environment within the public building premises have been specified in the 'Model Building bye-laws' and circulated to all the State Governments, District Collectors and Project Officers requesting them to provide barrier-free facilities in all important public buildings. In this context, the Central Public Works Department (CPWD) organised training programmes on a barrier-free environment to sensitise architects and engineers.

Labour

4.3.31 To empower the disabled to secure gainful employment, Vocational Rehabilitation Centres (VRCs) were specially set up and 3 per cent seats in the Craft Training programmes of the Industrial Training Institutes (ITI) reserved for the disabled. Currently, there are 17 VRCs functioning in 16 state capitals, of which the VRC at Vadodara is exclusively

for disabled women. These Centres evaluate the capacities of the disabled, provide them adjustment training, facilitating their early economic rehabilitation and assist them in obtaining other suitable rehabilitation services such as job placement, training for self-employment etc. The performance of VRCs during the Ninth Plan showed that 71,359 disabled clients were evaluated and 20,093 clients (28.2 per cent) rehabilitated. Rehabilitation services were also extended to the disabled living in the rural areas through mobile camps and Rural Rehabilitation Extension Centres set up in 11 blocks under 5 VRCs located at Mumbai, Kolkata, Kanpur, Ludhiana and Chennai.

Rural Development

4.3.32 Earmarking of 3 per cent of benefits for the persons with disabilities under various poverty alleviation programmes like Jawahar Gram Samridhi Yojana (JGSY) and Employment Assurance Scheme (EAS) under the mega scheme of Sampoorna Grameen Rozgar Yojana (SGRY), Swarnajayanti Gram Swarozgar Yojana (SGSY), Indira Awas Yojana (IAY) etc. were made as the entry points to reach the rural disabled. During the Ninth Plan, 6,801 disabled persons were assisted under SGSY through self-employment and organising the disabled people into Self-Help Groups (SHGs) and their capacity building, training, planning of activity clusters, infrastructure build-up, technology and marketing support. To enable easy access of credit, a revolving fund of Rs. 25,000 for each Viklang Sangam has been set up and about 414 Group Leaders trained under the Viklang Bandhu Scheme for group economic activities. Besides this, the Council for Advancement for Peoples' Action and Rural Technology (CAPART) also sanctioned financial assistance to eligible projects. A pilot programme was undertaken in 5 districts in the states of Andhra Pradesh, Kerala, Madhya Pradesh, Orissa and Uttar Pradesh to provide training and self-employment to disabled persons. Special instructions were also issued that all houses constructed under the IAY and JGSY programmes should be made barrier-free.

Department of Personnel & Training

4.3.33 The Department of Personnel & Training provides reservation of 3 per cent of posts for the

disabled in Groups C and D in Government and Public Sector undertakings. In the case of Groups A and B, preference is given to the Disabled at the time of recruitment in the identified posts. Other concessions include relaxation in age and standards. The Staff Selection Commission and the Department of Personnel & Training (DOPT) also conducted a Special Recruitment Drive in 1997 for the appointment of visually impaired persons in Group C posts already notified by the various Ministries/Departments.

Science & Technology

4.3.34 The scheme of Science & Technology Project in Mission Mode was launched in 1988 to undertake research and development in appropriate and innovative technological appliances for the benefit of the disabled. The Scheme provided assistance for the development of suitable and cost-effective aids and appliances during the Ninth Plan and thus improve the mobility and enhancement of employment opportunities in the field of manufacture of over 30 aids and appliances/products such as inter-pointing Braille writing frame, speech synthesiser, modular below knee prosthesis, photovoltaic battery charger etc.

Planning Commission

4.3.35 To create a wide-spread awareness about the management of the disabled and disabilities amongst all those working for them including the parents, the Planning Commission brought out two publications in 2002 viz. 'A Handbook for Parents of Children with Disabilities' and 'A Handbook – Schemes for Children with Disabilities : Role of the Panchayati Raj Institutions'. While the first publication aims to equip the parents with the management of children with disabilities and also to manage the disabilities through early detection, prevention and treatment based on family and Community Based Rehabilitation, the latter advocates the role of PRIs in empowering the children with disabilities and also in the implementation and monitoring of various preventive, curative and rehabilitative programmes.

4.3.36 The inter-sectoral achievements under the implementation of the PWD Act, 1995 during the Ninth Plan period are summed up as below:

Sl. No	Ministry/ Department	Progress made under PWD Act, 1995
(1)	2	3
1.	Social Justice & Empowerment	<ul style="list-style-type: none"> ● Setting up of 6 Regional Composite Resource Centres for all categories of disabled ● Setting up of 4 Regional Rehabilitation Centres for those with spinal injuries ● Expansion of the on-going programmes viz. - training rehabilitation and outreach services by the existing 7 National and Apex level Institutes; registering of 18,182 rehabilitation professionals by the Rehabilitation Council of India (RCI); manufacture of 2.1 million aids and appliances by Artificial Limbs Manufacturing Corporation; benefiting 9,755 disabled persons to set up income-generating activities by National Handicapped Finance Corporation; reaching rehabilitation services, special school facilities etc. through 600 voluntary agencies to 63,629 disabled ● Monitoring the progress of the implementation of the PWD Act, 1995 through the Statutory mechanism of Central Co-ordination Committee and Central Executive Committee ● Setting up of the National Trust for Welfare of Persons with Autism, Cerebral Palsy, Mental Retardation and Multiple Disabilities with a corpus of Rs. 100 crore; launching of an umbrella scheme by the Trust for long-term care and rehabilitation of the mentally disabled and their families ● Setting up of state-level apex institutions for rehabilitation of the disabled at district/village level in 82 districts under the 'National Programme for Rehabilitation for Persons with Disabilities' ● Setting up of a Committee under the Director General of Health Services to review guidelines for the evaluation of various disabilities ● Constitution of a Standing Committee of Secretaries to continuously review the provisions for reservation of jobs for the disabled ● Identification, by a Committee of Experts, of 120 occupations at the senior management and 945 occupations at skilled/semi-skilled levels in the private sector suitable for the disabled ● Disposal of 1,470 petitions received from the disabled by the Chief Commissioner for Persons with Disabilities
2.	Health	<ul style="list-style-type: none"> ● Over 113 lakh cataract operations conducted between 1997-2001 under the Cataract Blindness Control Project; 522 District Blindness Control Societies set up for treatment and prevention of blindness

		<ul style="list-style-type: none"> ● 12.76 million leprosy cases registered and 8.9 million cases cured under the Multi Drug Therapy Programme ● Prevention of iodine deficiency disabilities through higher production of iodized salt, awareness programmes and distribution of test kits under the National Iodine Deficiency Disorder Control programme ● Reproductive and Child Health Programmes to un-reached areas; number of polio cases reduced from 2,275 to 270 through the Pulse Polio Immunisation Programme and coverage of oral polio vaccine increased from 89 per cent to 93 per cent of the target groups ● Pilot project against micro nutrient malnutrition implemented in five states to reduce iron and Vitamin A deficiency ● Training programmes and IEC activities under the National Mental Health Programme; District Mental Health Programme implemented in 22 districts covering 20 states
3.	Women & Child Development	<ul style="list-style-type: none"> ● Health check-ups, supplementary nutrition, immunisation, referral services, pre-school education and health and nutrition education through the Integrated Child Development Services (ICDS) for prevention and detection of disabilities, nutritional anaemia and Vitamin A deficiency, through 5,652 projects benefiting 54.3 million children (0-6 years) and 10.9 million mothers ● Revised guidelines and training for Anganwadi workers including component for prevention/early detection of disability ● Core Group set up to examine provision of hostels and crèches for disabled women and their children
4.	Education	<ul style="list-style-type: none"> ● School facilities for 100,000 disabled children in 22,000 schools through the programme of Integrated Education for Disabled Children ● 3 per cent reservation for the physically disabled in Kendriya Vidyalayas ● Restructuring and modification of the curricula/examination systems by the National Council for Educational Research and Training (NCERT) to suit the needs of disabled ● Special schemes by the University Grants Commission (UGC) and RCI to develop courses for special teachers for the disabled ● Upgradation of 50 polytechnics to impart diploma and vocational courses to 1,250 and 5,000 disabled students respectively
5.	Urban Development	<ul style="list-style-type: none"> ● 3 per cent reservation for the disabled in the Swarna Jayanti Shahari Rozgar Yojana for providing gainful wage and self-employment ● Model Building bye laws circulated to all the states to provide barrier-free facilities in all public buildings

6.	Labour	<ul style="list-style-type: none"> ● 71,359 disabled persons evaluated and 20,093 rehabilitated through 17 Vocational Training Centres ● Services to rural disabled through 11 Rural Rehabilitation Extension Centres under 5 Vocational Rehabilitation Centres
7.	Rural Development	<ul style="list-style-type: none"> ● 3 per cent benefits reserved for disabled persons under different poverty alleviation programmes ● 6,801 disabled were benefited through the Swarnajayanti Gram Swarozgar Yojana (SGSY) ● Barrier-free houses constructed under Indira Awas Yojana and Jawahar Gram Samridhi Yojana ● Rs. 25,000 provided for Viklang Sangams under SGSY and 414 Group leaders trained under Viklang Bandhu Scheme
8.	Department of Personnel & Training	<ul style="list-style-type: none"> ● Reservation of 3 per cent for the disabled in respect of Groups C and D services ● Special Recruitment Drive for the appointment of visually disabled against Group C and D posts
9.	Science & Technology	<ul style="list-style-type: none"> ● Developed technologies for assistive devices in the Mission Mode Project
10.	Planning Commission	<ul style="list-style-type: none"> ● Brought out two publications in 2002 viz. 'A Handbook for Parents of Children with Disabilities' and 'A Handbook of Schemes for Children with Disabilities: Role of the Panchayati Raj Institutions'

The Social Deviants

4.3.37 The major strategies adopted in the Ninth Plan to tackle the increasing problem of juvenile maladjustment included close collaboration among governmental and non-governmental organisations for the effective enforcement of the Juvenile Justice (JJ) Act, 1986, and encouraging more and more voluntary organisations to extend welfare-cum-rehabilitative services for children who come in conflict with law. To reduce the ever-increasing problems of alcoholism and drug addiction, the major strategies adopted include strict enforcement of legislation to prohibit/restrict the production of alcoholic drinks; developing an integrated strategy for expanding the services of preventive, curative and rehabilitative services for control of alcoholism and drug addiction.

Juvenile Social Maladjustment

4.3.38 The Juvenile Justice Act, 1986 (JJ Act) is one of the premier legislations for children in need of care and protection. This Act was designed for the development and rehabilitation of neglected and delinquent juveniles, as well as for the adjudication and disposition of matters related to them. To make the JJ Act, 1986 more child-friendly and provide proper care, protection and rehabilitation of children, it was replaced by a new Act called the Juvenile Justice (Care and Protection of Children) Act, 2000 (JJ Act, 2000). In the new Act, a clear distinction has been made between the juvenile offenders and the neglected child. Some of the new provisions made under the Act include - prescribing 18 as the uniform cut-off age to treat boys and girls as children; compulsory establishment of Juvenile

Justice Boards, Child Welfare Committees and Special Juvenile Police Units; sensitisation of the police; larger role for voluntary organisations in the rehabilitation and social integration of children with alternatives such as adoption and foster care. In addition, 189 Juvenile Courts and 271 Juvenile Welfare Boards have been set up in various parts of the country.

4.3.39 To implement the JJ Act, 2000, the nodal Ministry provides assistance to State Governments to establish and maintain Observation Homes, Juvenile Homes, Special Homes and After Care Institutes for neglected and delinquent juveniles under the scheme of Prevention and Control of Juvenile Social Maladjustment. Against the total Ninth Plan outlay of Rs. 41.24 crore, Rs. 52.58 crore was spent on 290 Juvenile Homes, 287 Observation Homes, 35 Special Homes and 50 After-Care Homes for the care and rehabilitation of juveniles.

4.3.40 The National Initiative for Child Protection (NICP) is a special campaign launched by the Ministry of Social Justice & Empowerment through the National Institute of Social Defence (NISD) and CHILDLINE, a 24-hour, free phone service which can be accessed by children in distress or by anyone on their behalf by dialling 1098. The campaign aims to build up partnerships with concerned allied systems viz., police, health care, judiciary, education, transport, labour department, media, telecommunication, corporate sector, community at large; UN agencies such as the United Nations International Children's Emergency Fund (UNICEF); National Human Rights Commission and the National Commission for Women. The training and sensitisation programmes for these sectors will enable the children in distress to receive greater access to facilities and resources under these sectors.

Alcohol and Substance (Drugs) Demand Reduction

4.3.41 To control the supply of and demand for drugs and alcohol, a two-pronged strategy was adopted during the Ninth Plan. While the control of drug supply is taken care of by the Narcotics Control Bureau, the Ministry of Social Justice & Empowerment is the nodal Ministry for drug and

alcohol demand reduction. To give a greater focus and priority to preventive educational programmes and re-integration of the addicts into the mainstream of society, the scheme for the Prohibition and Prevention of Drug Abuse, 1986, was revised as the Scheme for Prevention of Alcoholism and Substance (Drugs) Abuse' in 1999. Priority was given to tackling drug abuse among socially and economically vulnerable groups like street children, commercial sex workers, destitute women, transport workers etc. Under the Work Place Prevention Programme, financial assistance up to 25 per cent of the expenditure was provided for setting up 15/30-bedded treatment-cum-rehabilitation centres in industrial units having at least 500 workers. The programme supported 442 Centres through 359 NGOs for delivering services. Of these, 88 are Drug Awareness, Counselling and Assistance Centres and 354 are Treatment-cum-Rehabilitation Centres. As on March 2001, around 3.0 lakh alcohol and drug addicts were registered in these organisations, of whom about 1.60 lakh were detoxified. With a view to ensuring quality of services rendered through NGOs under the scheme, a 'Manual on Minimum Standards of Care in Addiction Treatment Centres' was prepared to monitor the performance, financial capability and standards of facilities offered by the Treatment Centres.

4.3.42 A National Centre for Drug Abuse Prevention (NC-DAP) was set up in 1998, in lieu of the already existing Bureau of Drug Abuse Prevention in the NISD. The main activities of the Centre include providing training to various levels of functionaries; upgradation of information and establishment of appropriate database; and networking in the field of drug demand reduction. To increase its outreach, NC-DAP has set up five Regional Resource Training Centres, one each in Chennai, Pune and Bangalore and two in Kolkata with the help of NGOs having technical capability and expertise. The NC-DAP has also developed training manuals in 13 specific areas some of which include Rehabilitation and Relapse Prevention, Prevention and Management of Drug Abuse and HIV/AIDS etc.

4.3.43 In view of the enormity of the problem and the close nexus between Injecting Drug Use (IDU) and HIV/AIDS, a three-pronged strategy was adopted for the North East Region. This included

training and enhancing the capabilities of the NGOs in the area, extending the outreach of the drug abuse prevention scheme by opening new centres and awareness and education programmes.

4.3.44 In order to provide for better training and qualified personnel among service providers, the Ministry of Social Justice & Empowerment took up a number of projects in collaboration with international organisations. Among them were - Community Drug Rehabilitation and Work Place Prevention Programme, in which 20 NGOs were identified all over the country with the objective of training at least 4,000 service providers in rehabilitation of drug/alcohol addicts. Other projects include 'Community-Wide Drug Demand Reduction in India', 'Community-Wide Drug Demand Reduction in the North East States' and 'Reducing Risks Behaviours and HIV/AIDS/STD, Drug Abuse among Street Children'. To assess the magnitude, nature and pattern of drug abuse in the country, a National Survey on Drug Abuse has been conducted by the Ministry in collaboration with United Nations International Drug Control Programme (UNDCP). Against the total Ninth Plan outlay of Rs. 80 crore, a sum of Rs. 88.84 crore was spent during the Plan to support the community-based voluntary action, training and other rehabilitation facilities for alcohol and drug demand reduction.

The Other Disadvantaged

4.3.45 The Ninth Plan adopted direct Policy prescriptions for the well-being of the Older Persons by extending support for financial security, health care, shelter, protection and meeting their other needs. To tackle the ever-increasing problem of Street Children, the Ninth Plan strategy included preventive measures through various developmental services for children like ICDS, Universal Primary Education, supplementary feeding programmes, health and referral services and provision of non-institutional services.

Welfare and Care for Older Persons

4.3.46 A National Policy on Older Persons was adopted in 1999 for the well-being of the Aged. The principal areas of intervention and action strategies for the aged include - financial security (including pension support), health care and nutrition, shelter,

education, training, research and dissemination of information, supplementation of care provided by the family and protection of their life and property. Other measures include inter-sectoral partnerships and affirmative action. During the Ninth Plan, a Plan of Action (2000-2005) was prepared to operationalise the National Policy on Older Persons which enunciates the initiatives to be taken by various governmental and non-governmental organisations. A National Council for Older Persons (NCOP) was set up to receive complaints, grievances and suggestions from older persons.

4.3.47 A Secretariat for the National Council, called Aadhar, was set up in December 1999, with the objective of empowering the elderly people to find satisfactory solutions to their problems, through co-ordination of voluntary efforts and administrative initiatives. Since its inception, Aadhar has received 27,883 suggestions, complaints and grievances from individuals/organisations out of which 26,340 have been processed. The process of appointment of Zilla Aadhar members for 530 districts has been completed and 6,153 members are already in place. So far, 2.1 lakh voluntary organisations/NGOs, individuals and old age homes have been contacted to identify committed individuals to participate in this programme.

4.3.48 An 'Integrated Programme for Older Persons' was formulated by revising the earlier scheme of Assistance to Voluntary Organisations for programmes relating to the care of older persons. Under this scheme, financial assistance was provided to NGOs for establishing and running old age homes, day care centres, mobile medicare units as well as non-institutional services to the older persons. A special feature of the scheme was its flexibility in order to meet the diverse needs of older persons, including strengthening of the family, awareness generation and issues pertaining to popularisation of the concept of preparing for old age, productive aging, etc. At present, 945 old age/day care/mobile medicare units are brought into operation under this scheme through 609 NGOs. To strengthen the partnership between the young and the old, a collaborative project was started with the Nehru Yuvak Kendra Sangathan under which 100 new Day Care Centres for Older Persons were established in different parts of the country. The scheme of Assistance to Panchayati Raj Institutions/

Voluntary Organisations/Self-Help Groups for Construction of Old Age Homes/Multi-Service Centres was revised to enhance the one-time construction grant for this purpose. Since its inception in 1997, 59 old-age homes have been constructed. Against the total Ninth Plan outlay of Rs. 56.42 crore, Rs. 51.66 crore was spent to support and maintain the institutional set up for the aged.

4.3.49 Under the aegis of the National Old Age Pension Scheme (NOAPS), the Central Government continued to support the State's efforts to provide financial assistance of Rs. 75 a month to the destitute aged above 65 years of age. The total number of beneficiaries by the end of 2000-01 totalled over 5.1 million. As a result of the growing concerns for Old Age Social and Income Security,

a National Project called 'Old Age Social and Income Security' (OASIS) was commissioned. An Expert Group examined the policy issues relating to savings, social security and pension matters, with a view to enabling workers in the unorganised sector to build up enough savings as a shield against poverty in old age. The report of OASIS is being examined by a Group of Ministers assisted by the Insurance Division of Department of Economic Affairs, Ministry of Finance.

4.3.50 The implementation of the National Policy for Older Persons involves multi-sectoral collaborative efforts of the concerned Ministries/Departments. The following Table gives a summary of the initiatives undertaken by the nodal Ministry of Social Justice & Empowerment and other partner Ministries/Departments during the Ninth Plan:

Sl. No	Ministry/ Department	Progress made under the National Policy for Older Persons
1.	Social Justice & Empowerment	<ul style="list-style-type: none"> ● Setting up of a National Council for Older Persons (NCOP) to operationalise the Policy ● Aadhar, the secretariat of the Council set up at the centre and Zilla Aadhars set up in 530 districts to help solve problems of the aged ● Plan of Action 2000-2005 to operationalise the National Policy prepared ● Report on Old Age Social and Income Security prepared and recommendations being examined ● 945 old age/day care/mobile medicare units for care and rehabilitation of the aged being supported through 609 NGOs ● 100 Day Care Centres set up in collaboration with Nehru Yuvak Kendra Sangathan to enable partnerships between the young and old ● Construction of 59 Old Age Homes for providing shelter and care to the aged
2.	Health	<ul style="list-style-type: none"> ● Instructions to State Governments to provide separate queues for older persons in hospitals at every stage
3.	Telecommunication	<ul style="list-style-type: none"> ● Telephone connections to senior citizens aged 65 years and above on a priority basis
4.	Civil Aviation	<ul style="list-style-type: none"> ● Concessional fare to senior citizens
5.	Railways	<ul style="list-style-type: none"> ● Concessional fare to senior citizens
6.	Rural Development	<ul style="list-style-type: none"> ● 5.1 million destitute aged persons above 65 years received old-age pension of Rs. 75 per month under the National Old Age Pension Scheme

Street Children

4.3.51 To take a broad-based approach to the problems of the Street Children, the scheme was revised and renamed as 'An Integrated Programme for Street Children' in 1999. The revised scheme assists a wide range of initiatives, which cover shelter, nutrition, health care, sanitation, hygiene, safe drinking water, education, recreational facilities and protection against abuse and exploitation. The programme components under this scheme included documentation of existing facilities, preparation of city level plan of action, counselling, guidance and referral services, drop-in centres, non-formal education programmes, health care, vocational training, placement of children with non-institutional care, reducing incidence of drugs and HIV/AIDS etc. While the total Ninth Plan outlay to

assist 135 organisations benefiting 1.5 lakh street children in 45 cities was Rs. 32.98 crore, the amount spent was Rs. 31.78 crore.

4.3.52 One of the important initiatives taken for the welfare of children in distress is the establishment of the CHILDLINE Service. The mandate of this service is in line with the protection of rights of the child as ratified in the UN Convention on the Rights of the Child and Juvenile Justice Act, 2000. The basic objectives of the CHILDLINE service are to respond to children in emergency situations and refer them to relevant governmental and non-governmental organisations. It is also meant to provide a platform for networking amongst organisations and to strengthen and sensitise the support systems such as hospitals, police, railways etc. for rehabilitation of the children. The CHILDLINE service has been expanded to 36 cities, and has, till March 2002, received 1.9 million calls from children/concerned adults.

CHILDLINE FOR CHILDREN IN CRISIS

CHILDLINE, a national 24-hour free telephone dial service (1098) for children in need of care and protection was initiated in 1998 by the Ministry of Social Justice & Empowerment under the aegis of an independent professional body CHILDLINE India Foundation (CIF). This project portrays a unique partnership of voluntary organisations and the concerned Government Departments/Agencies to provide emergency assistance to a child in distress, and eventually to ensure long term rehabilitation of the child or even re-unite him/her with the family as the situation warrants. The wide range of services provided includes medical assistance, protection from abuse, supportive legal, repatriation services, counselling and providing information on other services for children in the city/district. As of March 2002, these services were available in 36 cities in 18 states, through a network of 114 organisations. A total number of 1.9 million calls have been attended to since inception. The success of CHILDLINE is a demonstration of the potentialities available within the existing framework of government and the community through a macro and micro level synthesis and synergy in convergence, networking and service delivery for providing non-institutional welfare and development services to the children in need of care and protection.

Adoption of Children

4.3.53 The Central Adoption Resource Agency (CARA) was set up in accordance with the directions of the Supreme Court in 1990, under the Ministry of Social Justice & Empowerment. It was subsequently registered as an autonomous body in 1999 under the Registration of Societies Act, 1860. The main objectives of CARA were to provide a detailed framework for regulating and expediting adoptions and to act as a clearing house of information with regard to children available for adoption. Revised guidelines were notified in 1995 in order to regulate inter-country adoption and formulate detailed guidelines for the adoption of children by foreigners. Recognition is granted to both Indian and foreign agencies to sponsor Indian children for adoption abroad. At present 80 agencies in the country have been recognised for inter-country adoption. In addition, 306 foreign agencies in more than 27 countries have been recognised to sponsor inter-country adoption of Indian children. During the Ninth Plan, about 10,026 children have been placed in in-country adoption and 7,377 children have been given away in inter-country adoption. Out of the total Ninth Plan outlay of Rs. 3.26 crore, a sum of

SPECIAL INITIATIVES FOR CHILDREN IN NEED OF CARE AND PROTECTION

Non-Institutional Services – Adoption

Placing of orphaned/abandoned children in adoption is the most ideal and permanent form of rehabilitation of these children. The Central Adoption Resource Agency, set up in 1990 under the Ministry of Social Justice & Empowerment, regulates the adoption procedures and acts as a clearing house of information with regard to children available for both in-country and inter-country adoption. Special emphasis is given to promote in-country adoptions, as it is recognised that the children are best brought up in their own social and cultural milieu. During the Ninth Plan, 10,026 children were placed in in-country adoption and 7,377 children in inter-country adoption.

Institutional Services - 'A near-family Environment'

Acknowledging the fact that the place for holistic development of a child being FAMILY, initiatives to provide a 'near-family environment' have been in action since long. These include placing children with innovative institutions like Village Families with 10 to 20 Family Homes – each Family Home consisting of a maximum of 10 orphaned/ abandoned children who share their lives as brothers and sisters under the care of a Foster mother. Thus, instead of being confined to impersonal dormitories, every child is provided with warmth and security of a Family Home.

Rs. 2.28 crore was spent for regulation and expediting adoptions.

4.3.54 To promote in-country adoption, Voluntary Co-ordinating Agencies (VCAs) have been given grant-in-aid to provide them with updated technology to identify and place children for adoption in different parts of the country. The Scheme of Shishu Grihas for promoting in-country adoption was started in 1992-93, in which voluntary organisations are assisted to set up homes for infants and place them for adoption. For this purpose, 33 NGOs received an amount of Rs. 7.47 crore during the Ninth Plan, as against the total Plan outlay of Rs. 9 crore.

National Institute of Social Defence (NISD)

4.3.55 The major objective of NISD, New Delhi, is to strengthen and provide technical inputs to the programmes for reforming and mainstreaming the social deviants and caring for the other disadvantaged. The main areas of activities covered by the Institute include documentation, research, training programmes pertaining to juvenile justice administration, child adoption, systems involved in child protection, drug abuse prevention and care of senior citizens. It also undertakes review of policies and programmes in the field of social defence and helps to develop preventive, curative and rehabilitative policies.

4.3.56 The Ninth Plan envisaged strengthening/activating the Institute to extend its technical advice and support in its area of activities with the induction of professional staff and basic infrastructure so as to meet the growing needs of research and training. This objective was achieved by conversion of the NISD into an autonomous body under the Ministry of Social Justice & Empowerment, so as to enable it to function more effectively and with greater flexibility and by upgrading its facilities both in the case of infrastructure and manpower.

4.3.57 The activities of the NISD during the Ninth Plan included the implementation of the National Initiative for Child Protection in collaboration with CHILDLINE to create systematic changes to ensure every child's right to childhood. Training modules have been developed for various functionaries like the police, judiciary, labour unions, etc. NISD has also started training programmes for various agencies in the area of child adoption so as to ensure best ethical practices. The Institute has developed programmes for training care givers who can provide care to older persons in the community and in Institutions. In the field of prevention of drug abuse, three-month certificate courses on De-addiction, Counselling and Rehabilitation as well as five-day short-term courses are being organised through the NC-DAP. The expenditure of Rs. 6.68 crore on training, research, documentation etc. exceeded the total Ninth Plan outlay of Rs. 5.60 crore.

4.3.58 The advent of forward-looking legislations, policies and programmes that came up during the Ninth Plan for the well-being of these Groups not

only instilled fresh hope among these groups but also raised their expectations. The challenge for the State during the Tenth Plan will be to meet their needs and demands.

APPROACH TO THE TENTH PLAN – PATH AHEAD

4.3.59 As the three-pronged strategy of - 'Empowering the Disabled', 'Reforming the Social Deviants' and 'Caring for the Other Disadvantaged' adopted during the Ninth Plan has proved to be effective in achieving the goals set, the Tenth Plan has, therefore, chosen to continue with these very same processes as its approach. To strengthen these on-going processes, the Tenth Plan will endeavour to converge the existing services in all the welfare-related sectors, so that the required services of preventive, curative, rehabilitative, welfare and development can be extended to each of these Other Special Groups. In other words, the major efforts in the Tenth Plan will be to develop a multi-sectoral approach to attend to the needs and problems of these Groups. Needless to say, these efforts have strength and support of not only the Constitution but also that of the most forward looking legislations that have been enacted recently in support of these Groups. Details of the sectoral approach are as follows:

I. Empowering the Persons with Disabilities

4.3.60 The Tenth Plan re-affirms the earlier commitment of making as many disabled as possible active, self-reliant and productive contributors to the national economy through the process of empowerment. The PWD Act of 1995

APPROACH TO THE TENTH PLAN (2002-07)

- To continue the 3-Pronged strategy distinct to each individual Target Group, viz.: **'Empowering the Disabled', 'Reforming the Social Deviants' and 'Caring for the Other Disadvantaged'**
- To develop a multi-sectoral approach with convergence of existing services in all welfare-related sectors to reach preventive, curative, rehabilitative, welfare and development policies and programmes to these target groups

which is now being amended to strengthen its scope, has already generated a lot of awareness among the disabled to make them conscious of their rights, besides raising their expectations towards a better future. The State will need to gear itself up to fulfil these expectations through effective policies and programmes. The Tenth Plan commitment will, therefore, be to create an enabling environment wherein persons with disabilities can exercise their rights, enjoying equal opportunities and full participation with the strength and support of the PWD Act of 1995. As the envisaged empowerment of the disabled is mainly based upon the PWD Act - the strong base that was built now, all out efforts will be made towards its effective enforcement, on a priority basis. The multi-sectoral collaborative approach initiated in the Ninth Plan will receive an added thrust under the PWD Act, 1995 through which the concerned Ministries/Departments are expected to formulate detailed rules and guidelines for the effective implementation of the Act, besides monitoring/reporting the progress on a regular basis. The monitoring mechanisms set up at various levels will also be activated to develop a review system to ensure regular flow of the feed-back from all the concerned on the progress of the implementation of the Act on a regular and continuing basis till the targets set are achieved. To ensure adequate financial support, the Tenth Plan advocates the introduction of a 'Component Plan for the Disabled' in the budget of all the concerned Ministries/Departments for this purpose.

4.3.61 To fulfil the un-fulfilled commitment of 'Reaching the Un-reached', the Tenth Plan will accord special priority to the rural disabled - who continue to be the neglected lot. Efforts will be made to remove the existing lacuna of limiting the coverage only to urban areas under various programmes. Simultaneously, action will also be initiated to enhance the outreach and extension services to the rural areas by tailoring the programmes to suit the local requirements, besides ensuring that these facilities are extended right up to the district level and ultimately to the village level in a phased manner through the on-going 'National Programme for the Rehabilitation of Persons with Disabilities'. To ensure that appropriate services reach the different categories of disabilities through this programme, Area-specific Action Plans will be prepared with necessary inputs on - the magnitude

EMPOWERING THE PERSONS WITH DISABILITIES

Making as many disabled as possible active, self-reliant and productive contributors to the national economy through

- Effective enforcement of the PWD Act, 1995 with a multi-sectoral collaborative approach through delineation of responsibilities to the concerned governmental and non-governmental organisations
- 'Reaching the Un-reached' in rural and remote areas through the specially launched 'National Programme for the Rehabilitation of Persons with Disabilities'
- Introduction of a 'Component Plan for the Disabled' to promote the flow of funds/benefits to the disabled from all the concerned Ministries/Departments
- Motivate the Disabled to organise themselves into Self-Help Groups through the special strategy of Community-Based Rehabilitation and encourage family members, especially the women, to be the primary care-givers to the disabled
- Strengthen the National Institutes, Indian Spinal Injuries Centre and other Regional/Composite Rehabilitation Centres and outreach their services to the needy groups and areas
- Prevent disabilities through early detection, timely immunisation, dietary corrections, supplement both macro and micro nutrients to children and expectant and nursing mothers; and ensure safety on both roads and at work places with a special watch on the increasing and emerging variants of disabilities
- Integrate disabled children into mainstream education through universalisation of education with a barrier-free environment
- Provide various options of schooling systems to disabled children like Inclusive Education, Integrated Schools, Special Schools, Non-Formal Education etc. to suit their specific needs/ requirements
- Expand Special Schools and Vocational Training opportunities in the up-coming trades for the disabled, especially for the disabled women and adolescent girls
- Equip the disabled with suitable, simple, durable inexpensive Aids and Appliances, including specially designed gender- specific assistive devices
- Earmark not less than 3 per cent reservation of benefits in all the Poverty Alleviation Programmes in action both in rural and urban areas
- Expand the existing and launch new programmes for generating more and more of employment opportunities, both wage and self-employment with 'forward' and 'backward' linkages to keep the disabled gainfully employed
- Increase employment opportunities for the disabled in the service sector through effective identification and filling up of reserved posts up to 3 per cent of the vacancies in the Government and Public Sector Undertakings through Special Employment Exchanges/ Special Cells in the Regular Employment Exchanges
- Provide special thrust to the welfare and rehabilitation of mentally disabled through specific services like special education, sheltered workshops, day care centres and long term stay institutions etc. under the aegis of the National Trust for the Welfare of Persons with Autism, Cerebral Palsy, Mental Retardation and Multiple Disabilities

of the problem of disabilities persisting in the identified areas, services available/required, availability of implementing agencies, manpower available/requirements, resource requirements etc. Services available under various agencies/programmes viz., the District Rehabilitation Centres, Vocational Rehabilitation Centres, supply of aids and appliances, NHFDC, State Composite Regional Centres, Regional Rehabilitation Centres etc. will be further strengthened and expanded to reach the rural disabled. To increase access to the rural disabled, efforts will also be made to add rehabilitation facilities in all the District Hospitals in a phased manner starting from the Tenth Plan.

4.3.62 Acknowledging the fact that sustained rehabilitation of the disabled can take place only through the tried and tested strategy of Community-Based Rehabilitation, the traditional support systems of the family and in particular, women care-givers, will be provided information, training and financial assistance to extend care to their disabled family/community members. Further, efforts will also be made through the medium of NGOs to motivate/encourage the disabled to organise themselves into Self-Help Groups viz. Viklang Sangams to support each other and function as a Group to bring about the necessary transformation to prove that the disabled are not disabled, but differently abled. These efforts, as visualised, can help quicken the process of empowering the disabled.

4.3.63 Realising the importance of prevention and early detection of disabilities in reducing the otherwise increasing number of the disabled, the Tenth Plan attempts to develop a National Disability Prevention Strategy which will network and co-ordinate with the existing agencies/programmes which are in operation in the country and also identify new initiatives to tackle the emerging trends and patterns of various disabilities. While the on-going national health and immunization for vaccine-preventable diseases programmes (immunization against polio, DPT, BCG and measles, iodization of salt, health education, hygienic and sanitary conditions) will continue and be expanded, in a big way, special attention will be given to specific measures to counter the problem of low vision and slow mental development due to micro-nutrient deficiency. In this context, efforts of the ICDS will

be further strengthened through effective co-ordination between Ministries/Departments in improving the supply and delivery systems along with need-based training of grassroot level workers. In these efforts, special attention will be paid to Women and the Girl Child as they are doubly disabled compared to their counterparts. As part of the prevention of disabilities drive, compulsory annual health check-up of all children will be introduced in both Government and Private Schools. Further, while the impact of Pulse Polio Campaign has resulted in a sharp decline in the orthopaedically disabled, the incidence of spinal injuries on account of accidents on the road and in the workplace has been increasing. To contain this, provision of safety measures, awareness programmes and treatment facilities for those with spinal injuries will be taken up on a priority basis. Corrective and rectifying surgery to prevent permanent disabilities is yet another area which will be specially strengthened. Research in the latest developments in bio-genetics for early detection of congenital disabilities in the pre-natal stage itself will be given priority. The ISIC and the 4 Rehabilitation Centres which are now coming up are expected to play an effective role during and beyond the Tenth Plan.

4.3.64 To integrate the disabled children into mainstream education, the Tenth Plan aims at providing opportunities of education with provision of a barrier-free environment. For this, the facilities of both integrated/inclusive education and special schools will be provided to allow the disabled children to choose the type of education that suits them best. The on-going IEDC programme will be strengthened and expanded, especially in the rural and tribal areas. Efforts will also be made to develop a variety of models according to the needs of different categories of disabled children like Special Schools, Alternative Schools, Non-Formal Education, Home-based Education etc. The pursuit of higher education amongst the disabled with good academic record will be encouraged through incentives such as scholarships, both domestic and overseas. The rural coverage of Special Schools being very low, efforts will be made to expand the existing network of these Special Schools with hostel facilities, or Residential Schools in close collaboration with the voluntary sector which is already active in this field. The Tenth Plan will

encourage, as much as possible, to bring the Disabled into the mainstream education. Learning through National Open School and other Distance Learning Institutions will also be encouraged. To cater to the special needs of children with multiple disabilities, at least one school with suitable barrier-free infrastructure will be established in every state.

4.3.65 As the vital component of quality education for the disabled being directly linked up with the availability of trained teachers, efforts on priority basis will be initiated in training of teachers and special educators. The RCI, which is entrusted with the responsibility, will specially regulate the training of special teachers besides incorporating the latest advances in educational technologies, such as 'Child-to-Child Learning' and 'Child-Centred Learning' etc. Innovative modifications in the curriculum and examination systems to suit the requirements of the different types of disabilities will also be developed along with giving exemption from taking up three languages for children who are hearing impaired or suffering from dyslexia.

4.3.66 Taking note of the severe gaps that exist today in the field of research, training and manpower development for the Disabled - only 30,000 have been trained against the total requirement of 3.5 lakh professionals of various categories as estimated by RCI - the Tenth Plan will take up, on a priority basis, the expansion of training facilities available both in the Governmental and Non-Governmental sectors. The National and Apex level Institutes and the Regional Centres which have come up during the Ninth Plan, can contribute a lot in this regard. Also, the District Rehabilitation Centres, which are lying defunct, will be activated and made use of. For extending high level qualitative training, the Tenth Plan will expedite the establishment of a College of Rehabilitation Sciences under the aegis of the RCI, where applied research on prevention, early detection, genetic counselling, special education, vocational training, rehabilitation etc. will be given high priority. The ISIC will be supported to expand and upgrade its Research and Development, training and referral services.

4.3.67 To fulfil the commitment of making as many Disabled as possible active, self-reliant and productive contributors to the national economy, the

Tenth Plan will call upon the NSSO to undertake a Quick Review of the employment status of the Disabled and the Director General of Employment and Training (DGE&T) to make an assessment of the Training needs of the Disabled. Accordingly, arrangements will be made to utilise the training facilities available at the NVTI, RVTIs, District Rehabilitation Centres, ITIs, and Craft Training Centres. Efforts will also be made to expand the existing Scheme of VRCs in each State/Union Territory, besides modernising the existing VRCs to keep pace with the emerging market trends. The VRCs are also expected to provide help and guidance to the disabled in getting placements. Also, while planning for training programmes for the disabled, every effort will be made to diversify the trades besides giving priority to up-coming trades, keeping in view the trends and demands in the employment market. Inter-se priority will be given to disabled women and adolescent girls in all training and employment programmes, through identifying specific trades/vocations with suitable training inputs. For people with severe disabilities, efforts will be made to expand the on-going programme of Sheltered Workshops-cum-Production Centres to be spread all over the country with a special priority in rural areas.

4.3.68 Simultaneously, efforts will be made to tie-up with all concerned Ministries/Departments to ensure flow of benefits for the disabled in all the employment-cum-income generation programmes, especially meant for those living below the poverty line. They include 3 per cent reservation in wage and self-employment opportunities and other asset-endowment benefits created under various poverty-alleviation programmes viz. SJSRY for the urban disabled and SGSY, SGRY, IAY for the rural disabled. In addition, measures like concessional finance, land allotment, etc. will also be provided to create income-generation activities for the disabled. To help the disabled themselves, SHGs or Viklang Sangams will also be empowered to start their own employment units and cooperatives. Necessary tie-ups will also be encouraged to develop both backward and forward linkages to keep the SHGs gainfully employed and self-reliant. Agencies like the National Bank for Agriculture and Rural Development (NABARD), CAPART and Rashtriya Mahila Kosh (RMK) can play a major role in extending credit to these Groups.

4.3.69 Placement in Government jobs for the disabled will receive an added thrust through more of pro-active role of the Special Employment Exchanges/Special Cells under the general employment exchanges. To ensure effective implementation, periodic evaluation of their performance will be undertaken. Also, the reserved quota/preferential selection for the disabled in Group A, B, C and D services of the Government need to be filled up promptly. For this purpose, all Ministries/State Governments and Public Sector Undertakings will identify posts to be reserved for the disabled as mandated under the PWD Act, 1995. The Corporate Sector, with adequate opportunities to employ disabled persons will be encouraged to do so. Legislations like the Workmen Compensation Act, 1923, Industrial Disputes Act, 1947, and Apprentice Act, 1961, will be suitably reviewed/amended to make them enabling instruments for the employment of disabled persons.

4.3.70 The Tenth Plan will give a special thrust to enhance the functional mobility and accessibility of service delivery to the disabled, to make them more self-reliant. This will entail application of latest technological advancements, and research and development to develop assistive devices, barrier-free environment and relevant modifications in workplace to cater to newly-emerging categories of employment for the disabled. Premier agencies like the National Institutes and the ALIMCO will be strengthened to produce cost-effective and user-friendly aids and appliances on a large scale. The Science & Technology in Mission Mode Project will continue its Research and Development activities for generating easy-to-handle technologies and also standardise the production of assistive aids and polymeric composite rehabilitation aids for the orthopaedically disabled to ensure country-wide uniform quality. To enable sharing, transfer and convergence of technological know-how between institutions, information technology network and websites will be developed. These will function as focal points for the convergence of consumer needs and aspirations, on the one hand, and scientific and innovative developments, on the other.

4.3.71 To promote greater accessibility and barrier-free environment, detailed guidelines on the modalities of providing barrier-free environment in

all public buildings will be circulated to all the concerned, both in the States and in the Central Ministries/Departments. A provision will be evolved by which each public building will need to be certified as barrier-free, besides being functional. Public utilities like buses, railway coaches, station buildings, their circulating platforms, etc. will also be suitably modified to promote greater accessibility for the disabled. Efforts will also be made to usher in barrier-free access in privately owned buildings through a mix of legal procedures, sensitization and awareness programmes. A brief module on barrier-free environment will be introduced in the syllabus of architectural and engineering services, so as to develop innovative technologies for such an environment.

4.3.72 To ensure that people in remote areas are also adequately covered, decentralised production of assistive devices with regional distribution networks will be taken up. The local bodies such as the PRIs will be encouraged to set up Service Centres for the disabled to help in providing assistive devices and also undertake minor repairs. The number of camps for providing these devices in rural areas will also be increased substantially. Priority will also be accorded to designing, developing, producing and distributing specific assistive devices for different categories of the disabled such as gender-specific devices for disabled women and girls, and area-specific devices for residents of hilly and coastal areas. To improve cost-effectiveness, local materials such as bamboo, pine etc. and indigenous technology will be used, wherever possible, to manufacture these devices.

4.3.73 The problems of mental disability and mental health will, for the first time, receive a special thrust through the constitution of a National Trust for these groups. To translate the major objectives of the Trust into action, innovative interventions ranging from prevention, early detection, speech and communication, vocational training, special education, sheltered workshops to day care centres and long term stay institutions etc. will be initiated. Efforts will also be made to converge facilities of agencies involved at the grassroot level, like district mental health programmes, ICDS, national health programmes, self-help groups etc., so as to generate adequate awareness about the different

variants of mental disabilities and provide necessary interventions for their prevention and treatment.

4.3.74 Voluntary organisations, which have been playing an important role in the delivery of services to the disabled, will be supported to enable them to widen their operations in needy and rural areas. The Corporate Sector which has both the strength and the capacity to support the cause of the disabled, will be encouraged to contribute their mite for developing appropriate technology, production of aids and appliances and economic rehabilitation for the disabled.

II. Reforming the Social Deviants

4.3.75 Acknowledging the fact that the increasing incidence of social deviance needs to be tackled effectively, the Tenth Plan suggests a multi-pronged strategy for reforming the deviants and their social rehabilitation. It also takes note of the distinction made in the penal approach towards persons coming in conflict with law under various kinds of situational compulsions and from those indulging in organised crime. In fact, the major approach in handling social deviants in the Tenth Plan will be more reformatory and rehabilitative in nature through most humane, rather than punitive measures. It will, thus, adopt a well-planned strategy of meeting their correctional needs with the ultimate objective of transforming them into productive and law-abiding citizens.

Juvenile/Social Maladjustment

4.3.76 To tackle the increasing problem of social maladjustment leading to juvenile delinquency/vagrancy and other forms of crime, the Tenth Plan objective will be to rehabilitate the juvenile offender in a child-friendly environment and by utilising the network of institutional and non-institutional facilities. This will be achieved through effective implementation of the revised Juvenile Justice (Care and Protection of Children) Act, 2000 with its requisite statutory mechanism. In this context, model rules with detailed guidelines for implementing the Act have been framed at the national level and the states are also formulating their guidelines. The NISD is the nodal agency for human resource and manpower training for the

effective implementation of the Act. Taking note of the need for quality care and services for children, the Tenth Plan will take immediate action to review the existing norms and standard of services being provided in all mandatory institutions such as Children Homes, Observation Homes, Certified/Reformatory Schools, identify gaps and take immediate measures to ensure minimum standards in all the mandatory institutions set up/working under the revised Juvenile Justice Act, 2000. To this effect, the existing monitoring systems will be made more effective by setting up central and state-level Advisory Boards to advise the government on matters relating to the establishment and maintenance of mandatory institutions. The appointment of non-official members on these Boards will serve to ensure community participation in all rehabilitative and correctional measures undertaken and act as an additional monitoring mechanism, apart from sensitising societies' perception towards these children.

4.3.77 Adequate number of Observation Homes for children in conflict with law, special homes for institutional care of these children and after-care homes for rehabilitation will be set up to provide smooth transition of these children from institutional care to the mainstream of social life. The revised Act also recognises the need to promote non-institutional services and care for the juveniles such as foster homes / adoption / guardianship etc., so that rehabilitation takes place in a more congenial and normal family environment. To this effect, it is necessary to increase the involvement of voluntary organisations at various stages of apprehension, treatment and rehabilitation of juveniles, provide these organisations with the status of primary caretakers of juveniles and designate them as 'place of safety' or 'fit person's institutions' as evinced under the Act. A beginning has already been made in involving corporate and business institutions to fulfil their social responsibility towards juveniles. This will be further encouraged in the Tenth Plan through awareness generation and other incentives like tax concessions/exemptions.

4.3.78 As the rehabilitation of juvenile offenders is a very sensitive and difficult task, priority will be given in the Tenth Plan for training of service providers in order to develop a cadre of specialised

REFORMING THE SOCIAL DEVIANTS

To tackle the increasing problems of Juvenile and Social Maladjustment through

- Effective enforcement of the recently amended Juvenile Justice Act, 2000, with an altogether different approach of reform with emphasis on care and protection of the children
- Rehabilitation of juvenile offenders in a most child-friendly environment as prescribed in the amended JJ Act, 2000
- Setting up of all the mandatory institutions prescribed under the Act, and ensuring maintenance of minimum standard of services
- Encouraging more and more voluntary organisations to extend welfare-cum- rehabilitation services for the children, including provisions for non-institutional care
- Sensitising the enforcement machinery through setting up of Juvenile Police Units in every district to extend humane treatment of children in conflict with law

To reduce the ever-increasing problem of alcoholism, substance and drug abuse through

- Strict enforcement of legislation to prohibit/restrict the production of alcohol/supply of drugs with stringent punitive measures
- Formulation of a National Programme for Demand Reduction to identify drug/alcohol endemic groups/areas and suggest appropriate strategies
- Expanding the preventive, curative and rehabilitative services for alcohol/ drug addicts through counselling, de-addiction treatment, awareness generation campaigns etc. especially in those areas that are left uncovered
- Developing special facilities for treatment of high-risk groups such as street children, child sex workers, truck drivers etc
- Tackling the problem of injected drug use induced HIV/AIDS, through awareness generation, preventive education and harm reduction measures
- Increasing awareness generation through mass-media, special campaigns, sensitisation programmes etc. to make the younger generation conscious of the ill effects of alcohol/drug addiction

Prevention of Crime and Prison Reforms through

- Building crime prevention strategies through various programmes of socio-economic development to safeguard vulnerable groups like women, girl children, street children etc
- Effective implementation of prisons to ensure minimum standards of living conditions and special emphasis on prisoners with mental disabilities, HIV and other infections, alcohol /drug addictions etc.

National Institute of Social Defence (NISD), New Delhi

- The NISD, with its newly-acquired status as an autonomous body, is going to play an important role in extending its technical advice and support to the government in improving the social defence services in line with the strategies of the Tenth Plan.

and motivated functionaries. The services of Probation Officers will be utilised to serve as a vital resource for referral and placement of children in non-institutional services, apart from their traditional function of investigation and supervision. To enable police officers to function more effectively, the Act calls for special training for such officers. The Tenth Plan will, therefore, envisage setting up of special sensitised Juvenile Police Units in every district and, eventually, in every city, to ensure humane treatment of juveniles during the period of correction.

Alcohol and Substance (Drugs) Abuse Reduction

4.3.79 The Tenth Plan envisages an integrated approach to supply and demand reduction for curbing the growing problems of alcoholism and drug abuse in the country. Specific supply reduction measures will include - restriction/reduction in the production of alcohol within the country and strict enforcement of legislation such as the Prevention of Illicit Traffic in Narcotic Drugs and Psychotropic Substance Act, 1988 to prevent the flow of drugs into the country and for detention of persons trafficking in drugs. To reduce the demand for alcohol and drugs, the existing comprehensive community-based programme for awareness generation and preventive education, counselling, treatment, de-addiction and rehabilitation of addicts will be specially strengthened and expanded to reach needy areas and groups, especially in the rural sector and in the North East Region. To enable nationwide identification of these areas/groups and suggest appropriate strategies, a National Programme for Demand Reduction will be formulated using the database of the National Survey on Drug Abuse, which will be available shortly.

4.3.80 Taking note of the ever-increasing incidence of drug addiction, the Tenth Plan will utilise the expertise of the existing institutional mechanisms viz. Counselling Centres to identify vulnerable and high-risk groups such as street children, transport workers, sex-workers etc. and ensure that they do not fall prey to drug addiction. Special facilities will be created for treatment and rehabilitation of these groups. The nexus between injected drugs and HIV infection, particularly in the

North East Region, will be dealt with, on priority basis, by sensitising the vulnerable groups to the dangers of sharing needles. Harm reduction measures such as Needle Exchange Programme through the approved Health Centres which have been found to be effective, will be encouraged in other parts of the country. Awareness generation and preventive education programmes will be conducted among the potential risk groups/centres such as schools, colleges, sex-workers, street children, occupational groups etc. to educate them regarding the most dangerous effects of addiction. Realising the increasing correlation between crime and drug-abuse, the treatment and rehabilitation facilities in correctional institutions and prisons will also be strengthened during the Tenth Plan.

4.3.81 Keeping in view the treatment and rehabilitation of addicts or Whole Person Recovery as the ultimate objective of treatment of the addicts, the Tenth Plan will impinge upon various inputs such as Therapeutic Communities, SHGs, Half-Way Homes to offer services like after-care, follow-up, work conditioning, vocational rehabilitation, placement in jobs etc., and thus ensure gradual transition of the addicts into the social mainstream. To counter loss in productivity on account of addiction, work-place prevention programmes will receive priority attention and more and more factories will be encouraged to introduce demand reduction of alcohol and drugs programmes in their organizations. Efforts will also be made to utilise the widespread existing health infrastructure to cater to the medical treatment of the addicts through the active involvement of PHCs, Hospitals, Charitable Organisations etc., so that the De-Addiction Centres can concentrate mainly on rehabilitation. As addiction is largely psychosomatic in nature, the application of alternative systems of medicines recognised by the Department of Indian Systems of Medicines and Homoeopathy such as ayurveda, unani, naturopathy, homoeopathy and yoga, which are more holistic in nature, will be encouraged.

4.3.82 The training component of the control of alcohol and drug-abuse in the medical and nursing professions, social workers, prison officers, police etc. will be constantly updated to deal with the newly-emerging variations of Substance Abuse, such as IDU induced HIV/AIDS, synthetic varieties of drugs

etc. The NC-DAP and the Regional Resource Training Centres one each at Pune, Delhi and Chennai and two in Kolkata will be further strengthened to provide technical inputs, research and training material and expert guidance to the voluntary agencies to improve the quality of service delivery. The monitoring and evaluation mechanism for NGOs will be rigorously implemented as per the recently-developed Manual of Minimum Standards of Care in Addiction Treatment Centres. Evaluation indicators will also be set, so that the programmes can be periodically reviewed and assessed.

4.3.83 As inter-sectoral co-ordination is an important input in tackling the problem of alcohol and drug-abuse, a Core Committee on Drug and Alcohol Abuse Prevention will be set up under the Ministry of Social Justice & Empowerment. This Committee will, along with partner Ministries of Finance, Health, Youth Affairs, NGOs and the general public, advise the Government in reducing the otherwise increasing incidence of drugs and alcohol. The State Governments will be encouraged to set up state level Cells to monitor the on-going programmes and thus help in reducing the incidence.

Prison Reforms

4.3.84 The National Human Rights Commission has already undertaken the task of rationalisation of prisons-related legislation, prisons administration and prison services and to evolve a framework for correctional treatment incorporating the much-awaited prison reforms, as a developmental activity. Crime prevention strategies will be built into various sectors of socio-economic development programmes for the community to safeguard vulnerable groups like women, girl children, street children, juvenile delinquents, drug addicts etc. Appropriate linkages between prison programmes and community-based welfare resources will be forged ahead in areas of education, vocational training, spiritual development with special programmes for mentally-disabled prisoners, HIV-infected prisoners etc. The on-going efforts of the NISD in this regard will be expedited and follow-up action on their recommendations will be initiated to bring forth reforms in close collaboration with the Ministry of Home Affairs, which is the nodal Ministry

for Prison Administration. In these efforts, attention will be paid to women in custodial care as per the recommendations of the Justice Dyers' Committee (1988) as they still stand valid even today, and the follow up reports and recommendations of the National Commission for Women and also the Committee on Empowerment of Women.

III. Caring for the Other Disadvantaged

4.3.85 The Other Disadvantaged comprise those vulnerable groups of the very young and the very old, who have been left helpless due to various social and economic factors and are increasingly becoming dependent on the State's intervention for their subsistence and protection.

Care for the Older Persons

4.3.86 There has been a gradual realisation that the welfare of the Aged, which was long considered as the family/societal duty is now emerging more and more as the responsibility of the State, especially in view of the growing numbers of destitute aged who are left to fend for themselves on account of the breakdown of the joint family system, rural-urban migration, general poverty and the absence of a State-supported social security system. Acknowledging these facts, the Tenth Plan will play an increasingly pro-active role in caring for these people not only through welfare and developmental measures, but also empowering them to lead productive and self-reliant lives. Simultaneously, social institutions of family and community will also be strengthened so that they can continue to play their role as primary care-givers for the aged. Efforts will, therefore, be made to fulfil the commitments under the National Policy on Older Persons by strengthening and expanding the on-going services, besides introducing new interventions. The Plan of Action prepared on the subject will be the guide both for effective implementation of the National Policy and catering to the specific needs of older persons.

4.3.87 Shelter, health care, financial security, protection of life and property, being the major commitments under the Policy, the Tenth Plan will give special priority to attend to these areas through the on-going programmes. The existing

CARING FOR THE OTHER DISADVANTAGED

To wean away working children and potential child labour through

- Effective enforcement of the child labour regulatory legislation and rehabilitation of working children through bridge courses of education/vocational training/counselling/recreational facilities, advocacy etc

To tackle the ever increasing problem of Street Children through

- Effective networking of support systems for the welfare of Street Children through a National Initiative for Child Protection
- More emphasis on preventive measures through various developmental services for children like the ICDS, compulsory universal primary education, supplementary nutritive feeding, health and referral services, vocational training etc. and expansion of the same to needy areas
- Priority for non-institutional services for rehabilitation of children through restoring street children to their families or through foster families, sponsorships and adoption
- Encouraging more and more voluntary organisations to take up welfare and rehabilitative work for street children and expanding the CHILDLINE services to other cities

Commitments for the well-being of the Older Persons through

- Effective implementation of the National Policy on Older Persons in extending support for- financial security, health care, shelter, welfare, protection and other needs of the older persons
- Strengthening and expanding NGO network with a major objective of reaching the most needy on priority basis
- Ensuring financial security, through various pension schemes, financial preparation for old age, productive aging, income generation activities etc
- Extending Zilla Aadhars facilities to all districts
- Identifying salient features for an appropriate legislation on Old Age Protection

To promote adoption of orphaned and abandoned children with a special focus on the Girl Child through

- Promoting in-country adoption of the girl child and the mildly disabled
- Strengthening the existing monitoring mechanism for the well-being of children already placed in adoption, within the country and abroad

programmes of Old Age Homes, Day Care Centres, Mobile Medicare Centres will be vertically and horizontally expanded with additional inputs of vocational training, work therapy, recreation and interactive centres etc. to provide both physical and emotional rehabilitation for the older persons. The ultimate objective will be to have at least one Integrated Old Age Home in each district. To achieve this, NGOs will be strengthened through

capacity building, manpower training programmes and co-ordination with related welfare services of the concerned agencies. The Tenth Plan will also encourage the concept of group housing with suitable architectural modifications for safe and comfortable dwelling of the aged, through sensitising the civic authorities and town planners. With the objective of reaching affordable health services to the older persons, the Tenth Plan will

accord special attention to strengthening geriatric care and facilities in the public health systems such as the PHCs, public hospitals, hospices etc. through improved training in geriatric nursing, special wards and transport facilities to access these centres.

4.3.88 Financial insecurity being one of the prime problems that beset the aged, the Tenth Plan will endeavour to draw upon the mandate of the Policy to provide a whole range of interventions like pension schemes, financial preparation of the old-age, helping productive aging of the aged to income generation activities etc. However, as pension is the most sought-after income security measure, especially for the destitute older persons, efforts will be made to review and rationalise the on-going NOAPS to provide at least the barest minimum subsistence to the older persons and expand its coverage wherever possible. The possibility of merging and streamlining all the on-going Old Age Pension Schemes of both the centre and the states into one single national Old Age Pension Scheme with uniform pattern of assistance will also be explored in the Tenth Plan. The younger generation will be encouraged to prepare for their old age by appropriately organising post-retirement counselling/insurance programmes for the employees of various organisations through Welfare Associations, Trusts/Funds, Trade Unions etc. The Tenth Plan will also initiate the thinking process of introducing social security to the Aged as part of the total process of providing social security through encouraging savings in the informal sector. Productive aging being an important input in the policy, every effort will be made to ensure that the physical and mental capacities of large sections of the aged population are utilised productively. Various financial corporations which offer concessional financial assistance to different categories of the disadvantaged sections will incorporate specific schemes to cover older persons and extend micro-credit to them. The traditional family support systems will also be re-inforced and strengthened through awareness/sensitisation programmes to enable them to take care of their elders.

4.3.89 To empower the older persons to have a voice to express their problems and demands, the formation of SHGs/associations for promoting their

rights and interests will be encouraged. The many initiatives taken in the Ninth Plan to lend a helping hand to older persons to find solutions to their own problems, will be continued with greater vigour and strength through co-ordination of voluntary efforts and administrative initiatives. These include extending the services of the 'Zilla Aadhars' to reach every district in the country in a phased manner.

4.3.90 To enable easier access to important public utility facilities for Older Persons, affirmative action will be initiated like setting up a special Geriatric Centre in each district hospital and special OPD counters for the aged at PHCs and hospitals. Also, the railways and roadways will continue to provide priority ticketing, special queues and concessional fares for the elderly while the telecommunications department will provide them telephone connections on a priority basis.

4.3.91 The Tenth Plan will give special priority to the problems of protection of life and property of the older persons in view of the increasing number of incidents where they have become soft targets for criminal elements and are victims of fraudulent activities. Therefore, immediate steps will be initiated in collaboration with all the concerned to curb the increasing crimes against the Aged either by amending the Indian Penal Code or, if necessary, by enacting a new legislation and thus ensure the protection of their life and property. Towards this, a nation-wide programme will be launched to sensitise the enforcement machinery, especially the local police. Simultaneously, efforts will also be made to create awareness generation amongst the families and the community to make them realise that the safety of the Aged is primarily their responsibility/obligation. Henceforth, they have a major role to ensure the safety of the Aged.

Children in Difficult Circumstances

4.3.92 Children in Difficult Circumstances are those who become victims of circumstances that they are in and require help and attention of the State. They include - street children, abandoned children, orphaned children, child labour, children who have been physically and sexually abused, children in conflict with law, children with HIV/AIDS, children of terminally-ill parents, children of

prisoners, children who have gone through physical and mental traumas such as earthquakes, floods, terrorist attacks etc. In order to formulate comprehensive programmes for these children, the Tenth Plan will give priority to all measures for their protection, care, welfare and rehabilitation.

4.3.93 As the absence of data on these children is a major constraint in formulating need-based policies and programmes for their welfare, a nationwide survey is the need of the day to assess the size of the population of different categories of children in difficult circumstances, and in need of care and protection from the State, the problems faced by them and other related issues. This Survey will need to include an assessment of the number of all Children's Homes, Observation Homes, State-run Residential Institutions and resource directory of all the existing facilities etc. In this connection, the existing children-related legislation such as Children (Pledging) Act, 1933, Factories Act, 1948, Apprentices Act, 1961, Child Labour (Prohibition and Regulation) Act, 1986, Immoral Traffic (Prevention) Act, 1986, etc. will be reviewed. Based on the results and review of the National Survey of Children in need of care and protection, the possibility of merging the various on-going schemes/programmes into an integrated programme will be explored. A beginning has already been made in integrating child welfare programmes by merging the scheme for 'Welfare of Street Children' and the scheme of 'Shishu Grihas'. While specific programmes will be devised for different categories of children, depending upon their requirements, the concept of setting up of Comprehensive Multi-Care Centres for Children in each district will also be examined.

Street Children

4.3.94 Amongst the various categories of disadvantaged children, Street Children are the most vulnerable to abuse and exploitation. They are deprived of the basic amenities and opportunities for normal growth and, in the process, develop habits which are not only harmful to themselves, but to society at large. In the Tenth Plan, the strategy to tackle the problems of growing number of street children will be to expand and strengthen the Integrated Programme for Street

Children to bring it in conformity with the Convention on the Rights of the Child. Towards this end, the focus of activities will be on preventive and rehabilitative aspects with necessary provisions for health, nutrition, shelter, vocational training and education etc. for the all-round development of children. All these inputs will be specially modified to suit the needs of the street children, especially to help them earn a livelihood.

4.3.95 Safety of the person being a prime factor in the life of the street child, Shelter Homes or Short-Stay Homes or Drop-in Centres (especially night shelters) will get priority in the Tenth Plan in order to provide a safe place for children to stay till they can be rehabilitated. Juveniles or adolescents, (between 15 and 18 years) will be provided with After-Care Homes to take care of their rehabilitation, as they are very vulnerable to crime-prone activities at this age. Non-institutional care has been recognised as one of the most successful methods of rehabilitating children. Foster care, sponsorship and adoption are some of the processes, which will be encouraged for this purpose in order to provide complete rehabilitation to the street children in a caring and familial environment. More and more voluntary organisations will be encouraged to take up welfare activities for these children and also to expand their services to different cities. Training of service providers will be given priority attention especially for intervention, follow-up, counselling, documentation, networking and long-term rehabilitation of the children. Specially designed programmes will be developed for the care of high-risk sections of street children with alcohol/drug-abuse problems, HIV/AIDS, or those engaged in commercial sex activities.

4.3.96 A major problem faced by street children is that of accessing important facilities like health, transport, labour etc. required for their daily livelihood and safety. The NICP programme, initiated in the Ninth Plan to create child-friendly systems in agencies like the police, health care institutions, judiciary and educational institutions, will be further strengthened to sensitise and transform them into child accessible systems. This will also involve a higher degree of inter-sectoral co-ordination to enable adequate delivery of services to the distressed child. The State

Governments will also be encouraged to take an active role in the working of the NICP by enabling convergence of various resources. A detailed Plan of Action will be prepared which will include city/state-level issues concerning street children, local resources and gaps in services. Efforts will also be made to incorporate child rights into the curricula of educational institutions to sensitise and generate awareness not only among the children but also among the public. The CHILDLINE services which receive calls for help from children in distress will be adequately strengthened with appropriate inter-linkages.

Adoption of Children

4.3.97 Adoption of orphaned, abandoned and destitute children is the ideal form of rehabilitation of these children, as it provides them a congenial environment for their growth and development. To enable larger numbers of orphaned children to find a loving home, the CARA which acts as a clearing house of information with regard to children available for adoption will expand its facilities for research and documentation so that information about children available for adoption can be easily ascertained. The Voluntary Co-ordinating Agencies, on their part, will help locate suitable families for these children.

4.3.98 Priority will be given to promote in-country adoption as it is widely recognised that children are best brought up in their own social and cultural milieu. Adoption of certain categories of children like older children, mildly disabled children, siblings etc, which is limited at present, will be specially encouraged through sensitisation and awareness generation to transform the traditional mind-set and perceptions of adoptive families. The time-frame between identification of a child as eligible for adoption and the ultimate placement of a child in its adoptive home needs to be considerably reduced. For this, procedures for adoptions will be streamlined and simplified. The possibility of foster care for children who are yet to be placed in adoption will be encouraged. A model set of guidelines and safeguards for the child placed in foster care will be developed.

4.3.99 With the growing number of Indian and foreign adoptions, there is a need to obtain feedback on the well-being of the children placed in adoption. For this purpose, the monitoring and evaluation mechanism of CARA and the Indian Embassies abroad will be strengthened to update records, facilitate home visits and provide computerised documentation facilities. CARA will also conduct programmes for training, sensitisation, awareness generation and dissemination of knowledge for different agencies connected with adoption of children such as the judiciary, police, medical professionals, social institutions etc.

National Institute of Social Defence

4.3.100 The Tenth Plan envisages a pivotal role for the NISD, New Delhi, to function as a centre of excellence whose services can be used for both national and international programmes. Supported by the strength and backing of the autonomous status conferred on the Institute in 2001, the Tenth Plan will aim to strengthen the Institute professionally, technically and financially, with the full complement of qualified professional and support facilities, to enable it to broaden its activities in the field of social defence and other disadvantaged groups. With these provisions, the Institute will revive its earlier activities of training and manpower development of social defence personnel, especially in the areas of community-based services for juvenile justice, prison welfare, prison administration, child adoption, children in need of care and protection, prevention of drug abuse, welfare of senior citizens and of the other emerging social problems. The Institute will also assist the nodal Ministry in formulating meaningful strategies and policies through its research, survey and documentation as well as monitoring the changing trends and the needs of these groups.

STATE SECTOR PROGRAMMES

4.3.101 Most of the programmes meant for these Other Special Groups are included under Social Welfare Sector and are implemented by the states, as the subject falls under the Concurrent List. The State Governments are responsible for the implementation of a number of legislations, including the PWD Act, 1995, Probation of

Offenders Act, 1958, Juvenile Justice Act, 2000, Beggary Prevention Acts in various states, Immoral Traffic (Prevention) Act, 1956 etc. They also have the responsibility of setting up mandatory institutions under the various Acts like Juvenile Homes, Children's Homes, Children's Boards, Observation Homes, Correctional Institutions, Shelter Homes, Nari Niketans, Beggar Homes etc. The states also set up institutions under various welfare programmes like orphanages, old age homes etc. For this, they receive support from the centre in the form of funding, technical guidance, manpower support etc. In fact, states were given full responsibility for implementing social defence programmes, as the subject 'Social Defence' was transferred to the state sector as early as in 1969.

IMPLEMENTING MECHANISMS

4.3.102 The nodal administrative machinery at the centre for implementing Social Welfare programmes is the Ministry of Social Justice & Empowerment, earlier known as the Ministry of Welfare. Exclusive Bureaux have been set up, one for Welfare of the Disabled and the other for Social Defence and Other Disadvantaged Groups. In the area of empowering the Disabled, a country-wide and regional network of institutional mechanism exists for providing a wide range of services for them. The seven National and Apex level Institutions, the ISIC and RCI will continue to further assist and support the regional institutional network, which includes the 6 Composite Resource Centres, the 4 Regional Rehabilitation Centres and 11 District Rehabilitation Centres, located in different parts of the country to help in reaching rehabilitation services to the un-reached, even in the remote rural areas. The NISD will function as the nodal agency for training and research mechanism for the Ministry in the field of social defence and other disadvantaged groups.

4.3.103 While the majority of State Governments have exclusive Departments/Directorates of Social Welfare, yet they continue to handle implementation of the programmes in a cursory manner. Further, they are also not equipped with professional or technical manpower to maintain the required standard of services in various institutions run by them. Though the PRIs in the rural areas and the

Local Bodies in the urban areas have been adequately empowered through Constitutional amendments, but their linkages with the programmes of the State Governments and of the voluntary sector need to be strengthened for their effective implementation, co-ordination and supervision. The Tenth Plan seeks a more intense and committed involvement of the state sector in welfare programmes as they have a major responsibility for the welfare of the disadvantaged groups. For this purpose, the standards and professionalism of the existing institutions and programmes in the states will be enhanced and so will the monitoring and evaluation systems. The PRIs and local bodies will be actively involved in implementing the programmes.

RESEARCH, EVALUATION AND MONITORING

4.3.104 Research, evaluation and monitoring will be continued through a two-pronged action plan, the first to enable effective implementation of the existing programmes in the Social Welfare sector through the process of diagnostic and evaluative research and monitoring to identify the existing gaps and to provide necessary guidance for corrective action. The second objective would be to identify the emerging areas/problems so that the requisite programmes to tackle them can be put into motion.

4.3.105 The seven National and Apex level Institutes for the various categories of the Disabled (National Institute for Multiple Disabilities being shortly set up) and the ISIC will continue research in their own areas of specialisation to enable the preparation of meaningful and need-based policies and programmes for the disabled. Their efforts will be supplemented by the RCI by incorporating the latest developments in the syllabus and training of professionals. The NISD will continue to serve as the premier Institute for research, evaluation and training not only in the areas of Social Defence, but also for the good of the other vulnerable groups like the Older Persons, orphaned, destitute children etc.

4.3.106 The present monitoring mechanism, both at the central and state levels will be strengthened and upgraded through the institutional, technological

SOCIAL WELFARE: IMPLEMENTING MECHANISMS

An extensive network of national, regional, state and grassroot level support Institutions exist to extend the necessary technical advice and support to the nodal Ministry of Social Justice & Empowerment in formulating need-based policies and programmes, experiment with innovative projects, conduct research, and develop manpower and training facilities to cater to these Other Special Groups. It includes:

National Level

For the Disabled :

- National Institutes for the Disabled
- Institute for the Physically Handicapped, New Delhi
- Indian Spinal Injuries Centre, New Delhi
- National Trust for Welfare of Persons with Autism, Cerebral Palsy, Mental Retardation and Multiple Disabilities, New Delhi
- Rehabilitation Council of India, Delhi
- Artificial Limbs Manufacturing Corporation of India, Kanpur
- Office of the Chief Commissioner of Disabilities, Delhi
- National Handicapped, Finance & Development Corporation, Delhi

For the Social Deviants and Other Disadvantaged:

- National Institute of Social Defence, New Delhi
- National Council for Older Persons, New Delhi
- Central Adoption Resource Agency, New Delhi

Regional Level

- Composite Regional Centres for Rehabilitation of the Disabled
- Regional Rehabilitation Centres for those with spinal injuries
- District Rehabilitation Centres for the Disabled
- Vocational Rehabilitation Centres for the Disabled
- Rural Rehabilitation Extension Centres for the Disabled

State/ District Levels/Block/Village

- State Departments/Directorates of Social Welfare
- Office of the State Commissioners for Disabilities
- Juvenile Justice Boards and Child Welfare Committees
- Zilla Aadhar for Older Persons
- PRIs/Urban Local Bodies/NGOs

and professional inputs to improve the quality and substance of the feedback with regard to the working of policies/programmes. Efforts will be made to set up institutional mechanism in those states where none exists at present. To enable greater participation, effective utilisation of funds and monitoring of programmes at the grassroot levels, the services of local bodies such as the PRIs and other community-based organisations will also be utilised.

VOLUNTARY ACTION

4.3.107 It is an established fact that the well-being of these Other Special Groups largely depends upon the community-based voluntary

ROLE OF VOLUNTARY ORGANISATIONS

Societal responsibility, in the form of Voluntary Agencies came into action for the first time in the Social Welfare Sector, when the welfare and development of these Other Special Groups viz. disabled, juvenile delinquents, vagrants/beggars, alcoholics and drug addicts, sex workers, working children, street children, orphaned, abandoned and destitute children, older persons etc. were shouldered by voluntary agencies, in view of the limited support of the State, for these groups. Even today, the welfare of these groups continue to depend largely on voluntary action, as these organisations work in close contact with the target groups and help not only in operationalising government programmes but also undertake initiatives suitably designed to address their specific problems. The contribution of voluntary organisations in caring, reforming and rehabilitating these groups is very well reflected in the rich and diverse alternative models developed/adopted by them while catering to their varied requirements. In fact, the strength of the social welfare services in the country rests on the strong foundations of the country-wide network of these voluntary organisations numbering more than 12,000 at present. The untiring efforts of voluntary action has enabled them to 'Reach the services to the Un-reached', even in the most backward, remote and inaccessible areas of the country.

action to satisfy their welfare and developmental needs, as logically, it is not possible for the State to reach out to each and every distressed individual or disadvantaged group. Voluntary organisations, being community-based entities, have been playing a very significant role as motivators and agents of change in the field of Social Welfare. These agencies also function as pressure groups to impress upon the government the need to extend welfare and social benefits for the empowerment of socially vulnerable groups. In fact, they have been effective implementing agencies in translating the government's policies and programmes into action, besides developing alternative development models. The Tenth Plan's thrust will, therefore, be not only to continue to promote and strengthen voluntary action in the country, but also to increase their outreach and extension services especially in rural areas through capacity building, trained manpower, financial independence and appropriate linkages. The NGOs will extend their services to block and village levels and network their facilities with PRIs and local bodies. To enable an even-spread of these agencies between different states, the Tenth Plan will identify good NGOs and motivate them to work in the needy areas.

PLAN OUTLAYS

4.3.108 An outlay of Rs.2004 crore has been earmarked for 'Social Welfare' Sector in the Central Budget of the Ministry of Social Justice and Empowerment in the Tenth Plan. An in-depth exercise of Zero-Based Budgeting (ZBB) was undertaken to rationalise and minimise the on-going schemes of the Social Welfare Sector to ensure optimal distribution of limited resources. Through the various techniques of ZBB viz. weeding-out, merging, transfer to non-plan, state sector and to other subordinate organisations, the 39 on-going schemes of the Ninth Plan was brought down to 16 (15 Central and 1 Centrally Sponsored Schemes). A statement reflecting the final outcome of the application of ZBB along with their share in the total outlay of the Ministry, is given in Annexure 4.3.1 and also in the Appendix. In addition, Social Welfare programmes receive plan financial support from the state sector also.

**SCHEME-WISE BREAK-UP OF TENTH PLAN (2002-07) OUTLAY OF MINISTRY OF SOCIAL JUSTICE & EMPOWERMENT
(DISABLED, SOCIAL DEFENCE & OTHER DISADVANTAGED GROUPS)**

(Rs. in crore)

Sl. No.	Name of the Scheme	NINTH PLAN (1997-2002)		Application of ZBB Techniques	Sl. No.	TENTH PLAN (2002-07)					
		Outlay	Act. Exp.			Name of the Scheme (Final outcome of ZBB)	Outlay				
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)				
I. CENTRAL SECTOR SCHEMES (CS)											
A. Welfare of the Disabled											
1	National Institute for Visually Handicapped, Dehradun	12.57	9.94								
2	National Inst. for Orthopaedically Handicapped, Kolkata	12.68	5.24								
3	National Institute for the Hearing Handicapped, Mumbai.	14.05	7.44								
4	National Institute for the Mentally Handicapped, Secunderabad	16.81	15.52	Merged & Retained (Renamed as 'Scheme for Funding to National Institutes')	1	Scheme for Funding to National Institutes	210.80				
5	National Institute of Rehabilitation, Training & Research, Cuttack	16.52	16.04								
6	Institute for the Physically Handicapped, New Delhi	8.20	4.90								
7	National Institute for the Multiple Handicapped, Chennai	23.00	0.00								
8	National Institute of Social Defence, New Delhi	5.60	6.68								
9	Artificial Limbs Manufacturing Corporation, Kanpur	28.20	17.60					Retained	2	Artificial Limbs Manufacturing Corporation, Kanpur	20.50
10	Scheme of Assistance to Disabled Persons for Purchasing /Fitting of Aids & Appliances	109.78	133.80					Retained	3	Scheme of Assistance to Disabled Person for Purchasing /Fitting of Aids & Appliances	354.50
11	Assistance to Vol. Organisations for the Disabled							Merged & Retained (Renamed as 'Scheme to Promote Voluntary Action for Persons with Disabilities')	4	Scheme to Promote Voluntary Action for Persons with Disabilities	503.00
12	Assistance to Vol. Organisations for Rehabilitation of Leprosy Cured Persons										
13	Assistance to Vol. Organisations for Persons with Cerebral Palsy and Mental Retardation	201.80	232.99								
14	Assistance to Vol. Organisations for Establishment of Special Schools										
15	Indian Spinal Injury Centre	23.28	15.06	Retained	5	Indian Spinal Injury Centre	25.00				
16	Rehabilitation Council of India	26.41	12.01	Retained	6	Rehabilitation Council of India	22.00				
17	National Trust for Persons with Mental Retardation	13.28	99.00	Weeded out (To be an Independent Body)	-	National Trust for Persons with Mental Retardation	21.00*				

* An amount of Rs. 21 crore (of which Rs. 1 crore as the spill over of the Ninth Plan corpus of Rs. 100 crore) to be paid to the Trust and the scheme to be weeded out during the year 2002-03 itself.

(Rs. in crore)

Sl. No.	Name of the Scheme	NINTH PLAN (1997-2002)		Application of ZBB Techniques	Sl. No.	TENTH PLAN (2002-07)	
		Outlay	Act. Exp.			Name of the Scheme (Final outcome of ZBB)	Outlay
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
18	National Handicapped Finance and Development Corporation	226.40	51.30	Retained	7	National Handicapped Finance and Development Corporation (NHFDC)	97.50
19	National Programme for Rehabilitation of Persons with Disabilities	94.05	104.13	Transferred to States		—	—
20	Implementation of the Persons with Disabilities (PWD) Act, 1995	104.14	16.21	Merged & Retained (Merged with Sl. No. 38 of CSS and renamed as 'Implementation of the Persons with Disabilities (PWD) Act, 1995'.)	8	Implementation of the Persons with Disabilities (PWD) Act, 1995	154.00
21	Six Regional Composite Resource Centres	0.00	0.00				
22	Science & Technology Projects in Mission Mode	8.42	4.32				
23	Office of the Chief Commissioner for Persons with Disabilities	7.44	1.45	Weeded out (Transferred to Non-Plan)	-	Office of the Chief Commissioner for Persons with Disabilities (Spill-over only for 2002-03)	1.00
24	Support to Children with Disabilities (An UNDP funded Scheme)	0.00	1.11	Retained	9	Support to Children with Disabilities (An UNDP funded Scheme)	2.37
	Total (A)	952.63	754.74				1411.67
B.	New Scheme	-	-	-	10	College of Rehabilitation Sciences	53.73
	Total (A + B)	952.63	754.74				1465.40
C. Social Defence and other Disadvantaged Groups							
25	Education work for Prohibition and Drug Abuse	80.00	88.84	Merged & Retained (Renamed as 'Assistance to Vol. Orgns. for providing Social Def. Services including Prevention of Alcoholism & Drug Abuse')	11	Assistance to Vol. Orgns. For providing Social Def. Services including Prevention of Alcoholism & Drug Abuse	158.50
26	Assistance to Vol. Orgns. for providing Social Def. Services including prevention of Alcohol & drug abuse	7.50	9.08				
27	Central Adoption Resource Agency (CARA)	3.26	2.28	Weeded out (To be Transferred to Non Plan from 2003-04)	-	Central Adoption Resource Agency (Spill-over only for 2002-03)	2.00
28	Integrated Programme for Street Children	32.98	31.78	Merged & Retained (Renamed as 'GIA for Welfare of Children in Difficult circumstances')	12	Grant-in-aid for Welfare of Children in Difficult circumstances	85.90
29	Assistance to Homes for Infant and Young Children for Promoting In-country Adoption	9.00	7.47				
30	Assistance to Vol. Orgns. for Programmes related to Aged.	56.42	51.66	Retained	13	Assistance to Vol. Orgns. for Programmes related to Aged.	104.00

(Rs. in crore)

Sl. No.	Name of the Scheme	NINTH PLAN (1997-2002)		Application of ZBB Techniques	Sl. No.	TENTH PLAN (2002-07)	
		Outlay	Act. Exp.			Name of the Scheme (Final outcome of ZBB)	Outlay
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
31	Grant-in-aid for Research Studies and Publications	2.14	1.69	Merged & Retained (Renamed as 'GIA for Research, Information & Other Miscellaneous'.)	14	Grant in aid for Research, Information and Other Miscellaneous	34.60
32	Information and Mass Education Cell	16.00	16.18				
33	Miscellaneous Scheme	2.30	0.00				
34	Scheme for Beggary Prevention	0.48	0.48	Weeded out		—	—
35	Assistance to all India Vol. Orgns. in the field of Social Welfare	0.00	0.00				
36	Grant-in-aid to School of Social Work	0.00	0.00				
Total (C)		210.08	209.46				385.00
D.	<u>New Scheme</u>	—	—	—	15	Scheme for Welfare of Working Children & Children in Need of Care and Protection	45.00
Total (C + D)		210.08	209.46				430.00
TOTAL - I (A to D)		1162.71	964.20				1895.40
II. CENTRALLY SPONSORED SCHEMES (CSS)							
A. Welfare of the Disabled							
37	Employment of the Handicapped	5.00	3.61	To be transferred to States	-	Employment of the Handicapped (Awaiting NDC's approval)	3.60
38	Regional Rehabilitation Centres	0.00	0.00	Merged (Merged with Sl. No. 20)		—	—
Total (A)		5.00	3.61				3.60
B. Social Defence and other Disadvantaged Groups							
39	Scheme for Prevention and Control of Juvenile Social Maladjustment	41.24	52.58	Retained	16	Scheme for Prevention and Control of Juvenile Social Maladjustment	105.00
Total (B)		41.24	52.58				105.00
TOTAL - II (A+B)		46.24	56.19				108.60
GRAND TOTAL - I + II		1208.95	1020.39				2004.00

Note : 10% of the total outlay of the Ministry is earmarked for the North Eastern States.

CHAPTER 5.1

AGRICULTURE

5.1.1 With a 24.2 per cent contribution (triennium ending 2001-02) to the gross domestic product (GDP), agriculture still provides livelihood support to about two-thirds of country's population. The sector provides employment to 56.7 per cent of country's work force and is the single largest private sector occupation. Agriculture accounts for about 14.7 per cent of the total export earnings and provides raw material to a large number of Industries (textiles, silk, sugar, rice, flour mills, milk products). Besides, the rural areas are the biggest markets for low-priced and middle-priced consumer goods, including consumer durables and rural domestic savings are an important source of resource mobilisation.

5.1.2 Any change in this sector, positive or negative, has a multiplier effect on the entire economy. A nation of more than a billion people cannot be dependent on imports for the basic item like foodgrains. The agriculture sector, therefore, acts as a bulwark in maintaining food security and, in the process, national security as well. The allied sectors like horticulture, animal husbandry, dairy and fisheries, have an important role in improving the overall economic conditions and health and nutrition of the rural masses. To maintain the ecological balance, there is need for sustainable and balanced development of agriculture and allied sectors. Recognising the crucial role played by the agriculture sector in enabling the widest

dispersal of economic benefits, the Approach Paper to the Tenth Plan has emphasised that agricultural development is central to economic development of country.

5.1.3 After remaining a food deficit country for about two decades after Independence, India has not only become self-sufficient in foodgrains but now has a surplus of foodgrains. The situation started improving gradually after the mid 1960s with the introduction of high yielding varieties (HYVs) of crops, and the development of agriculture infrastructure for irrigation, input supply, storage and marketing. The high production potential input responsive HYVs motivated farmers to adopt improved production technologies with the use of water, fertilisers and agrochemicals. Besides the public sector rural infrastructure, farmers developed their own 'on-farm' resources. The extension support for production technology and the marketing support through procurement operations encouraged farmers to step up production. The production of various crop commodities has increased substantially, over the various Plan periods (Table 5.1.1). The foodgrains production increased to a level of 211.32 mt in 2001-02 from 89.36 mt in 1964-65. The production of oilseeds, cotton, sugarcane, fruits, vegetables and milk also increased appreciably. The country demonstrated an all round development in the field of agriculture, including the livestock sub-sector.

¹ Excluding forestry & logging; Agricultural Statistics at a Glance-2002, Ministry of Agriculture.

² Report of the Special Group on Targetting Ten Million Employment Opportunities Per Year, 2002, Planning Commission.

³ Agricultural Statistics at a Glance-2002, Ministry of Agriculture.

Table - 5.1.1
Foodgrains Production during Various Five Year Plans.

(million tonnes)

Commodity	IV Plan (1973-74)	V Plan (1978-79)	VI Plan (1984-85)	VII Plan (1989-90)	VIII Plan (1996-97)	IX Plan (2001-02)
Rice	44.05	53.77	58.34	73.57	81.74	91.61
Wheat	21.78	35.51	44.07	49.85	69.35	71.47
Coarse Cereals	28.83	30.44	31.17	34.76	34.10	34.72
Pulses	10.01	12.18	11.96	12.86	14.24	13.52
Total Foodgrains	104.67	131.90	145.54	171.04	199.44	211.32

5.1.4 The last 55 years of agriculture development in the country could be divided into various phases :

- ☒ when the expansion of net sown area (NSA), irrigated area, development of rural infrastructure and land reforms played an important role;
- ☒ when high yielding dwarf varieties, agricultural inputs like fertilisers, pesticides and improved crop production technologies ushered in the Green Revolution';
- ☒ when minimum support prices (MSP) and procurement of agricultural commodities were ensured and the food grains storage and distribution system was expanded at the national level; and
- ☒ when the thrust was on liberalisation and globalisation with the establishment of the World Trade Organisation (WTO).

5.1.5 The main factors for the all-round success of agriculture have been: increase in net sown area; expansion of irrigation facilities; land reforms, especially consolidation of holdings; development and introduction of high yielding seeds, fertilisers, improved implements and farm machines, technology for pest management; price policy based on MSP and procurement operations; infrastructure for storage/cold storage; improvements in trade system; increase in investments, etc.

5.1.6 The era of all-round development on the agriculture front has been called the Green Revolution'. The country's achievements have been applauded the world over and the developing countries have started considering India their role model. However, in spite of the spectacular achievements, various constraints and disturbing trends continue to hamper the requisite growth of the agriculture sector.

5.1.7 During the 1990s (1989-90 to 1999-2000), the growth of agriculture decelerated as compared to the 1980s (1979-80 to 1989-90). - The overall growth rate of crop production declined from 3.72 per cent per annum to 2.29 per cent per annum and productivity from 2.99 per cent per annum to 1.21 per cent per annum. During the 1990s the growth rate of foodgrains production declined to 1.92 per cent per annum from 3.54 per cent per annum during 1980s. Similarly the growth rate of productivity in food grains decelerated to 1.32 per cent per annum as compared to 3.33 per cent per annum during the 1980s. The deceleration in the growth rate of foodgrains production was steep as compared to non foodgrain crops from 4.02 per cent per annum during the 1980s to 2.83 per cent per annum during the 1990s.

5.1.8 The per unit area productivity of our crop commodities is much lower as compared to that of the other major crop producing countries (Table.5.1.2). There is also a wide gap in the yield levels among and within States.

Table-5.1.2
Comparative Yield of Principal Crops in Various Countries (1999)

(Kg. per ha)

Country	Paddy	Wheat	Maize	Ground nut	Sugar cane
India	2929	2583	1667	913	68012
China	6321	3969	4880	2799	85294
Japan	6414			2336	
U.S.A	6622	2872	8398	3038	80787
Indonesia	4261		2646	1523	
Canada		2591	7974		
Vietnam	4105			1435	
World average	3845	2711	4313	1336	65689
Rank of India in production In the world	Second after China	Second after China	accounts for only little over 4% of world's production	Second after China	Second after China

Source : Agriculture at a glance, 2002, Ministry of Agriculture

5.1.9 As the Mid Term Appraisal (MTA) of the Ninth Plan pointed out, during the 1990s, the policy of various States has been to increase production through subsidies on inputs such as power, water and fertilisers, rather than by building new capital assets in irrigation and power. These problems are particularly severe in the poorer states. Although private investment in agriculture has grown rapidly, this is hardly a substitute for lower public investment and deteriorating quality of public services in agriculture. Macro-economic distortions are visible. For example, private investment in diesel run generating sets is increasing while power capacity is under-utilised because of poor distribution and maintenance. The poor base of rural productive assets and poorer technological base because of past public/private patterns of spending has been recognised as a serious constraint in increasing production and productivity.

5.1.10 Unsustainable practices like excessive use of water together with imbalanced use of fertilisers especially in the Green Revolution areas of northern and northwestern parts of the country have affected soil health and environment adversely. The organic matter content in the soil

has gone down because of less use of organic inputs and the micro nutrients deficiency has become alarming.

5.1.11 Natural resources like land and water have not received the attention they deserve. The sustainable development of land and water resources becomes all the more important for the nation like India, which shares about 16 per cent of the global population but has only 2.4 per cent of the total land and 4 per cent of the total water resource. Scarcity of water in rainfed areas is causing serious hardships. Ground water resources are dwindling fast due to poor water harvesting leading to excessive run off and poor recharging of ground water. This is accompanied by excessive drawal/ exploitation mainly to meet the household needs of growing population as also irrigation needs of new high yielding crops. The number of dark blocks/mandals where there is over exploitation of groundwater (over 85 per cent) is increasing in most of the States with large rainfed areas (Andhra Pradesh, Karnataka, Rajasthan, Madhya Pradesh, Chattisgarh etc.). Between 1984-85 and 1998-99 the number of dark blocks increased from 253 to 428. If this continues, the number of over exploited blocks will double over a period of every twelve and a half years⁴. The drinking water problem in some

⁴ Irrigation, Flood Control and Command Area Development, MTA 9th Plan, Planning Commission

of the areas has persisted largely due to the adoption of cropping patterns with high water demanding crops. The hydrological chain has been disrupted and needs to be restored on priority. Effective groundwater recharging measures as also regulations for sustainable exploitation need to be put in place on an urgent basis.

5.1.12 Out of the geographical area of 328.73 million ha (m ha), an area of about 107.4 m ha is estimated to be degraded⁵. Under the programmes of Department of Agriculture and Cooperation, Department of Land Resources and Ministry of Environment and Forests and other programmes, up to the end of the Eighth Plan, only 17.96 m ha had been covered/treated. A sizeable area of degraded/rainfed land needs soil conservation, water harvesting and vegetative cover.

5.1.13 The availability of inputs and their use in agriculture has remained sub-optimal. Only about 40 per cent of the net sown area of 142.8 m ha could be brought under irrigation and the remaining is dependent on rains. The larger dependence of crops on monsoon has adversely affected the use of inputs and adoption of improved crop production technologies, because of high risk involved in crop production and low/no profit margin.

5.1.14 Seed availability and seed replacement rates (SRRs) for most of the crops remained inadequate and below the desired levels. There is also a mismatch in availability and demand of seeds of different varieties, especially in case of crops/varieties specific to the problem areas. The average fertiliser consumption at 92 kg/ha remained low and imbalanced in terms of the use of {Nitrogen, Phosphorous and Potash (NP&K)} (6.69:2.59:1.0) (2001-02). The per hectare fertiliser use remained very low in some States, especially northeastern States, Himachal Pradesh (42 kg), Orissa (47 kg), Rajasthan (35 kg) and undivided Madhya Pradesh (29 kg). Besides, the increasing deficiency of micro nutrients, especially zinc, iron, etc. in the soil has been observed in recent years.

5.1.15 Though the consumption of pesticides seems to have declined, because of the propagation of the Integrated Pest Management (IPM) approach and the increasing awareness about the hazards of pesticides, the availability of quality pesticides remained a matter of concern. The infrastructure for enforcing the provisions of the Insecticide Act, 1968, also remained inadequate.

5.1.16 The availability of quality farm machines and implements has remained unsatisfactory. The reservation of the manufacture of agriculture machinery and implements for the small-scale industries (SSIs) seems to have also adversely affected the development of this sector. Although the use of tractors in agriculture has increased rapidly, the availability of the right type of machines and implements, which could help reduce drudgery, adoption of modern technologies and precision farming has remained grossly inadequate. Because of inefficient farming operations, the cost of production has also remained high as compared to the developed countries.

5.1.17 The agriculture extension machinery and information support in most States seems to have become outmoded. The staff created under the World Bank assisted Training and Visits (T&V) programme do not have much mobility. The need to revamp the extension services in the country by using print and electronic media and information technology along with the involvement of the private sector is being felt increasingly. The private sector, especially the input agencies and traders, are now one of the main sources of information for the farmers. Radio, television and the print media have become powerful means of education and technology dissemination.

5.1.18 Growth in Total Factor Productivity (TFP) seems to have declined suggesting a drop in the force of technology impact. Inadequate storage/cold storage facilities affected post-harvest handling, processing and value addition. On top of this, poor marketing support, delay in announcing MSP, non-realisation of MSP/remunerative prices affected the profitability of the farmers and diversification.

⁵ Committee set up by the Ministry of Agriculture, Govt. of India

5.1.19 The share of agriculture in GDP has declined from 61 per cent in 1950-51 to 24.2 per cent (TE 2001-02), whereas the dependence of population on agriculture has declined only marginally from 77 per cent to 69 per cent during the period. In all the developed countries, there has been a major shift of population from agriculture as an occupation to other sectors. However, this has not happened in India. Secondly, the average size of holdings has reduced from 2.28 ha in 1970-71 to 1.57 ha in 1990-91. So, the pressure on per unit of land has increased by about 2.25 times.

5.1.20 The terms of trade have generally remained unfavourable to agriculture. The Commission for Agricultural Costs and Prices (CACP) in its 'Report for the crops sown during 2000-2001 season' has made following observations:

"...in the period before 1975, the terms of trade fluctuated considerably with declines during 1952-63, a sharp upturn during the mid-sixties, a high average level during 1964-74 and sharp fall again in 1975-76. As compared to this, the trend has been much more stable after 1980, with a slow upward trend. It may be noted that since the terms of trade came into the Commission's terms of reference the stability it has shown is unusual by international standards and exhibits much less volatility than elsewhere. Also, the upward trend is counter to the general trend of international agricultural prices to fall relative to those of manufacture. According to the World Bank, the real international price of agricultural commodities (i.e. relative to manufactures) fell by 45 per cent between 1980 and 1998. Thus, the Indian price policy has ensured a much more stable price environment for farmers and has also protected them so far from the terms of trade losses being suffered by farmers elsewhere."

"As to recent developments, the index is provisionally estimated at 95.0 in 1999-2000, against 95.6 in 1998-99 which was the highest since 1974-75. This is, however, best analysed in terms of three year averages. In the TE 1999-2000, the index reached 94.1 from 93.4 in TE

1998-99 and 91.7 in TE 1997-98. Thus on the whole terms of trade have improved in recent years."

"The DES (Directorate of Economics and Statistics) is also bringing out an alternative index which is more comprehensive in coverage of commodities and also has a more recent base. However, the Commission continues with its index because the DES estimates are only available with a time lag. Also, there are certain conceptual differences between the two indices, particularly in the treatment of interest charges which the Commission is examining before a decision is taken to discontinue the existing series."

Table 5.1.3
Indices of Terms of Trade in Agriculture

year	CACP Base TE1971-72	DE&S Base TE1991-92
1981-82	82.9	88.7
1982-83	84.7	91.4
1983-84	86.3	91.6
1984-85	86.0	93.9
1985-86	82.4	93.6
1986-87	85.3	95.7
1987-88	86.9	97.4
1988-89	86.2	98.3
1989-90	86.5	99.4
1990-91	90.0	101.9
1991-92	92.7	105.6
1992-93	86.6	103.9
1993-94	90.9	103.6
1994-95	91.8	106.6
1995-96	90.3	105.3
1996-97	93.1	103.1
1997-98	91.7	105.6
1998-99	95.6	105.2
1999-00	95.0*	102.7*
2000-01		101.2*

* provisional

Source : CACP and Dte.Eco. & Statistics, MoAgri.

5.1.21 Data on terms of trade from CACP and the DES are given in table.5.1.3. On the whole, the terms of trade have improved in recent years.

5.1.22 Public sector investment has played a crucial role in the development of infrastructure like irrigation, electricity, agriculture research, roads, markets and communications. Investment in agriculture declined from 1.6 per cent of GDP in 1993-94 to 1.3 per cent in 1998-99 (Table - 5.1.4). This decline was due to a fall in public investment from Rs. 4,467 crore in 1993-94 to Rs. 3,869 crore in 1998-99. There has, in fact, been a continuous decline in public investment in agriculture from 1995-96 till 1998-99. Although, the declining trend in public investment was halted in 1999-2000, with the public sector capital

formation rising to Rs. 4,122 crore from Rs. 3,869 crore in the preceding year, there has not been any improvement in the share of investment in agriculture GDP from the preceding year's level of 1.3 per cent. This calls for a review of policies which led to the diversion of scarce resources away from the creation of productive assets to subsidies for fertilisers, rural electricity, irrigation, credit and other agricultural inputs.

5.1.23 The declining trend in public sector investment will need to be reversed by better targeting of subsidies, increasing investment in productive assets such as irrigation, power, credit and developing rural infrastructure. The trend of percentage share of agriculture in total GCF is given in Table 5.1.5.

TABLE - 5.1.4
Gross Capital Formation Agriculture (At 1993-94 Prices)

(Rs. crores)

Year	Agriculture	Gross Capital Formation			Percentage Share of			Investment in Agriculture as Percentage of GDP
		Total economy	Public Sector in agri.	Private Sector in agriculture	Public sector in Agriculture	Private sector in agriculture	Agri. to total	
1993-94	13,523	181,133	4,467	9,056	33.0	67.0	7.47	1.6
1994-95	14,969	229,879	4,947	10,022	33.0	67.0	6.51	1.6
1995-96	15,690	284,557	4,849	10,841	30.9	69.1	5.51	1.6
1996-97	16,176	248,631	4,668	11,508	28.9	71.1	6.51	1.5
1997-98	15,942	256,551	3,979	11,963	25.0	75.0	4.77	1.4
1998-99	14,895	243,697	3,869	11,026	26.0	74.0	6.11	1.3
1999-00	16,582	268,374	4,112	12,470	24.8	75.2	6.18	1.3
2000-01*	16,545	274,917	4,007	12,538	24.2	75.8	6.02	1.3

*Quick Estimates

Table - 5.1.5
Share of Agriculture & Allied Sector in Total GCF (%)

Year	Public Sector	Private Sector	Total
1970-71	13.8	14.6	14.3
1971-72	13.3	15.0	14.3
1972-73	13.7	16.2	15.0
1973-74	13.0	15.2	14.3
1974-75	12.8	12.8	12.7
1975-76	12.2	15.1	13.9
1976-77	14.5	20.4	17.6
1977-78	17.1	14.6	15.7
1978-79	16.3	18.9	17.8
1979-80	16.1	19.0	17.7
1980-81	17.7	13.6	15.4
1981-82	14.1	9.2	11.2
1982-83	13.1	12.3	12.7
1983-84	13.5	14.4	13.9
1984-85	11.8	11.5	11.7
1985-86	10.2	9.5	9.8
1986-87	8.9	10.1	9.6
1987-88	10.1	13.2	11.7
1988-89	8.8	9.7	9.3
1989-90	7.5	9.1	8.4
1990-91	7.1	11.9	9.9
1991-92	6.6	9.9	8.7
1992-93	6.7	10.5	9.1
1993-94	6.9	9.4	8.4
1994-95	6.7	7.7	7.3
1995-96	7.1	5.9	6.2
1996-97	7.0	7.5	7.4
1997-98	6.2	7.5	7.1
1998-99	5.7	7.8	7.2
1999-2000	5.1	8.2	7.2
2000-01*	4.9	8.2	7.1

* Quick Estimates.

Source : Central Statistical Organisation, New Delhi.

5.1.24 The percentage of Plan outlay in agriculture and allied sectors to total outlay varied in between 11.3 per cent to 14.9 per cent from the First Plan to the Fifth Plan. This sector includes animal husbandry, special area programme, rural development and forestry and

wildlife. From the Sixth to the Ninth Plans, the share of agriculture and allied sectors to total varies between 4.9 per cent and 5.9 per cent. Here, agriculture and allied sectors include animal husbandry and research and education only. Plan-wise position is given in Table 5.1.6:

Table - 5.1.6
Plan outlay in Agriculture and Allied Sectors

(Rs. crores)

Plans	Total Plan Outlay	Agriculture and Allied sectors	%age of Agriculture & Allied sectors to Total
I Plan (1951-56)*	2378	354	14.9
II Plan (1956-61)*	4500	501	11.3
III Plan (1961-66)	8577	1089	12.7
Annual Plans (1966-69)**	6625	1107	16.7
IV Plan (1969-74)**	15779	2320	14.7
V Plan (1974-79)	39426	4865	12.3
Annual Plan 1979-80	12177	1997	16.4
VI Plan (1980-85)	97500	5695	5.8
VII Plan (1985-90)	180000	10525	5.9
Annual Plan (1990-91)	58369	3405	5.8
Annual Plan (1991-92)	64751	3851	6.0
VIII Plan (1992-97)	434100	22467	5.2
IX Plan (1997-2002)	859200	42462	4.9
X Plan (2002-07)	398890	20668	5.2

* Includes Animal Husbandry, Special Area Programme, Rural Development and Forestry and Wildlife.

** Includes bufferstocks of Rs. 140 crore for 1968-69, Rs. 24 crore for 1969-70, Rs. 50 crore for 1971-72 and Rs. 25 crore for 1972-73 and Rs. 24 crore for 1973-73. Thus the figures for V Plan work out to Rs. 124 crore against the original Plan provision of Rs. 225 crore

5.1.25 During the Ninth Plan, total credit flow and achievement is as follows:

TABLE 5.1.7
Credit Flow and Achievement

(Rs. crores)

YEAR	Short Term		NABARD Refinance	Investment (MT/LT)		NABARD Refinance
	Working Group Projections	Ground level credit flow		Working Group Projections	Ground level credit flow	
1997-98	22500	20640	5270	10875	11316	3305
1998-99	25650	23903	5487	12995	12957	3867
1999-2000	29250	28862	5145	15530	15750	4377
2000-01	33500	34700		18608	18804	
2001-02	38500	42735		22342	24036	

Source: NABARD

Table - 5.1.8
Sectoral Deployment of Gross Bank Credit

(Rs. crores)

Sectors	1999-2000	2000-01	%age to total during	
			1999-2000	2000-01
Gross Bank Credit	58806	68335		
i) Public Food Procurement	8875	14300	15.1	20.9
ii) Non-Food Gross Bank Credit	49931	54035	84.9	79.1
A. Priority sector	17216	22587	34.5	41.8
i) Agriculture	4747	7541	9.5	14.0
ii) Small scale industries	4331	3188	8.7	5.9
iii) Other priority sectors	8138	11858	16.3	21.9
B. Industry (Medium & Large)	16803	15518	33.7	28.7
C. Wholesale Trade (other than food procurement)	2853	1027	5.7	1.9
D. Other Sectors*	13059	14903	26.2	27.6

* Housing, consumer durables, non-banking financial companies, loans to individuals, real estate loans, other non-priority sector personal loans, advances against fixed deposits, tourism and tourism related hotels.

Source : Report on Trend and Progress of Banking in India, RBI

5.1.26 The institutional credit agencies would need to support investments in land development structures, farm mechanisation, biotechnology, cold storages, value adding enterprises and marketing to improve productivity and profitability in agricultural. The number of all types of cooperative societies has increased from 1.81 lakh in 1950-51 to 5.04 lakh in 1998-99. These disbursed about 43 per cent of the total institutional credit.

5.1.27 The credit-deposit ratio is an important indicator of the degree of involvement of banks in lending. The rural credit-deposit ratio has declined

from 1.58 per cent in 1991 to 0.73 per cent in 2001, which shows that deposits mobilised from rural India are being utilised elsewhere. In other words, rural India is financing the other sectors of the economy. This decline in the rural credit-deposit ratio has a direct bearing on the decline of public sector capital formation in rural sector. The growth rate and incremental capital-output ratio (ICOR) in agriculture during the Ninth Plan were 2.1 per cent and 4.0 respectively against 4.7 and 1.6 per cent in the Eighth Plan. Table 5.1.9 shows the comparative statement of different sectors of the economy in this respect:

**Table - 5.1.9
Composition and Structure of Growth**

	Eighth Plan		Ninth Plan		Tenth Plan		Share of GDP (%)	
	Growth Rate(%)	ICOR	Growth Rate(%)	ICOR	Growth Rate(%)	ICOR	2001-02	2006-07
1 Agriculture & Allied activities	4.69	1.59	2.06	4.05	3.97	1.99	24.7	20.5
2 Mining & Quarrying	3.59	10.74	3.81	5.44	4.30	7.99	2.3	1.9
3 Manufacturing	9.77	6.67	3.68	18.37	9.82	7.77	15.3	16.7
4 Elect, Gas & Water Supply	5.50	18.00	6.46	15.43	7.99	14.97	2.8	2.8
5 Construction	3.56	1.74	6.82	1.00	8.34	0.99	6.0	6.1
6 Trade	9.06	0.54	5.86	1.09	9.44	0.91	12.7	13.6
7 Rail Transport	1.95	27.94	4.70	9.87	5.40	14.66	0.9	0.8
8 Oth Transport	8.42	4.41	5.63	6.09	7.54	5.37	4.9	4.8
9 Communica-tion	14.31	7.25	17.14	5.28	15.00	8.33	1.7	2.3
10 Financial Services	10.21	2.23	8.93	1.35	11.69	1.56	6.3	7.5
11 Public Administration	3.91	7.82	9.21	4.09	6.43	5.45	6.6	6.1
12 Other Services	6.22	4.19	8.19	3.70	9.26	3.53	15.8	16.8
Total	6.54	3.43	5.35	4.53	7.93	3.58	100.0	100.0

5.1.28 According to the Reserve Bank of India (RBI) report on Trends and Progress in Banking (1998-99), the target for priority sector lending by banks has been fixed at 40 per cent. Out of this, 18 per cent is for agriculture sector. As of March 2001, the total priority sector advances by public sector banks accounted for 43 per cent of their net bank credit, which was almost the same as the 43.5 per cent recorded in March 2000. Within the priority sector, the outstanding credit to agriculture from public sector banks accounted for 15.7 per cent of net bank credit on March 2001 compared with 15.8 per cent in 2000. Net bank credit would be enhanced to the desired level of 18 per cent by the end of the Tenth Plan. Besides, at the end of November 2000, Rs. 33,000 crore was also contributed to the total corpus of the Rural Infrastructure Development Fund (RIDF) under tranches I to VII. The contribution to RIDF is received by the National Bank of Agriculture and Rural Development (NABARD) from scheduled commercial banks against their shortfall in priority sector/agricultural lending during the preceding year. Total sanctions and disbursements under various tranches of RIDF

amounted to Rs. 20,344 crore and Rs. 10,409 crore respectively as on 30 November 2001.

5.1.29 The share of cooperative banks in the ground-level credit for agriculture and allied activities has declined to 41 per cent in 2000-2001 from 45 per cent in 1996-97. A major bottleneck in the smooth flow of credit is the worsening recovery position of the cooperative credit institutions and persistence of chronic over-dues. The commercial banks have improved their share of agricultural credit from 49 per cent of total credit in 1996-97 to an estimated 52 per cent in 2000-01. As on 31 March 2000, 196 rural regional banks (RRBs) were functioning in 476 districts with a network of 14,498 branches. The aggregate amount of Rs. 2,188.44 crore was provided as equity support to 187 RRBs till March 2000. The share of RRBs in agriculture credit increased from 6 per cent in 1996-97 to 7 per cent in 2000-01. Out of 196 RRBs, 187 RRBs have been taken up for recapitalisation under six phases of restructuring, details of which are given in Table 5.1.10.

Table - 5.1.10
Recapitalisation Support Provided to RRBs

RRBs under restructuring up for recapitalisation (Phase No.)	Number of RRBs taken	Of which fully recapitalised	Total amount (Rs.crore)
Phase I	49	49	495.97
Phase II	53	53	528.05
Phase III	34	33	588.73
Phase IV	15	15	176.17
Phase V	24	8	287.52
Phase VI	12		112.00
Total:	187	158	2188.44

5.1.30 NABARD has promoted the concept of self-help groups (SHGs) for financing the poor by formal institutions and encourages the non-formal institutions as well. A beginning was made in 1991-92 by linking self-help groups with the formal credit agencies. About 1,14,775 self-help groups were linked with formal banks by March 2000. The RBI has finalised the modalities of bank finance to self-help groups and reckoning it as priority sector lending in February 2000.

5.1.31 The scheme of Kisan Credit Card (KCC) was introduced in 1998-99 for timely, easy and flexible availability of production credit to farmers. Commercial banks, cooperative banks and RRBs are implementing this scheme. Each farmer is

provided with a Kisan Credit Card and a passbook for providing revolving cash credit facilities. The farmer is permitted any number of drawals and repayments within a stipulated date, which is fixed on the basis of land-holdings, cropping-pattern and scale of finance. A total of 249.07 lakh KCCs had been issued till 30 June 2002. The progress of the scheme is not uniform across States, and is dismal in the northeast. This is attributed to low level of loans issued to farmers availing of crop loans from banks; poor financial position of the cooperative banks and RRBs in the region; lack of infrastructure facilities which are a hurdle in the way of augmenting credit facilities, etc. Details of agency-wise KCCs issued are given in Table 5.1.11:

Table - 5.1.11
Agency-wise Year-wise KCCs issued up to 30th June, 2002

(lakh numbers)

Year	Cooperative Banks	RRBs	Commercial Banks*	Total
1998-99	1.55	0.06	4.45	6.06
1999-2000	35.95	1.73	13.66	51.34
2000-01	56.14	6.48	23.9	86.52
2001-02	54.36	8.34	30.71	93.41
2002-03 (up to 30 th June 2002)	10.99	0.73	NA	11.72
Total:	158.99	17.34	72.72	249.05
% Share	63.84	6.96	29.20	100.00

* Data in respect of commercial banks for the year 2002-03 for April-June 2002 is not available

5.1.32 The performance of credit institutions in northeastern region is very poor as compared to the rest of the country. The deposit mobilisation and credit disbursement in the northeastern region up to March 2000 was 3.66 per cent and 1.75 per cent respectively of total credit disbursement whereas in the western region it was 37.93 per cent and 33.54 per cent on the same date. Similarly, certain sectors like rainfed farming, horticulture, storage, processing have been starved of credit as compared to farm mechanisation, minor irrigation and animal husbandry.

5.1.33 The functioning of the cooperative banks with serious financial weaknesses is inconsistent with the objective of transforming them into strong, viable and self-sustaining institutions capable of channeling enhanced credit flow as envisaged for the Tenth Plan. The recapitalisation and revamping of the cooperative credit institutions is being considered and the Working Group on Credit, Cooperative and Crop Insurance for the Tenth Plan has estimated the recapitalisation requirement of cleansing up the balance sheet at Rs. 8,000 crore.

5.1.34 As agriculture has a major role in alleviating rural poverty, deceleration in its growth has affected the generation of income of rural population. This is evident from the paradox of a very substantial population below the poverty line in rural areas and mounting foodgrains stocks with public agencies. Access to entitlement of rural poor to foodgrain can only be assured by accelerating agriculture growth, especially in areas which have employment-generating potential.

5.1.35 There are region-specific causes for the decelerating growth in the agriculture sector during the 1990s. Some of these are:

- ☒ Low public investment in irrigation and poor maintenance.
- ☒ Poor maintenance of rural infrastructure, specially canals and roads.
- ☒ Decline in investments in rural electrification and in its availability. This has greatly affected production in eastern India,

where huge groundwater potential remains untapped.

- ☒ Rising level of subsidies for power, water, fertilisers and food are eating into public sector investments in agriculture, besides encouraging inefficient use of scarce resources such as water. This further aggravates environmental problems leading to loss of soil fertility and decline in groundwater, which reduces returns on capital. Farmers then demand further subsidies to maintain the same level of production.
- ☒ Inadequate credit support.
- ☒ Continuing imbalanced use of NP & K fertilisers, (6.69:2.59:1.0) in 2001-02 as against the desirable norm of 4:2:1) and increasing deficiency of micro nutrients in the soil.
- ☒ Stringent controls on movement, marketing, credit, stock and export of agri products that affect their profitability. In the face of pressure from the WTO, there is apprehension that without speedy domestic market reforms, an opportunity to capture world markets would be converted into a threat to the future growth of Indian agriculture. The classic case is that of sugar where imports were opened at zero duty when controls on domestic markets remained widespread.
- ☒ Growth in TFP, which is a measure of technical change, seems to be decelerating, suggesting a decline in the force of technology.
- ☒ Demand constraints (slow growth of the urban economy, restriction on exports, lack of land reforms, failure of poverty alleviation schemes, slow growth in rural wages).
- ☒ Controls on the agro-processing industry.
- ☒ Poor extension service.

CROP HUSBANDRY AND NATURAL RESOURCES MANAGEMENT

Performance in The Ninth Plan

5.1.36 The Ninth Plan envisaged a growth of 4.5 per cent per annum (3.9 per cent per annum in terms of value added) in the agriculture sector. In order to achieve this, a regionally differentiated strategy based on agro-climatic regional planning (ACRP) was envisaged to be implemented.

5.1.37 In recent years, several new initiatives have been taken which included :

- ☒ Announcement of National Agriculture Policy (2000).
- ☒ Kisan Credit Card (1998-1999).
- ☒ Introduction of macro-management concept in the implementation of agricultural development programmes instead of scheme approach (2000-01).
- ☒ Creation of a Watershed Development Fund (Rs. 200 crore) with NABARD(1999-2000).
- ☒ Technology Mission for Integrated Development of Horticulture in the North-Eastern region (2000-01).
- ☒ Technology Mission on Cotton (1999-2000).
- ☒ Centrally sponsored scheme 'On-farm Water Management' for increasing crop production in eastern India (2001-02).
- ☒ Legislation on Plant Variety Protection and Farmers' Rights and formulation of National Seed Policy to bring reforms in the seed sector(2002).
- ☒ Implementation of the National Agriculture Insurance Scheme/Rashtriya Krishi Bima Yojana (1999-2000).
- ☒ Credit linked Capital Subsidy Scheme for construction/ modernisation/ expansion of cold storage/storage infrastructure (2000-01).
- ☒ Introduction of Rural Godown Scheme(2001-02).
- ☒ Lifting some of the restrictions and controls on the movement and storage and exports of foodgrains/agri produce(2002).
- ☒ De-reservation of the manufacture of some farm implements/machines from the small-scale industries sector (2002).

5.1.38 Besides, the concept of zero-based budgeting has been introduced to bring in convergence among various Central sector and Centrally sponsored schemes of different departments so as to efficiently utilise the financial and manpower resources. With this exercise and the macro management concept, the number of schemes of the Department of Agriculture and Cooperation has been reduced from 147 to 81 in the Ninth Plan and to 30 in the beginning of the Tenth Plan. Similarly with the zero-based budgeting exercise, the number of schemes/projects of the Department of Agricultural Research and Education has been brought down from 235 to 72 and that of Department of Commerce (for Agriculture) from 78 to 70. It will be pursued with quarterly and yearly performance review of schemes/ projects.

5.1.39 The performance of the agriculture sector during the Ninth Plan has not been as envisaged. The average annual growth during the Plan is estimated to be only 2.06 per cent which is much below the targeted growth of 3.9 per cent. The average annual growth of foodgrains production has remained very low at 1.1 per cent. The average annual production of pulses during the Ninth Plan marginally declined to 13.3 mt from 13.41 mt during the Eighth Plan, mainly on account of area diversion though the productivity recorded some improvement. The oilseeds production fluctuated year to year between 18.4 mt and 24.75 mt.

⁶ Economic Survey, 2001-2002.

5.1.40 Although, during the Ninth Plan, the average annual production of 202.58 mt of food grains remained higher than the average annual production of 187.02 mt achieved during the Eighth Plan, the production targets of various foodgrain crops could not be achieved (Table.5.1.12). Nonetheless, the average annual production of food grains at 202.58 mt during the Ninth Plan was much higher than the average annual production of 187.02 mt achieved during the Eighth Plan (Table.5.1.13). Total foodgrains production increased from 199.44 mt in the Eighth Plan (1996-97) to 211.32 mt in the Ninth Plan (2001-02). Despite the fact that the growth of foodgrains production in recent years was lower than the increase in population during the same period, procurement has been going up.

5.1.41 The deceleration of growth and stagnation in productivity are matters of concern as the current production level of 202 mt of food grains seems to be just sufficient to meet the requirement. There are reports of hunger and malnutrition because of low purchasing capacity of a sizeable portion of households. Due to the high level of poverty, India has some of the highest levels of malnutrition, especially among women and children, in the world. Even though the infant mortality rate (infant deaths below age one per 1,000 live births) has declined from 78.5 during the 1988-1992 period as per the National Family Health Survey (NFHS-1) to 67.6 during 1994-98 as per NFHS-2, it is still on the high side. In the case of children below the age of five, the mortality rate as per NHFS-1 was 109.3 which

Table- 5.1.12
Ninth Plan Production Targets and Achievements of Foodgrains.

(million tonnes)

Crop	VIII Plan 1996-97	IX Plan 2001-02 Target	1997-98		1998-99		1999—2000		2000-01		2001-02	
			Tar.	Ach.	Tar.	Ach.	Tar.	Ach.	Tar.	Ach.	Tar.	Ach.
Rice	81.73	99.00	83.00	82.54	86.00	86.08	86.00	89.68	90.00	84.87	92.00	91.61
Wheat	69.35	83.00	70.00	66.35	74.00	71.29	74.00	76.37	74.00	68.76	78.00	71.47
Coarse Cereals	34.11	35.50	34.00	30.40	34.40	31.33	34.50	30.34	33.00	31.62	33.00	34.72
Pulses	14.25	16.50	15.00	12.97	15.50	14.91	15.50	13.41	15.00	11.67	15.00	13.52
Total Foodgrains	199.44	234.00	202.00	192.26	210.00	203.61	210.00	209.80	212.00	195.92	218.00	211.32

Source: Ministry of Agriculture / Planning Commission.

Table 5.1.13
Comparative Performance of Crops during 8th and 9th Five Year Plans

S.No	Crops	Average VIII Plan (1992-97)			Average IX Plan (1997-2002)		
		Area	Production	Yield	Area	Production	Yield
1	Rice	42.68	78.73	1845	44.50	86.97	1954
2	Wheat	25.24	62.79	2487	26.49	70.85	2674
3	Jowar	12.05	10.69	887	10.20	8.09	793
4	Bajra	9.91	7.87	794	9.30	7.11	764
5	Maize	6.06	9.75	1609	6.47	11.81	1825
	Total Coarse Cereals	32.48	32.17	991	29.93	31.67	1058
6	Gram	6.86	5.27	769	6.75	5.38	797
7	Arhar	3.47	2.42	698	3.45	2.38	688
	Total Pulses	22.78	13.41	589	21.13	13.30	601
	Total Foodgrains	122.87	187.02	1522	122.89	202.58	1648

Area= Million hectares, Production= million tonnes, yield= kg/hectare

declined to 94.9 during the NFHS-2 study. Almost half of the children (47 per cent) under three years of age are underweight, a measure of short and long term under-nutrition. NFHS-2 had shown that rural children are much more likely to be undernourished than urban children. Under-nutrition is lowest among children less than six months old, an age when children are mainly breastfed, and most widespread among children between 12 and 35 months old. The NFHS-2 has stated that at least half of the children in Madhya Pradesh, Bihar, Orissa, Uttar Pradesh and Rajasthan are underweight and at least 20 per cent of children are underweight in every state. Anaemia is widespread among both women and young children. Overall 52 per cent of women and 74 per cent of children in the age group of 6-35 months are anaemic. Anaemia during pregnancy increases the risk of maternal and infant death, premature delivery and low birth rate.

Tenth Plan Targets

5.1.42 The National Agriculture Policy (NAP), 2000 envisages a growth rate exceeding 4 per cent per annum in the agriculture sector. The Tenth Plan targets a 3.97 per cent growth. The NAP envisaged the following type of growth :

- ☒ Growth that is based on efficient use of resources and conserves our soil, water and bio-diversity.
- ☒ Growth with equity, i.e., growth which is widespread across regions and covers all farmers.
- ☒ Growth that is demand driven and caters to domestic markets as well as maximises benefits from exports of agricultural products in the face of the challenges arising from economic liberalisation and globalisation,
- ☒ Growth that is sustainable technologically, environmentally and economically.

5.1.43 For the Ninth Plan, the foodgrains production target was fixed at 234 mt which had to be revised downward to 218 mt considering the performance during the first four years of the Plan. The Working Group on 'Crop Husbandry, Demand and Supply Projections and Agricultural Inputs for the Tenth Plan

has estimated a foodgrains requirement of 230 mt at the end of the Plan (2006-2007). On the basis of normative requirement of foodgrains of 182.50 kg/cu/year (167.9 kg cereals and 14.6 kg pulses), as recommended by the National Institute of Nutrition, the demand works out to 221.4 mt considering the anticipated population level of 1135 Million (deflated by a factor 1.0696 to convert into consumption units). However, on the basis of behaviouristic approach, the demand of foodgrains estimated by the Working Group is 236 mt. On the other hand, the supply projection for foodgrains by the end of the terminal year of the Tenth Plan have been projected in the range of 225 mt to 243 mt.

5.1.44 An adequate thrust on maize cultivation could bring a substantial increase in foodgrains production as even with existing area of about 6.5 m ha, an additional production of about 10-13 mt could be achieved. This is on the assumption that 50 per cent of present potential (3.5 - 4 t/ha) of maize is realised. Considering the immense scope in maize, if the production of other coarse cereals (millets and barley) is maintained at the present level, the total coarse cereals production could be increased to about 43-48 mt by 2006-07. Thus, there is possibility to achieve a production level of food grains of about 245-248 mt by the end of the Tenth Plan, with adequate thrust on maize, especially the multiplication of high yielding seeds on a massive scale and adoption of improved production technology. In addition, thrust on commercialisation of hybrid rice on a large scale and application of improved technologies in wheat could further boost the foodgrains production. For the Tenth Plan allocation to the department of Agriculture and Cooperation has been stepped up to Rs. 13200 crore from Rs 9153.82 crore provided for the Ninth Plan and realization of Rs. 8308 crore. The schemewise break-up of the Tenth Plan outlay is given in the Appendix.

STRATEGY AND THRUST IN THE TENTH PLAN

Regionally Differentiated Strategy

5.1.45 The Regionally Differentiated Strategy based on agro-climatic conditions and natural resources envisaged for the Ninth Plan, for increasing the pace of growth in every region of the country, will be continued during the Tenth Plan.

The three-pronged strategy envisaged for the Ninth Plan to meet the basic food requirements for all will be continued. This strategy involved: (i) increase in overall employment and incomes by raising farm productivity and the growth of other economic activities in the rural areas; (ii) provision of gainful supplementary employment through poverty alleviation schemes; and (iii) distribution of food grains through the public distribution system at subsidised prices to those living below the poverty line.

Sustainable Development of Natural Resources

5.1.46 The biotic pressure on the natural resources, especially land, water and bio-diversity, is increasing resulting in their decrease in per capita availability. With the increasing population, the fragmentation of holdings has increased, resulting in smaller and unviable units of land holdings. To address the issue of fragmentation and small holdings, a clear policy with regard to transfer of agricultural land has to be formulated and implemented. The transfer of land has to be made easier to enable the farmers to augment their holdings to viable units. The rationalisation of stamp duty will facilitate the transaction of land. Besides, freedom in leasing of land, both 'leasing in' and 'leasing out' will help generate income for both lessee and lessor / contractor. A legislation needs to be enacted to facilitate the land utilisation by making land transactions easier and facilitating leasing and contract farming. Besides, to increase the productivity of small and marginal holdings, which constitute 78.2 per cent of all holdings and operate about 32.4 per cent of total area, the technologies suited for such holdings have to be developed.

5.1.47 Besides, consolidation of holdings has to be taken up on a priority basis and completed speedily by the States which have not yet taken up the work. The consolidation of holdings in the northern states has shown promising results in terms of per unit area productivity, adoption of production technologies and returns to the farmers. Preparation of land records would also be given emphasis. States would be asked and helped to take up computerisation of all land records.

5.1.48 Out of the estimated area of about 107 m ha of degraded land, 64 m ha are categorised as wastelands. These wastelands and other degraded areas are either un-utilised or under-utilised. Being a common property resource, individuals do not have the right to utilise these lands for any productive purposes. All such lands under the control of Government or panchayats, would be parceled out in viable units and allotted to landless, scheduled caste and scheduled tribe farmers, small and marginal farmers, retired defence personnel and educated rural youth for cultivation. A condition that a certain percentage of allotted land (say 40 or 50 per cent) must be utilised for tree cover can be stipulated so as to increase the crown area for improving the environmental and ecological conditions. The highly degraded wasteland could exclusively be used for forestry, tree cropping or agro forestry.

BOX 5.1.1

Thrust Areas for the Tenth Plan

- Utilisation of wastelands and un-utilised/ under-utilised lands.
- Reclamation/ development of problem soils/ lands.
- Rainwater harvesting and conservation for the development of rainfed areas.
- Development of irrigation, especially minor irrigation.
- Conservation and utilisation of biological resources.
- Diversification to high value crops/activities.
- Increasing cropping intensity.
- Timely and adequate availability of inputs.
- Strengthening of marketing, processing/value addition infrastructure.
- Revamping and modernising the extension systems and encouraging private sector to take up extension services.
- Bridging the gap between research and farmer's yields.
- Cost-effectiveness while increasing productivity.
- Promotion of farming systems approach.
- Promotion of organic farming and utilisation of organic waste.
- Development of eastern and northeastern regions, hill and coastal areas.
- Reforms to introduce proactive policies for the farm sector.

5.1.49 Besides the waste degraded lands, some of the areas under reserved forests are also unutilised or under-utilised. Moreover, the local community have no/limited access to non-timber forest produce or to utilise the under-utilised forest area for production purposes. It would be worthwhile to consider providing the local community access to grasses and fodder from the forest area and also allow them to produce grasses and fodder and medicinal and aromatics plants in the under-utilised areas or under the forest cover. Besides the resource poor, especially landless and marginal farmers, should have access to fuel wood and fodder from the common property resource under the control of the village panchayats/government. It is time that integrated bio-mass production systems are adopted by combining agriculture and forestry.

5.1.50 There is no scientific survey available in the country which identifies the extent and nature of land degradation correctly and periodically. Estimates prepared by different agencies vary considerably from 53 m ha to 239 m ha. Therefore, soil survey and land degradation mapping of the entire country would be conducted from the Tenth Plan onwards on a mission mode approach. This will be done in active coordination and sharing of costs with Department of Agriculture and Cooperation, Department of Land Resources, Department of Agricultural Research and Education, Ministry of Environment and Forests and National Remote Sensing Agency/Department of Space. As the natural resources are limited and their per capita availability is declining fast, a policy for its sustainable development and nurturing to achieve high productivity levels would be framed. Emphasis will be given to the programmes of reclamation/development of unutilised / under-utilised lands. The Central and State Governments will be encouraged to launch an ambitious programme for the utilisation of such lands for agricultural, forestry and other activities. Easy availability of credit through schematic lending and back-ended subsidy programmes will be ensured.

5.1.51 Rainwater harvesting and conservation will continue to get attention so as to increase productivity of rainfed farmlands. Besides, minor irrigation development, which is more cost-effective

will also be emphasised, especially in the eastern region where huge groundwater potential has remained unharnessed. Investments in the development of minor irrigation facilities will be enhanced. Besides, the utilisation of under-utilised irrigation potential will be improved by encouraging the conjunctive use of water, adoption of improved on-farm water management practices and also the use of water saving devices such as sprinkler irrigation system, drip irrigation system, etc., especially in the low rainfall areas.

5.1.52 Vast areas are in need of Watershed Development Programmes, which call for urgent attention. Both the Central and State Governments should provide maximum possible budgetary support for the development of degraded rainfed lands on a priority basis. In watershed development there is need to move from the conventional soil conservation approach of safe disposal of run-off to rainwater harvesting and conservation based on indigenous systems and practices. Rainwater conservation and harvesting hold the key for sustainable development of rainfed areas. The watershed development must ensure that the minimum basic water needs of the rural communities in the project areas are met. Therefore, the rainwater management should encompass the multiple uses of water namely, drinking water for people, livestock and wild life, domestic uses, life saving and pre-sowing irrigation of crops, natural regeneration of flora and other uses in this order of priority. The harvested water should be treated as a common pool resource by evolving suitable community practices which would ensure equitable distribution of the usufruct.

5.1.53 In watershed development, promotion of low-cost conservation measures/ strategy based on indigenous practices and devices with higher reliance on vegetative conservation measures and the use of plant species in reclamation and development of problem soils are required. With this approach, comparatively more areas can be treated with lesser amount of financial support.

5.1.54 Marginal farmers and landless households in the rural areas have composite livelihood support systems, which typically comprise of deriving fuel wood and fodder for their livestock, particularly for

small ruminants - piggery, goatery, etc. They also collect raw material for biomass-based cottage industries like basket and mat weaving, broom binding, rope making etc. They also heavily depend on minor forest produce like mahuva, chironji, honey, gum, tendu leaves etc. Thus wastelands and forest lands are inseparably linked to the livelihood of the rural poor. In addition, they also collect fuel wood for selling in the nearby towns exercising tremendous impact on the green cover. Typically, many families supplement their income through wage-earnings by working for richer farmers, local public works and seasonal migration to towns and cities. Unless their essential biomass needs are satisfied, the ecological management will continue to be vulnerable, as the poor exploit natural resources for their livelihood needs. Therefore, the Watershed Development Programme should focus on strengthening the livelihood support system of the rural poor, both for improving their social and economic status and for improving and preserving the ecological production environment. Thus, the basic biomass survival needs of poor and landless for fuel wood, for self-consumption and for the market, fodder for their livestock and raw material for cottage industries from the village wastelands and nearby forests should be ensured. Giving such lands on lease to the women and poorer sections of society is being attempted by several NGOs with success. Adequate credit-cum-subsidy and technology support needs to be provided for retrieving such lands for leasing to the target groups.

5.1.55 A perspective plan for the development of all degraded/rainfed lands will be formulated and implemented as has been recommended by the Committee on 25 Years Perspective Plan for the Development of Rainfed Areas constituted by the Planning Commission and by the Working Group on 'Watershed Development, Rainfed Farming and Natural Resources Management' for the Tenth Plan. The Committee on 25 Years Perspective Plan for the Development of Rainfed Areas suggested treating/development of 75 m ha arable and non-arable land by the end of the Thirteenth Plan with a total cost of Rs. 20,850 crore (Rs. 13,070 crore as people's contribution and Rs. 7,780 crore as Government support at 1994-95 prices). The Working Group on 'Watershed Development, Rainfed Farming and Natural Resources

Management' has suggested treating 88.5 m ha of rainfed/ degraded land by the end of the Thirteenth Plan with a total cost of Rs. 72,750 crore to be shared by the Centre, States and people/community in varying ratios during different Plan periods. The shares work out to Rs. 23,650 crore by the Centre, Rs. 19,950 crore by the States and Rs. 29,200 crore as contribution from the people/community.

5.1.56 The Watershed Development Programme would be made a peoples' movement and the outside funds would only be a supplement. The principles of cost-sharing would be enforced based on the direct benefit to the households and their capacity to pay. Thus, an appropriate ceiling of project benefit would be decided for different conditions/situations. This may be, on an average, equal to the assistance provided to the landless and marginal farmers' households. Beyond that, the better-off farmers should pay for the developmental cost on their holdings.

5.1.57 The principal source of funding should be the beneficiary household. However, depending upon their capacity and the need, integrated funding support system should be promoted which includes government financial support, credit from NABARD and commercial banks and funds provided by the private sector for specified activities like drinking water, cattle care etc. Thus, the integrated financial package will accelerate the coverage of area treatment and would bring in ecological and socio-economic benefits in the near future. In the implementation of watershed development programme, active involvement of panchayati raj institutions (PRIs) and NGOs would be encouraged.

5.1.58 There are vast areas which suffer from waterlogging due to congestion of drains and silting of village ponds. Waterlogging affects crop-production, hinders movement of the people and causes many human and livestock diseases. Shallow waterlogged lands can be put to productive use by digging fish and aquaculture ponds and raising the level of remaining land by filling it up for crop cultivation. Bankable projects of this type can be considered for financial support. Successful watershed development projects have demonstrated that waterlogging/flooding can be controlled by desilting and deepening of village

ponds, through vertical drainage with shallow tube wells and through bio-drainage. This improves the ecology of the area and promotes economic growth particularly for self-help groups of the rural poor through fish culture etc. Summer cropping improves socio-economic conditions. During the Tenth Plan, this approach and strategy would be expanded to similar areas with due modifications.

5.1.59 On the one hand, over exploitation of ground water has resulted in decline in the groundwater table-and, on the other hand, excessive use of canal water has resulted in waterlogged conditions. Rationalisation of water user charges to recover a part of the operation and maintenance cost of the canal irrigation system would help improve the intensity of irrigation and efficiency of water use in the command areas. Under major and medium irrigation projects there is gap of about 5.3 m ha between the irrigation potential created and utilised. Under minor irrigation system, there is a gap of 4.7 m ha between potential created and utilised⁷. Against the 95.4 m ha of total irrigation potential created, only 85.4 m ha is being utilised. However, according to the Ministry of Agriculture's Land Use Statistics, the gross irrigated area is only 75.55 m ha (1998-99). This calls for efficient on-farm water management practices. In areas with inadequate/less water availability, water saving devices such as sprinkler irrigation system, drip irrigation, diggins would be encouraged. The proposal to do away with all taxes and levies on such systems as well subsidies is worth considering, as it will bring down the prices and encourage better service through competition. Rainwater harvesting for re-charging the ground water and efficient utilisation of water for crop production will be an important method to be encouraged through watershed development programmes. Besides, re-cycling of water by the industries and households has to be enforced

5.1.60 To check the over exploitation of ground water, which has resulted in many white areas being converted into black and gray, there is need to enact legislation so as to regulate groundwater use. However, in areas where there is abundance of groundwater, especially in the eastern and

northeastern regions, the potential would be exploited for increasing the agricultural productivity in the region. A Centrally sponsored scheme 'On-Farm Water Management for Increasing Crop Production in the Eastern Region' has already become operational. So far only about 40 per cent of the net sown area in the country has been covered under irrigation and the the rest is dependent on the monsoon and this adversely affects the adoption of improved production technologies and results in poor productivity. On the other hand, the irrigation potential created is not being utilised fully and a number of major and medium irrigation projects started several years back are yet to be completed. A policy decision is required to be taken not to start the work on any new major and medium irrigation project unless all the uncompleted projects are completed. To complete the unfinished projects, work has to be taken up speedily. Besides all these measures, there must be emphasis on research for conservation and efficient utilisation of water.

51.61 Current land and water use practices in the country are unsustainable, less productive and impact adversely on regeneration of natural resources. For sustainable development of natural resources a regionally differentiated strategy based on agro-climatic conditions and land and water availability will be pursued. The promotion of suitable cropping patterns will be the essential component thereof.

51.62 These measures, along with utilisation of full irrigation potential already created under major and medium irrigation systems, will help increase the cropping intensity. The Ninth Plan started with a base of 132.7 per cent cropping intensity and targeted to achieve 143 per cent cropping intensity. The data show that hardly 136 per cent cropping intensity might have been attained. Progress thus is extremely slow as even during 1990-91, the cropping intensity was 129.9 per cent. Data shows that whereas area under irrigation is about 57 m ha, the double-cropped area is just about 50 m ha⁸. Thus, not all the irrigated area is being double cropped. Efforts will be made to increase the cropping intensity and also crop area coverage by

⁷ As per data compiled by Water Resources Division, Planning Commission

⁸ Ministry of Agriculture

utilising under-utilised/unutilised waste/degraded lands, especially for horticulture and agro-forestry.

Crop diversification

5.1.63 Though Indian agriculture is moving rapidly towards commercialisation, most farmers, especially small and marginal farmers, tend to give a prime place to the cereals in the cropping system. This could be on considerations of food security, low risk and the easy market access to such farm produce. But this production system has not helped in increasing farmers' incomes though it has resulted in huge stocks of foodgrains in the central reserve pool. This has happened in the face of shortage of commodities like pulses, oilseeds, timber and some other items because of faulty policies, forcing the country to import these on a large scale. The MSP system has so far favoured only three crops, namely, sugarcane, paddy and wheat and a few States. This has encouraged monocropping and over exploitation of natural resources in some areas, adversely affecting crop diversification and resulted in low returns/profits in other areas especially those having poor infrastructure - irrigation, power, roads, etc. Now the thrust would be on diversification towards high value/more remunerative crops considering the agro-climatic conditions, endowment of land and water resources and the market demand both within the country and outside. Emphasis would be on production of fruits, vegetables, flowers, agro-forestry, tree farming, animal husbandry, dairying, aquaculture, etc. Besides, production for the niche market (both domestic and external), which has so far not been undertaken, would also be encouraged. To encourage such activities support would be provided to develop requisite infrastructure for post-harvest handling processing, storage, marketing, besides proactive production policies to motivate farmers/entrepreneurs. Restrictions on felling of agro-forestry trees will have to be removed for encouraging agro-forestry.

Blending Traditional and Frontier Technologies

5.1.64 Frontier technologies like tissue culture, genetic engineering have tremendous scope for the development of agriculture by providing very high productivity potential material/organisms. However,

traditional practices cannot be abandoned/given up and will still remain relevant. Traditional technologies in the field of rainwater harvesting and management, recycling of organic waste for plant nutrient supply, grain storage, preservation of fruits and other commodities, pest management, etc. have been found to be useful and relevant. In order to bring a synergistic impact, such technologies would be blended with the modern frontier technologies.

AGRICULTURAL INPUTS

Seeds

5.1.65 Seed is a vital and basic input for attaining higher yields. To a certain extent, the efficiency of other agricultural inputs like fertilisers, irrigation, pesticides, etc. is dependent on the quality of seeds. Although the production of certified / quality seeds have increased, however, the matching increase in production or productivity has not been observed. To overcome the mismatch between the demand and supply of seeds, especially of problem area specific crops/varieties, emphasis would be given to increase the supply of seeds of such varieties. The seed multiplication and supply plan would be made effectively operational. Besides the Indian Council for Agricultural Research (ICAR) and State Agricultural Universities (SAUs) research system would be activated to produce required quantities of breeder seed of different crops/varieties. Adequate thrust would be given to develop the infrastructure for the development of biotechnology and its application for the development of high yielding seeds.

5.1.66 The seed replacement rate (SRR) for crops would be increased to gradually bring it to the recommended level. The system of subsidy will be reviewed, which has led to the public sector mainly producing seeds of self-pollinated crops. The private sector will be encouraged to meet the requirements of seeds. The seed production by the Government agencies would be limited to the production of breeder and foundation seeds and the production of certified seeds could be left to the private sector. The private sector is already doing good job but is restricted to production of high value and low volume seeds, especially that of hybrids and that too mainly of vegetables, oil seeds, maize, pearl millet, etc.

5.1.67 The national seed producing agencies, namely, the National Seeds Corporation of India (NSC) and State Farms Corporation of India (SFCI) and also ICAR will be given specific targets for the production of seeds. Similarly States will be asked to prepare the seed production plans and assign the production targets to the States Seeds Corporations. As a contingency measure to meet the seed requirement in case of natural calamity such as droughts, floods, cyclones. etc. the Seed Grid/Seed Bank system would be strengthened. Reorganisation and restructuring of NSC and SFCI will be done to ensure better utilisation of resources, especially the available land and the manpower.

5.1.68 The National Seed Policy has been formulated and the Plant Variety Protection and Farmers' Rights Act, 2001 will be enforced strictly. Besides, the present Seed Act, 1966 will be replaced with the new Act so as to enforce quality control and regulate the entry of germ plasms into the country in the national interest for ensuring the supply of quality seed to farmers, the seed testing facilities/ infrastructure will be strengthened. Production of traditional native cultivars, which are known to be sturdy, resistant, more nutritious and need low inputs, would be encouraged. The example of durum wheat, which has 14-15 per cent protein, very high gluten content and has a good export potential, is to serve as the lead. This is significant from the point of conserving bio-diversity.

Fertilisers/ Plant nutrition

5.1.69 Besides the good seed/planting material, proper nutrition to crops plays a very vital role in exploiting the production potential of a crop variety and in achieving higher output. The present consumption of fertilisers in terms of NP&K nutrients in the country is about 92 kg/ ha (2001-02). The low fertility status of soil with respect to NP&K and increasing deficiency of micro nutrients is affecting the productivity adversely. The deficiency of carbon in soil has also become widespread especially in the green revolution areas. Efforts would be made to increase fertiliser use, especially in the States where its consumption is low, by providing adequate marketing infrastructure, besides encouraging the balanced use in comparatively high consumption areas and increasing fertiliser use efficiency. The

policy on fertiliser subsidy which is leading to the imbalanced NP&K use ratio will be reviewed.

5.1.70 To increase the fertiliser use, efficiency the extension machinery will be geared to propagate the adoption of technologies already developed / available, especially under unfavourable conditions. The ICAR-SAUs research system will pay special attention to enhancing fertiliser use efficiency besides the development of suitable varieties for adverse situations like the drought-prone rainfed areas and the lowland flood-prone water stagnant areas.

5.1.71 In the areas where fertiliser consumption is comparatively high the response ratio, the fertiliser input and grain output, seems to be declining. This is evident from the fact that in these areas the crop productivity has not increased in proportion to the increases in the use of fertilisers. In fact, though the fertiliser consumption in such areas has increased, of late the crop yields seem to have reached a plateau. The factors for this are: (i) imbalance in the use of NP&K, mainly on account of their price variations; (ii) increasing deficiency of micro nutrients, which affects the growth of plants and interferes in proper uptake by the crop of applied NP&K ; and (iii) decreasing carbon / organic matter content in soil. These serious issues would be addressed through a holistic approach with adequate thrust on adoption of Integrated Nutrient Management (INM)/Integrated Plant Nutrient Supply (IPNS). Under this approach, the use of organics including manures and bio-fertilisers would be promoted. Use of fertilisers with irrigation (fertigation) will also be promoted to ensure higher use efficiency.

Organic Farm Waste and Municipal Solid Waste

5.1.72 A sizeable quantity of organic farm waste is generated, which could be utilised for providing nutrition to the crops after converting it into compost/ manure. The Report of the Task Force On Organic Farming 2001, constituted by the Department of Agriculture and Cooperation, has estimated that about 356 mt crop residue is available annually. Out of this, about 170 mt is soil incorporated and about 136 mt is available for manuring. Besides the crop residue, a sizeable quantity of municipal solid waste

is also available, which could be utilised for generating energy and making manure. Technologies for pelletisation and bio-methanisation are available for using the municipal solid waste to generate energy and manure. Alternatively, the entire municipal solid waste could be used for making compost, for which technologies are already available. Vermi-compost, which is rich in nutrients, could also be made from the organic farm waste.

5.1.73 The conversion of farm waste and municipal solid waste into compost / manure can supplement the use of fertilisers in crop production. Use of such composts will also improve the health of soil by providing organic matter for the required biological activities in addition to improving the physical condition of the soil. As organic matter also contains micro nutrients, the increasing deficiency of micro nutrients in soil could also be corrected. Therefore, thrust will be given for using organics in agriculture by converting farm waste and municipal solid waste into good quality compost/ manure/ vermi compost.

5.1.74 The realisation of the importance of organically produced food is growing all over the world and the demand for such food items is increasing. Prices of such products are several times higher. Being a low chemical fertiliser consuming country especially in the rainfed areas, northeastern and hill States, India has good opportunity to take up production of organic foods for exports and domestic use. Considering this, organic farming would be encouraged and facilities developed for testing and certification of organically produced foods.

Soil Testing

5.1.75 The 530 soil testing laboratories, including 118 mobile soil-testing vans, have a total capacity of testing eight million samples annually. Considering that there are over 106 million operational farm holdings, the existing soil testing facilities seems to be grossly inadequate. Besides, most of the laboratories are equipped to test only NP&K and there are hardly adequate facilities for testing the micro nutrient status of soils. On one hand, there are inadequate soil testing facilities and, on the other, the utilisation of existing facilities is

very unsatisfactory. Therefore, besides creation of additional soil testing infrastructure, the existing facilities, which are under-utilised, in terms of laboratory facilities, chemicals and equipment and trained manpower, would be strengthened. This work will be taken up by involving the private sector. The scheme of agri-clinics is a right step in this direction.

Farm Implements

5.1.76 Development of energy and time saving efficient machines and implements and their adequate production and supply would be given special attention. Post-harvest equipment and machines, which could help in reducing crop losses and value addition of agro-produce, improved storage structures to conserve and reduce post harvest losses, especially of horticultural produce, will be made available by encouraging their mass multiplication / production. Implements and machinery used in countries like Japan which are specially suited to small farms will be adapted for use in India.

5.1.77 Some more agricultural implements / machines have recently been de-reserved from the small scale sector, but 25 items still remain reserved. These include items like animal drawn implements, cultivators, disc harrows, harvesters, rice and dal mill machinery, diesel engines up to 15 HP, etc. This will affect on the availability of efficient implements/ machines for agricultural activities. Therefore, all the implements / machines used for the agricultural operations need to be de-reserved. Miniaturisation of processing machinery as in the case of dal mill by the Central Food Technology Research Institute (CFTRI), Mysore, would be promoted.

Integrated Pest Management

5.1.78 Concern about the adverse effects of chemical pesticides due to their indiscriminate use is growing. Pesticides residues are being found increasingly in our farm produce posing a threat to human health. The integrated pest management (IPM) approach, being promoted since 1985, is an eco-friendly strategy of pest containment by exploiting the role of natural agents /forces in harmony with other pest management tactics and

with the sole aim to effect minimum disturbance to environment. Cultural control, use of natural enemies and plant resistance are basically compatible and supportive tactics in the IPM strategy. Strengthening of IPM infrastructure, especially for surveillance and forecasting the outbreak of pests and diseases and production/multiplication of bio-control agents for field use, would be given adequate attention. Besides, reliable methods of forecasting would be developed and efforts would be made to make bio-control agents available on demand to farmers to help them adopt IPM in the true spirit by encouraging the private sector, ICAR and SAUs in providing such support services. The Government's efforts would be to provide new, safer and efficacious quality pesticide products to the farmers and encourage the use of bio-pesticides and bio-control agents.

5.1.79 In view of the WTO and Sanitary and Phytosanitary (SPS) agreements, international trade is likely to increase and pesticides residue certificate on agricultural commodities would become unavoidable. Therefore, emphasis would be given to establish facilities for pesticides residue testing in agricultural commodities being imported or exported and also for the regular monitoring in all agricultural commodities marketed within the country. Besides, the infrastructure/ facilities for pesticide quality testing would be developed and strengthened to enforce the quality concept for manufacture and marketing of pesticides.

5.1.80 Plant quarantine is a regulatory function under the Destructive Insect Pests (DIP) Act, 1914 and the Plants, Fruits and Seeds (Regulation of Imports into India) Order, 1989. Being a signatory to WTO-SPS agreement, it is obligatory upon India to provide quarantine services. Plant quarantine is bound to assume greater significance in future as this plays an important role in regulating import and export. Quarantine services will be required to be provided in all the international airports and seaports. Therefore, there is need to strengthen and modernise the plant quarantine facilities in the country to keep pace with the increased volume of trade of agricultural products. Recognising the importance of the plant quarantine services, the Planning Commission recommended the establishment of a National Plant Quarantine

Authority while reviewing the schemes of Department of Agriculture and Cooperation.

Agriculture Extension

5.1.81 The extension services in the States would be reformed to make these demand driven. The role of the non-government sector in agriculture extension would be encouraged and an innovative approach in the field of television/ radio broadcast including specific channels in an interactive mode would be developed. With far-reaching changes in the communication technology and breakthrough in space technology, remote sensing, satellite broadcasting and the media revolution, extension workers will be reoriented and retrained to adapt themselves to those developments and make full use of emerging opportunities. With the private sector, communication networking will be encouraged to have backward linkages. Besides, private sector would also be encouraged to provide extension services, both information and services including input supply and testing facilities for soil and inputs. The Department of Agriculture and Cooperation, along with NABARD, has already introduced a scheme for establishment of agri-clinics / agri-business centres / ventures by the agricultural graduates.

5.1.82 The ICAR is also associated in agriculture extension activities through its 314 KVKs, Institute Village Linkage Programme (IVLP) and also its institutes / centres all over the country. The interaction of KVKs activities with the State / district extension machinery will be strengthened. It is planned to strengthen linkages between research and extension to improve quality and effectiveness of research and extension system. The extension system will be revitalised and broad based through KVKs, NGOs, farmers' organisations, cooperatives, the corporate sector and agri-clinics / agri-business centres. KVKs and ICAR/SAUs units will be designated nodal agencies for quality certification including organic products, bio-fertilisers, and bio-pesticides. The supply of inputs, agro-processing and trade through such cooperatives / companies will be encouraged through the availability of credit with the help of NABARD. Every institute / research centre of ICAR will have IVLP as one of its mandates for testing,

refinement and dissemination of improved farm technologies in nearby / adopted villages.

Investment

5.1.83 There is shortage of basic infrastructure for agriculture, irrigation, roads, electricity, storage facilities and marketing. The Tenth Plan must aim at a major revival of public investment in infrastructure. The Accelerated Irrigation Benefit Programme (AIBP) is a potentially important instrument for providing resources to State Governments in support of on-going irrigation schemes. Greater attention will also have to be paid to rainwater harvesting and irrigation potential through scientific watershed development.

Credit

5.1.84 Continued emphasis will be placed on progressive institutionalisation for providing timely and adequate credit support to farmers with particular focus on small/ marginal farmers and weaker sections of society to enable them to adopt modern technology and improved practices for increasing agriculture production and productivity. An amount of Rs. 3,59,701 crore is estimated as production credit for distribution through intuitional sources and Rs. 3,76,869 crore investment credit; making a total of Rs. 7,36,570 crore for the Tenth Plan.

5.1.85 Thrust areas for increasing the flow of bank credit will include:

- i) The present flow of bank credit will be enhanced.
- ii) Kisan Credit Card and schematic lending will be promoted and Kisan Credit Cards would be issued to all entitled farmers.
- iii) States will be asked to consider warehousing receipts for grant of credit. Self-help groups will be encouraged.
- iv) The Multi State Cooperatives Act, 2002 has been passed. States will be persuaded to also take follow up action.
- v) Recommendations received for revamping of cooperative credit structure would be examined and appropriate policy formulated.

- vi) Reform in the sector will be made a condition for getting assistance from departments and the National Cooperative Development Corporation (NCDC).

Insurance

5.1.86 The Comprehensive Crop Insurance Scheme (CCIS) has been in operation since 1985. It was based on an area approach and was linked to short-term credit and was implemented only in 19 States and three Union Territories. For improving the scope and content of CCIS, a broad based 'National Agriculture Insurance Scheme' (NAIS), or Rashtriya Krishi Bima Yojana was introduced in the country from the rabi season of 1999-2000. The scheme is available to all States/Union Territories. It covers food crops, horticultural crops, oilseed crops and commercial crops. All farmers, loanee and non-loanee, are entitled for insurance. All yield losses due to natural, non-preventable risks are covered. Premium rates vary from 1.5 per cent to 3.5 per cent on the sum insured on food grain crops and oilseed crops on acturial basis for annual commercial/horticultural crops. Small and marginal farmers will be entitled for premium subsidy of 50 per cent which is to be phased out on over five years. The General Insurance Corporation (GIC) is the implementing agency. To meet claims beyond liability of GIC, a corpus fund is created with contribution from the Government of India and participating States on 1:1 basis. During the Tenth Plan, it is proposed to set up a National Crop Insurance Corporation. This corporation will take over all the crop insurance functions of the GIC.

5.1.87 The National Agriculture Insurance Scheme (NAIS) would be further strengthened during the Tenth Plan. Its coverage in terms of farmers, crops and risk commitments have been enlarged and premium structure rationalised. But actuarial rates for food and oilseeds crops are yet to be made applicable. In order to operate the scheme on commercial lines, it is necessary that actuarial rates should be charged and implementation of the scheme be made effectively by an exclusive agency, which is specialised in the areas of agricultural insurance. The proposed Agriculture Insurance Corporation must be set up at the earliest.

HORTICULTURE

5.1.88 Vast areas of India have tropical and agro-climatic conditions which are well suited for cultivation of horticulture and plantation crops. They are also ideal substitutes for marginal and degraded lands, which are unsuitable for crop husbandry. They can help in diversification of agriculture. The horticulture sector contributes about 24.5 per cent towards agriculture GDP from only about 8 per cent of the cultivated area. Besides, providing nutritional and livelihood security and helping poverty alleviation and employment generation, this sub-sector sustains a large number of agro-Industries, which generate huge additional non-farming employment opportunities. The range of horticultural products includes fruits, vegetables, spices, coconut, medicinal and aromatic plants, mushrooms, cashew, cocoa etc. India accounts for 10 per cent of the world production of fruits and stands second after Brazil and is second largest producer of vegetables after China, contributing 13.4 per cent of the world vegetables production.

5.1.89 A tremendous boost was given to the development of the horticulture sector during the Eighth and Ninth Plans. The Ninth Plan allocation was raised to Rs. 1,400 crore from Rs. 1,000 crore in the Eighth Plan. This sector has had impressive impact in the wake of economic liberalisation. The high level of land productivity

in many parts of the country can be largely attributed to the growing of high value horticulture crops.

Review of the Ninth Plan

5.1.90 A number of constraints to the growth of the horticulture sector were identified during the Ninth Plan. These were in the form of various technological and infrastructure constraints, small size of land holdings, preponderance of old and senile trees and poor management practices. There was acute shortage of good quality, disease-free, high yielding seed and planting materials. The crop specific disorders such as disease of vegetables, root-wilt in coconut etc. were also prevalent. Processing infrastructure was weak and research and development support inadequate. Therefore, the horticulture sector was brought to the forefront in the overall food production strategy and was treated as an extreme focus area for the provision of strong support for its overall development.

5.1.91 During the Ninth Plan, various Centrally sponsored schemes were implemented to overcome constraints and improve productivity of the crops. These related to the integrated development of (i) tropical, temperate and arid fruits; (ii) vegetables including root and tuber crops and mushrooms; (iii) commercial floriculture; (iv) medicinal and aromatic plants; (v) cashew and cocoa; (vi) spices; (vii) coconut; and (viii) bee-keeping for improving crop productivity etc.

5.1.92 In addition, a separate scheme for horticulture development through plasti-culture intervention was implemented during the Ninth Plan, aimed at promotion of protected cultivation through greenhouse technology and increasing micro-irrigation facilities through drip and sprinkler systems. Considering the phenomenal potential for cultivation of various horticultural crops in the northeast region, a Technology Mission for Integrated Development of Horticulture was also introduced towards the end of 1999-2000. A Central sector scheme for development of infrastructure for post-harvest management and commercial horticulture was

Table-5.1.14

India's position in the international ranking in production of various fruits and vegetables (1999)

Crop	Rank	Crop	Rank
Apple	10	Brinjal	2
Banana	1	Cabbage	2
Mango	1	Cauliflower	1
Papaya	2	Peas	1
Pine apple	4	Onion	2
Grapes	10	Potato	3
total fruits	2	total vegetables	2
Coconut	3	Cashew	1

Source : Indian Horticulture Data Base-2001

also in operation through the National Horticulture Board.

5.1.93 The development strategy during the Ninth Plan was focused on improving productivity and the quality of the horticulture crops through upgradation of production and farming technologies, supply of quality seeds and planting materials, technology transfer through demonstrations, reducing post harvest losses and improving marketability of produce, developing a strong base for supply of other critical inputs and human resource development.

5.1.94 There has been considerable expansion in area under various horticultural crops and increase in their production during first four years

of the Ninth Plan. The area under fruit crops increased from 35.80 lakh ha in 1996-97 to 37.97 lakh ha in 1999-2000, representing an increase of over 6 per cent. The area under vegetable crops also increased to 59.93 lakh ha in 1999-2000 from 55.15 lakh ha in 1996-97. The increase was 8.67 per cent over four years. The achievement of major horticultural crops during 1996-97 to 1999-2000 is given in Tables 5.1.15 and 5.1.16 :

5.1.95 The Ninth Plan target for production of fruits and vegetables was kept at 179 mt. The recorded achievement up to 1999-2000 was 136.33 mt. Production of fruits and vegetable in the final year of the Ninth Plan is expected to improve further. However, the Ninth Plan target was far too ambitious and could not be fully achieved.

Table-5.1.15
Area, production and productivity of major horticulture crops

(Area in '000' ha / Production in '000' tonnes
/Productivity tonnes/ha)

Crop	1996-97			1999-2000		
	Area	Production	Productivity	Area	Production	Productivity
Fruits	3,580	40,458	11.3	3,797 (6.06)	45,496 (12.45)	12.0 (6.20)
Vegetables	5,515	75,074	13.6	5,993 (8.67)	90,831 (20.99)	15.2 (11.76)
Flowers	71	367+615*	-	89	509 +6,806* (25.35)	
Coconut	1,891	13,061**	6,907	1,778 (-5.98)	12,252** (-6.19)	6,892@ (-0.22)
Cashew-nut	659	430	0.65	686 (4.10)	520 (20.93)	0.76 (16.92)
Mushroom	-	8	-	-	40 (400.00)	-
Honey (Bee colonies)	-	796	11.42	-	764 (-4.02)	13.22 (15.76)
Spices	2,372	2,805	1.2	2517 (6.11)	2911 (3.78)	1.2 -

Source : Indian Horticulture Data Base-2001

Note : Figures in bracket indicate percentage change in 1999-2000 over 1996-97.

* Lakh numbers, ** Million nuts @ nuts per ha

Table-5.1.16
Area, Production and Productivity of Major Horticulture Crops

(Area in 000 ha / Production in 000 tonnes / Productivity tonnes/ha)

Crop	1996-97			1999-2000		
	Area	Production	Productivity	Area	Production	Productivity
Apple	222.7	1,308.4	5.9	238.3 (7.05)	1,047.4 (-19.95)	4.4 (-25.42)
Banana	424.5	12,439.6	20.3	490.7 (15.60)	16,813.5 (35.16)	34.3 (68.47)
Citrus Fruits	474.7	4,456.2	9.4	526.9 (11.00)	4,650.6 (4.36)	8.8 (-6.38)
Grapes	42.9	1,134.6	26.4	44.3 (3.26)	1,137.8 (2.82)	25.7 (-2.65)
Mango	1,344.9	9,981.2	7.4	1486.9 (10.56)	10,503.5 (5.23)	7.1 (-4.05)
Papaya	63.0	1,299.3	3.2	60.5 (-3.97)	1,666.2 (28.24)	27.5 (759.38)
Pineapple	68.7	924.6	13.5	75.5 (9.90)	1,025.4 (10.90)	13.6 (0.74)
Sapota	45.7	588.5	12.9	64.4 (40.92)	800.3 (35.99)	12.4 (-3.88)
Litchi	51.2	377.6	7.9	56.4 (10.16)	433.2 (14.73)	7.7 (-2.53)

Source : Indian Horticulture Data Base-2001

Note : Figures in bracket indicate percentage change in 1999-2000 over 1996-97.

Table-5.1.17
Area, Production and Productivity of Major Horticulture Crops

(Area in 000 ha / Production in 000 tonnes / Productivity tonnes/ha)

Crop	1996-97			1999-2000		
	Area	Production	Productivity	Area	Production	Productivity
Brinjal	464.0	6,585.6	14.2	258.3 (-44.33)	8,117.2 (23.26)	16.2 (14.08)
Cabbage	210.2	3,613.4	17.2	248.3 (18.13)	5,909.4 (63.54)	22.9 (33.14)
Cauliflower	233.9	3,419.0	14.6	348.8 (49.12)	4,717.8 (37.49)	19.0 (30.14)
Okra	323.2	3,040.1	9.4	493.3 (52.63)	3,419.1 (12.47)	9.8 (4.26)
Onion	410.0	4,180.0	10.2	272.6 (-33.51)	4,899.5 (17.21)	9.9 (-2.94)
Peas	254.4	2,339.2	9.2	456.5 (79.44)	2,712.0 (15.94)	9.9 (7.61)
Tomato	391.2	5,787.8	14.8	456.5 (16.69)	7,426.8 (28.32)	16.3 (10.14)
Potato	1,228.8	24,215.9	19.4	1,340.9 (9.12)	25,000.1 (3.24)	18.6 (-4.12)

Source : Indian Horticulture Data Base-2001

Note : Figures in bracket indicate percentage change in 1999-2000 over 1996-97.

Thrust For Horticulture Development In Tenth Plan

5.1.96 The Tenth Plan envisages a 4 per cent annual growth rate in the agriculture sector. The achievement of this growth rate would be possible, if the annual growth rate of horticulture is maintained at 6-8 per cent. This is feasible and achievable. Being prominent crops after foodgrains and oil seeds, horticulture will be treated as a lead sector in agriculture and rural development. There is vast potential across the country in all types of areas such as wasteland, degraded land, saline and coastal land, hilly regions, dry land and semi-arid land, island eco-systems etc. The thrust areas for providing boost to the horticulture sector will be as follows:

- Area Expansion
- Improving production
- Improving productivity
- Reducing cost of production
- Improving quality of products
- Value addition
- Promotion of marketing and exports
- Strengthening of credit and organisational support
- Human resource development
- Addressing relevant policy issues
- Cold chains.

Strategy For Development

5.1.97 The overall emphasis will be on creation of synergy and convergence of various programmes for horticulture development to achieve horizontal and vertical integration.

Seed And Planting Materials

5.1.98 Availability of good quality, disease-free and high yielding seed and planting material is a *sine qua non* for enhancing the productivity and increasing the production of the horticulture crops. The foremost strategy, therefore, will be to ensure availability of and access to these critical inputs on a large scale, across the country. A network of nurseries and seed farms will be promoted, depending upon the agro-climatic conditions and crop specific requirements of

various areas. While nurseries are useful for meeting the usual demand, large-scale production will be possible by micro propagation technology through tissue culture practices, wherever feasible. Seed farms will also be promoted on a large scale. A massive seed production and distribution programme will be organised on the national level with suitable linkages with ICAR institutes and SAUs. In the initial stages, the focus will be on breeder seed production. Efforts will be made for production of recommended varieties of vegetable seeds under protected conditions and preference will be given to activities taken up on a community basis, by group of growers in a cluster of villages etc.

5.1.99 At present, there is no regulatory regime to ensure the supply of quality planting material. Efforts are, therefore, needed to establish some institutional arrangement to assess and recommend a guaranteed quality of seed and planting materials. A mechanism to ensure the quality of planting material through a self-accreditation system having a clause to compensate losses would also be essential.

Productivity Improvement

5.1.100 A wide gap exists between the potential achieved through improved technologies and yields obtained. Efforts will, therefore, be made to reduce this gap by improved productivity. To do this, it would be necessary to take up re-plantation and rejuvenation of old and senile orchards and plantations through high yielding varieties. Use of frontier technologies (hi-tech horticulture) covering micro irrigation, fertigation, integrated nutrient and pest management, protected/greenhouse cultivation and precision farming techniques in horticulture will be promoted. Besides, high density planting will be promoted for relevant crops.

Improving Production And Area Expansion

5.1.101 Horticulture is an important means of diversification and income generation. A focused attention to dry land horticulture through efficient use of resources would benefit a large farming community. Farmers are generally responsive towards remunerative economic signals. Efforts

are, therefore, required to promote area expansion of horticultural crops by the farmers in different agro-climatic conditions. Apart from productivity improvement, measures will include judicious utilisation of land and water resources, adoption of Mission Mode approach in regions of high potential, such as the northeastern region, promotion of inter-cropping, promotion of off-season production of vegetables in temperate regions through poly houses etc., raised bed and vertical multi-storey cultivation. A framework of support system will be essential with credit linked subsidy pattern through financial institutions. NABARD will be asked to evolve a suitable framework and provide refinance to the grassroot level lending institutions like commercial banks, RRBs, cooperative banks etc.

5.1.102 Hilly regions with a majority of tribal population will be given adequate support in terms of research, extension, production technologies for post harvest management practices and marketing support.

Reducing Cost Of Production And Value Addition

5.1.103 Increasing global competition in the era of liberalised trade under the WTO regime will require the Indian production system to be competitive in terms of quality as well as price. Efforts for achieving this goal will be to reduce post-harvest losses by proper crop management and post-harvest handling, packaging and creating suitable infrastructure for post-harvest management. Besides, infrastructure facilities like quality control labs will be promoted. All value-added items, including beverages (alcoholic and non-alcoholic), are now allowed to be imported freely, but cannot be manufactured from our own agricultural products. Efforts will be made to promote value-addition of products for deriving better returns by the farmers. Primary processing facilities would be promoted near the production areas. Emphasis will be laid on organic farming by using natural manures, bio-fertilisers, bio-pesticides etc.

Box 5.1.2

Constraints for development of horticulture products

General

1. Poor quality of seeds and planting materials and their weak assessment mechanism.
2. Preponderance of old and senile orchards and their poor management practices.
3. Small and uneconomic average farm size of the orchards.
4. High order of perishability of horticulture produce, leading to high degree of losses.
5. Lack of modern and efficient infrastructure facilities, poor technological support and poor post harvest management practices.
6. Under developed and exploitative marketing structures.
7. Absence of adequate standards for quality produce.
8. Inadequate research and extension support to address specific problems of horticulture crops and their linkages with farming community and industry.
9. Large scale variations in credit support and tax structures for diverse commodities.
10. Instability of prices.
11. Poor risk management, lack of authentic up-to-date data base and poor data collection and information system.

Contd.....

.....Contd		Crop Specific Constraints
1. Fruits		Long gestation period, high incidence of pest and diseases, absence of specific technologies, poor crop management practices and soil health techniques
2. Vegetables		High cost of production due to labour-intensive technologies, high cost of hybrid seeds, risk intensive production system, considerable imbalance in supply and demand for products during the year and across the regions in the country, non-availability of production technologies for rainfed and semi-arid areas.
3. Potato		Lack of varieties for diverse processing, low seed multiplication rate, rapid deterioration of varieties due to viral complexes, lack of awareness of True Potato Seed (TPS) technologies. Not much value addition.
4. Mushroom		Non-availability of cost-effective technology, lack of design of low cost houses, inadequate availability of quality spawn of different strains
5. Floriculture		Lack of indigenous techniques, inadequate exploitation of hybrids, narrow product range, high rates of fiscal levies, lack of organised market, packaging and field to market infrastructure.
6. Medicinal and aromatic Plants		Lack of transparency in trade of plants, absence of regulatory mechanism, development and production confined only to 20-30 plants as against 4,000 identified plants, marketing / value addition / export infrastructure.
7. Spices		Lack of variability for host resistance to biotic and abiotic stresses, severe crop losses due to disease and pests, vulnerability of productivity and production due to vagaries of the monsoon.
8. Coconut		Large area under old and senile plantation, mostly under rainfed conditions. Prevalence of disease and pests. Inadequate facilities for farm level processing
9. Arecanut		Incidence of yellow leaf disease.
10. Cashew nut		Increasing level of senility of existing plantations. Incidence of pests like tea mosquito, stem borer. Inadequate farm-level processing facilities
11. Cocoa		Large areas under old and senile plantation.

Technology Transfer

5.1.104 Horticulture crops are technology driven. Therefore, capacity building and enhancement of the knowledge base of farmers and other functionaries has become increasingly essential. The ICAR and SAUs will provide thrust to propagating improved farm practices. Application of latest technologies will be introduced through demonstrations, preferably on the farmers' field. Special efforts will be made for the promotion of organic farming to catch up with the global market trend for these products. Emphasis will have to be laid on promoting the use of bio-fertilisers, bio-pesticides and demonstration on the farmers' field in the well-identified compact areas. Farm demonstrations on horticulture crops would include

application of frontier technologies such as high-density planting, mixed and multi-storey plantation, use of latest seed and planting materials, micro irrigation practices, fertigation, integrated nutrient, pests and disease management etc. Evaluation and preparation of well-focused manuals and product profiles for horticulture crops for the practices, starting from seeds and plants till their sales would be prepared.

Human Resource Development

5.1.105 The horticulture sector can absorb a high level of well trained literate and skilled manpower for employment. Moreover, horticulture is becoming a high technology activity. Therefore, trained manpower is essential, not only to economise upon

the scarce land, water resources and other inputs but also for improving the quality of the produce. The range of horticulture products is also increasing with the entry of floriculture, medicinal and aromatic plants, tissue culture practices, landscaping etc. Therefore, human resource development has acquired higher significance.

5.1.106 Efforts will, therefore, be made for capacity building of manpower at different levels such as gardeners, supervisors, managers and entrepreneurs through specialised training programmes to be implemented through ICAR Institutions, KVKs, SAUs, NGOs and institution like the Indian Institutes of Management (IIMs), National Institute of Agriculture Extension Management (MANAGE) etc. The knowledge of personnel employed in State Government departments will also be upgraded periodically through structured training modules and programmes.

Micro-Irrigation

5.1.107 Micro-irrigation has been an important system for enhancing water-use efficiency and improving fertiliser-use efficiency. Considering the fact that doubling of irrigation area is possible with same quantity of water, applied through drip irrigation, accompanied by energy efficiency, enhanced productivity, improved quality of produce, less disease and pest problem, it is pertinent that high investments are made both for technological support and expansion of area under drip irrigation. The micro-irrigation systems need to be given the status of infrastructure, because it saves water for irrigation and consequently reduces investment in irrigation systems. Taxes and subsidies on micro-irrigation/components of micro-irrigation system need to be removed so as to encourage competition in the market.

Medicinal And Aromatic Plants

5.1.108 India has a rich diversity of medicinal and aromatic plants, occurring in diverse eco-systems. A resurgence in the study and usage of medicinal plants has been observed in the recent past. Production, consumption and international trade in medicinal plants and phyto-medicines are growing. India has a good opportunity in expanding trade of

these products. However, there are many constraints on the growth and systematic exploitation of this important sub-sector. These include : (i) absence of a scientific system of collection; (ii) unorganised trade, manipulative and exploitative practices; (iii) Indian industry's focus is mainly on primary processing; (iv) problem of availability of adequate and timely raw material; and (v) limited industrial research and clinical trials.

5.1.109 Since there is tremendous demand, both internally and internationally, more focused attention is required to be given to these groups of plants. A long-term plan is also essential for fuller utilisation of potential and expansion on a large scale. Special attention will be given to organising and promoting commercial and systematic cultivation practices and processing in the country. Efforts will be made for strengthening planting material and seed production systems to meet growing needs of the farmers in high potential well identified areas. It will also be necessary to focus on the following broad aspects:

- (i) developing plant-specific educational CD-RoMs, cultivation practices, post harvest protocols;
- (ii) undertake clinical trials and formation of a national level association of practitioners;
- (iii) selection of locations of plantation, research in high yielding and short duration varieties;
- (iv) development of nurseries, promotion of tissue culture practices, training and extension support to the farmers;
- (v) promotion of community level processing, standardisation, grading and marketing through regulated markets;
- (vi) providing fiscal incentives in terms of lower or zero taxes of all types and subsidising various programmes;
- (vii) improvement of database with regard to area, production, usage, export, import etc.; and
- (viii) a system of quality and elemental analysis and standardisation.

Bee-Keeping

5.1.110 Bee-keeping needs promotion on a large scale. Honeybees are extremely useful agents of pollination and increase crop productivity. Apart from this useful role, bee-keeping has become an important supplementary income source to the farmers and honey is a healthy/nutritious sweetener, which is also used as medicine. Therefore, systematic efforts will be made to promote bee-keeping in the country.

PLANTATION CROPS

5.1.111 Tea, coffee and rubber are traditional plantation crops in the country. These are mostly grown in the southern and northeastern states. Apart from meeting indigenous consumption demand, these crops also make significant

Table-5.1.18
Rank of India in Area, Production, Yield and Exports of Plantation Crops in the World

Crops	Rank			
	Area	Production	Productivity	Export
Tea	2	1	2	4
Coffee	7	6	3	6
Rubber	5	3	1	Neg.

Source : Indian Horticulture Data Base -2001

contribution to the country's export basket. India's international ranking in plantation crops is given in Table.5.1.18.

Tea

5.1.112 The tea industry provides direct employment to more than one million people, of whom a sizeable number are women. More than two million persons derive their livelihood from ancillary activities of production, processing, marketing etc. Preservation of biosphere and soil conservation are some of the other important environmental benefits of tea cultivation.

5.1.113 During the Ninth Plan, an outlay of Rs. 139 crore was provided for (i)plantation development; (ii) processing and packaging development; (iii) new area development; (iv) market development and export promotion; (v) research and development activities; and (vi) human resource development in the tea industry. Special attention was given to small growers, non-traditional areas of tea cultivation and in the northeastern states to control jhum cultivation. Expenditure on developmental schemes during 1997-98 to 2000-01 was of the order of Rs 118 crore, which comes to about 85 per cent of the Ninth Plan outlay. Area, production, productivity and export performance during the Ninth Plan are given in Table.5.1.19.

Table-5.1.19
Area, Production, Productivity and Export Performance of Tea during Ninth Plan

Year	Area (000 ha)	Production (million kgs)	Producti- vity (kg/ha)	Export performance*		
				Quantity (million kgs)	Value of export (Rs crores)	Unit Value Realization (Rs per kg)
1996-97	431.25	786.53	1,896	139.50 (1996-97)	1,037.00	74.34
1999-2000	490.75	833.35	1,985	202.58 (2000-01)	1,976.75	97.54
% age ncrease	13.80	5.95	4.69	45.22	90.62	31.21

Source : Tea Board Reports

* DGCI&S Kolkata Reports

5.1.114 The major constraints in the case of tea crops are (i) old age of bushes and slower pace of re-plantation (0.4 per cent as against desired level of 2 per cent); (ii) poor drainage and lack of adequate irrigation; (iii) high land:labour ratio; and (iv) high incidence of fiscal levies, both at Central and State levels.

Coffee

5.1.115 Coffee is the second most important commodity in international trade, next to petroleum products. Coffee cultivation and harvesting is labour intensive. Therefore, it is an important source of livelihood.

5.1.116 Coffee is cultivated mainly in southern states of Karnataka, Kerala and Tamil Nadu, which form the traditional tracts. It is also being promoted in non-traditional area such as Andhra Pradesh, Orissa, and the northeastern states. Commercial coffee cultivation constitutes mainly two varieties: arabica and robusta.

5.1.117 During the Ninth Plan, an outlay of Rs 125 crore was provided for various developmental schemes such as plantation improvement, crop management, maintenance of research farms, crop

protection, market promotion and development and human resource development. Efforts were made to promote coffee plantation in the northeast region. Expenditure during the first four years of the Ninth Plan at Rs. 97 crore represents about 78 per cent of the outlay. Research and development efforts aimed at evolving protocols for micro-propagation and management, high density plantation etc. were undertaken to improve quality and productivity of coffee. Area, production and productivity of coffee during the Ninth Plan are given in Table.5.1.20.

5.1.118 Earnings from the export of coffee suffered a setback during the Ninth Plan as a consequence of over production and accumulation of stocks in many competing countries and steep fall in prices in the international markets. The export performance is given in Table.5.1.21.

5.1.119 Although India produces the best robusta coffee in the world, it is facing stiff competition from Vietnam in this field. Study shows that India could be more cost competitive in arabica. The main problems are: (i) predominance of tiny coffee growers with less than two hectares plantation holding size, (ii) reluctance of coffee planters to undertake re-plantation with new improved varieties and (iii) existence of old and moribund plant material.

Table-5.1.20
Area, Production and Productivity of Coffee during Ninth Plan

Year	Area (000 ha)			Production (000 tonnes)			Productivity (Kg/ha)
	Arabica	Robusta	Total	Arabica	Robusta	Total	
1996-97	143.24 (125.02)	160.58 (126.27)	303.82 (251.29)	90.45	114.55	205.00	815.79
1999-2000	168.45 (146.05)	171.85 (162.38)	340.30 (308.43)	119.00	173.00	292.00	946.73
% age Increase	17.60 (16.82)	7.02 (28.60)	12.01 (22.74)	31.56	51.03	42.44	16.05

Source : Coffee Board Reports

Note : Figures in bracket pertain to Coffee Bearing area.

Table 5.1.21
The Export Performance of Coffee

Year	Quantity (000 tonnes)	Value (Rs in crore)	Unit price (Rs per kg)
1996-97	181.30	1,467.08	80.92
2000-01	246.81	1,376.56	55.77
% age increase	36.12	-6.17	-31.08

Source : DGCI&S, Kolkata, Reports

Rubber

5.1.120 India has the distinction in achieving the highest average rubber yield of 1,576 kg per hectare. Traditional rubber growing areas are Kerala and the Kanyakumari district of Tamil Nadu. Rubber plantation has been successfully introduced in non-traditional areas like Karnataka, Andaman and Nicobar Islands, Goa, Maharashtra, Assam, Meghalaya and Tripura. Rubber plantation has been introduced in Orissa as well.

5.1.121 The Ninth Plan outlay for the rubber sector was Rs. 373.19 crore. Various schemes for plantation development, research, extension and training and processing and marketing were successfully implemented during the Plan period. During the four years from 1997-98 to 2000-01, an expenditure of Rs. 286.56 crore was incurred. This was 76.79 per cent of the Plan outlay.

5.1.122 The research and development efforts in the rubber sector have been successful in achieving the following results:

- Five high-yielding clones of rubber have been introduced.
- Protocols have been evolved for somatic embryogenesis.
- Genetic transformation of Hevea has been attempted using genes conferring tolerance to drought and tapping panel dryness.
- Biogas generation using rubber latex serum has been perfected and the technique has been widely accepted.
- A semi-automatic cleaning machine for upgradation of low quality sheet rubber has been developed.

- Integrated drying systems incorporating solar, biogas and smoke drying have been developed.

5.1.123 Indigenous production of natural rubber was insufficient to meet domestic consumption. The export of value-added rubber products has been a recent development. Area, production and productivity of rubber is given in Table-5.1.22.

5.1.124 Small holders own a majority of the rubber plantations. Currently, they account for 88 per cent of planted area and production. Their average size of holding is less than half a hectare.

5.1.125 Broadly, the constraints on full-scale development of the natural rubber sector include inadequate financial support and incentives to the planters for undertaking scientific plantation. Low price realisation in the wake of a glut in the international market and steep fall in prices are other disincentives. The infrastructure like pulpers, drying yards for primary processing is also insufficient. Quality awareness among the planters and their willingness to adopt the latest technology has been far from satisfactory.

STRATEGY FOR DEVELOPMENT OF PLANTATION CROPS IN THE TENTH PLAN

Tea

5.1.126 During the Tenth Plan, the programmes/ activities undertaken in the Ninth Plan will be continued. A schematic lending pattern will be evolved for encouraging investment in tea plantation and processing. This will include reasonable contribution by the promoters, subsidies

Table – 5.1.22
The Area, Production and Productivity of Rubber

Year	Total planted Area (000 ha)	Tappable area (000 ha)	Production (tonnes)	Productivity (kg/ha)
1996-97	533.25	356.44	549.43	1,503
1999-2000	562.67	399.90	630.40	1,576
% age increase	5.52	9.38	14.73	4.86

Source : Rubber Board Reports

components from the Tea Board and term loan from the financial institutions. NABARD will be fully involved in preparing the schematic lending pattern and providing re-finance facilities to the financial institutions located in traditional and non-traditional potential tea growing areas.

Coffee

5.1.127 Programmes of the Ninth Plan in the coffee sector will be continued in the Tenth Plan. Small growers and non-traditional areas will be provided necessary support for plantation development, processing and marketing, besides upgrading human skills in related activities. A schematic pattern of term lending to the planters and processors, as in the case of the tea sector will also be worked out with the active involvement of NABARD, commercial and cooperative banks.

Rubber

5.1.128 The Ninth Plan programmes for development of the rubber sector will be continued in the Tenth Plan. Economic viability of rubber plantations is possible by promoting rubber wood as an eco-friendly timber. Efforts therefore, will be made for processing rubber wood and marketing its products. Efforts will also be made to strengthen community development and a participatory approach in development and extension.

5.1.129 A schematic pattern for financing the required investment in the rubber sector will also be worked out as proposed for the tea and coffee sectors. NABARD and commercial and cooperative

banking channels will evolve region and location specific modalities for investment in plantation development, processing and marketing needs.

AGRICULTURAL INFRASTRUCTURE, WAREHOUSING, GODOWNS AND COLD STORAGE

Storage Of Foodgrains

5.1.130 Adequate, well-dispersed and efficient handling, storage and transportation infrastructure for agriculture commodities is essential for reducing post-harvest losses, maintaining food quality and for promoting export. With increase in production and productivity, the marketable surplus has increased. Therefore, infrastructure for post-harvest management, logistic support from the farm gate up to the retail marketing level to serve the consumers has to be adequate, efficient and economical. At present, the price spread from the farm-gate to the consumer is very high on account of deficiencies and inadequacy in existing infrastructure.

Review Of Schemes On Storage Of Foodgrains During The Ninth Plan

5.1.131 A plan for creation of additional storage capacity was undertaken by the public sector institutions such as Food Corporation of India (FCI), Central Warehousing Corporation (CWC) and State Warehousing Corporations (SWCs). The progress made during Ninth plan is given in Table.5.1.23.

Table - 5.1.23
Progress of Construction of Storage Capacity during Ninth Plan

Organization	Outlay (Rs. crore)	Storage (lakh tonnes)	
		Target	Achievement (Actual & Anticipated)
FCI	184.00	7.00	4.67
CWC	356.40	8.20	9.16
SWCs	N.A.	11.00	14.16
Cooperatives through NCDC	178.21	8.00	4.40
Total	718.61	34.20	32.39

Source : Working Group Report on Agricultural Infrastructure / Warehousing / Rural Godowns / Marketing / Post Harvest Management / Processing and Coldstorage, Trade and Export Promotion.

5.1.132 The Mid-Term Review of the Ninth Five Year Plan had observed that at macro level there is no shortage of capacity for food grains storage under the Central pool account. However, there is a mismatch at the micro level, especially for the rural public distribution system, hilly and remote and inaccessible areas. The National Agriculture Policy also lays emphasis on strengthening rural infrastructure to support faster agricultural development, promote value addition, accelerate growth of agri-business, and create employment in rural areas, which will ultimately improve the living standard of the farmers and agricultural workers.

5.1.133 NABARD had provided financial assistance to cooperatives as well as the private sector for the construction of godowns/warehouses through commercial and cooperatives banks at normal interest rate (18 per cent approx.). Storage capacity of 134.89 lakh tonnes was created through 2,227 schemes involving financial assistance of Rs. 561.78 crore. A majority of the schemes were implemented by commercial banks (1,787 schemes). Twenty-seven per cent of the total storage capacity was created in the northern region and 35 per cent in western region. The cumulative storage capacity constructed by the various organisations is given in Table 5.1.24.

5.1.134 There is need for making continuous changes/modifications in the bulk storage systems. It is necessary to make the structures rodent and insect free, moistureproof, waterproof etc. The Structural Engineering Research Centre, Roorkee has developed chicken mesh cement concrete bins and the Indian Plywood Industries Institute, Bangalore has developed plywood bins of 25 tonnes capacity for storing food grains. These bins are suitable for rural storages in the country. Kharif crops are generally stored in high humidity conditions. Coarse cereals are prone to fungal infestation as a result of delayed harvesting and untimely rains and there is a strong possibility of its aflatoxin contamination. Besides, the food grains can be contaminated with uric acid and faecal matters. In view of this, there is a need to evaluate the current warehouse design and make modifications that are cost effective, could be easily built and play a multiple role. The moisture migration and localisation at different pockets are largely responsible for spoilage because of fungal attack. Therefore, pneumatic or other mechanical feeding and discharging are required. Besides, thermal gradients and aeration arrangements for turning the grain from one bin to other is essential. India is a tropical country and has large variations in

Table – 5.1.24
The Cumulative Storage Capacity Constructed by the Various Organizations

(Capacity in lakh tonnes)

Organization	Capacity constructed	CAP/Open Capacity	Total Capacity (as on date)	
FCI	125.965	24.477	150.442	(30.11.2000)
CWC	55.529	8.538	64.067	(01.12.2000)
SWC	83.820	27.570	111.390	(30.11.2000)
Coops. Through NCDC	137.360	-	137.360	(31.03.2000)
Deptt. of Rural Dev.	21.260	-	21.260	(31.03.1997)
Various agencies through NABARD	134.980	-	134.980	(31.03.1997)
Other agencies	82.100	-	82.100	(30.06.1996)
Total	641.014	60.585	701.599	

Source : Working Group Report on Agriculture Infrastructure etc.

Note : CAP : Covered and plinth

climate, temperature, weather conditions, humidity levels etc. Therefore, a lot of research needs to be undertaken for designing storage structures that are standardised and suitable for all the conditions.

Tenth Plan Strategy

5.1.135 The Government of India has approved a National Policy on Handling, Storage and Transportation of Foodgrain. This policy broadly envisages: (i) reduction in storage and transit losses at the farm level; (ii) encouragement to farmers to adopt scientific storage methods; (iii) modernisation of the system of handling, storage and transportation of the food grains procured by the FCI; (iv) harnessing the efforts and resources of both the public and private sector (including foreign companies), to build and operate infrastructure for bulk handling, storage and transportation of food grains. Fiscal incentives are available to the entrepreneurs in the form of tax concessions on profits, custom duty exemption for items not manufactured in India, etc. This policy will continue in the Tenth Plan.

5.1.136 Towards the end of the Ninth Plan, the Ministry of Agriculture operationalised a scheme for the construction of rural godowns in order to create scientific storage capacity for agriculture produce and inputs and prevention of distress sales by small farmers immediately after the harvest. The scheme aims at encouraging individuals, firms, NGOs, cooperatives/corporations, Agricultural Produce Marketing Committees (APMCs) and others to take up viable and bankable projects for constructing rural godowns. Efforts will also be made to expand the coverage of rural godowns in the country.

Storage Of Horticulture Produce And Plantation Crops

5.1.137 Horticulture crops are highly perishable and improper handling can lead to heavy losses. The potato crop takes up 88 per cent of the country's total cold storage capacity. Other fruits and vegetables account for 10.4 per cent, whereas fish and marine products account for 1 per cent of the total cold storage capacity. There are 3,886 cold storages with an installed capacity

of 13.62 mt and about 150 units are in the process of construction. Thus, by the end of the Ninth Plan the total cold storage capacity was of the order of about 14.37 mt. There are very few multi-purpose cold storages.

5.1.138 Efforts will be made to increase storage capacity at production areas with a realistic transportation system and cold chains from the production to the distribution centres. The private sector will be encouraged to play a major role in this sector.

5.1.139 The onion storage system is different from the conventional cold storage. During the Ninth Plan, National Agricultural Cooperative Marketing Federation (NAFED) was entrusted the task of conducting an experiment for establishing an efficient onion storage system. The Ninth Plan target of 0.45 mt onion storage capacity could not be achieved. Efforts would be made to increase the storage capacity in the Tenth Plan.

5.1.140 Plantation crops like tea, coffee, spices, coconut, cashew, cocoa, marine products, dairy products, sugar etc. require different storage facilities. Efforts will be made to generate appropriate product-specific storage capacity.

Research And Development In Oil Extraction, Milling Of Pulses, Storage And Transportation Systems

5.1.141 A number of institutions are engaged in research and development in post-harvest handling, packaging, storage, transportation and value-addition in many agricultural/livestock products. These are the CFTRI, Regional Research Laboratories at Jammu and Trivandrum, the Indian Agriculture Research Institute, Indian Veterinary Research Institute, Central Institute of Fishery, Central Institute of Post Harvest Engineering and Technology, G.B. Pant Agriculture University, Punjab Agriculture University, Marathwada Agriculture University, Indian Grain Storage Management and Research Institute, National Horticulture Research and Development Foundation, Structural Engineering Research Centre, Roorkee etc. Efforts will be made to popularise available technologies.

Incentive Regime For Agricultural Infrastructure

5.1.142 Apart from providing a policy framework for the expansion of agriculture infrastructure, there is need to substantially reduce levies such as excise, customs, central sales tax etc. State Governments will have to consider rationalising sales tax and other local levies, wherever these are applicable. As agricultural infrastructure is seasonal, concessional credit requirements need to be considered. There are a number of other statutory controls, either arising from Essential Commodities Act, 1955 or other statutes, which discourage the private sector from taking up various infrastructure ventures. The stock and storage limits, restrictions on inter-state and inter-district movement of food grains, controls on blending and processing of oilseeds, Prevention of Food Adulteration Act (PFA), 1954 FPO etc. are responsible for the slow growth of infrastructure and marketing development. This has adversely affected the potential of private sector initiatives and consequently, agricultural development. Therefore, steps would be taken for dispensing with major control measures or reforming many of them, coupled with the removal of high fiscal levies.

AGRICULTURE MARKETING

5.1.143 An efficient agriculture marketing system is indispensable for the overall development of the country's economy. It requires a healthy environment, smooth channels for the transfer of produce, physical infrastructure to support marketing activities, easy cash support to the widely scattered community of producers and also promotion of a sense of market orientation among the farmers. However, currently, there is a multiplicity of market functionaries/intermediaries with conflicting interests.

5.1.144 The current market system is dominated by traders. Appropriate and effective linkages between the producers and sellers continue to be weak. The absence of rural road connectivity and other infrastructure, combined with improper management, lack of market intelligence and inadequate credit support has resulted in a system that is unfavourable to the farmers. The

adverse impact of all these is more pronounced in the case of the small and marginal farmers who constitute about 78 per cent of the entire farming community.

5.1.145 The overall position of types and number of agricultural markets is given in Table.5.1.25:

Table - 5.1.25
The position as on August 2001

Markets	Type	Number
Agricultural Markets	Wholesale Markets	7,304
	Primary Rural Markets	27,294
	Total	34,598
Regulated Markets	Principal Markets	2,355
	Sub-yards	4,822
	Total	7,177

Source: Directorate of Marketing and Inspection, Faridabad

5.1.146 The primary rural markets are the first contact point for the rural producers and sellers. There are over 27,000 primary rural markets, scattered across the country. These are, however not equipped with basic facilities like platforms for sale and auction, electricity, drinking water, link roads, traders premises, facilities for post harvest management etc. These markets, therefore, require attention for price competitive marketing to attract more buyers. The crop-wise estimated percentages of marketable surplus in the overall production is given in Table.5.1.26.

5.1.147 The basic objective of setting up a network of markets is to ensure reasonable profits to the farmers by creating a conducive environment for the free and fair play of supply and demand forces, regulate market practices and ensure transparency in transactions. Apart from dealing with current imperfections and shortcomings, the Government has recognised the importance of liberalising agriculture marketing in the wake of the WTO-SPS Agreement. Several initiatives have been taken to develop agricultural markets. An Expert Committee was constituted under the chairmanship of Shri Shankarlal Guru for recommending the development and strengthening of the country's agriculture marketing system. The Committee's Report contains a large number of observations and

recommendations for reforming the current market structures and the practices.

Tenth Plan Strategy

5.1.148 The recommendations made by the Guru committee cover the entire gamut of marketing structures and policy deficiencies, regulatory framework and infrastructure requirements. The

Table – 5.1.26
Crop-Wise Estimated Marketable Surplus As Percentages of Production

Commodity	Marketable Surplus Ratio %
Rice	43.0
Wheat	51.5
Coarse Cereals	43.1
Pulses	72.4
Oilseeds	79.6
Groundnut	68.3
Mustard & Rape	84.3
Other Oilseeds	86.3
Sugarcane	92.9
Cotton	100.0
Vegetables	83.0
Fruits	97.0

Source : Sub-Group on Estimation of Marketed Surplus Ratio, Constituted by GOI.

suggested package provides the basis for introducing necessary policy changes and modalities for the development of required infrastructure, which will be promoted.

5.1.149 APMCs and the marketing boards have accumulated substantial amount of savings in the form of market development funds which were supposed to be ploughed back into the development of infrastructure and services in the regulated market. However, the development has been unsatisfactory. Infrastructure facilities and services in these markets are essential. Efforts, therefore, are needed to involve these agencies for the upgradation of infrastructure facilities with their resources.

5.1.150 The quantum of market arrivals of agricultural products and trade volume in and around cities have been increasing enormously. Therefore, it is time now to promote alternate and mega markets, especially near big cities and metropolises. These markets should be encouraged and allowed to function outside the purview of APMCs.

5.1.151 Efforts would be made to involve PRIs, Primary Agriculture Cooperative Societies and Consumer Cooperative Societies in agriculture marketing outside the purview of the Government sphere. For better access to markets, emphasis will be given on developing infrastructure such as roads and communication/information services.

Box 5.1.3

Observations and Recommendations of the Guru Committee

1. Physical markets with facilities and services would attract the farmers and the buyers which will create a competitive trade environment and result in offering the best prices to producers and sellers.
2. The institution of regulated markets has had limited success and acted more as a restrictive influence.
3. Marketing liberalisation and overcoming the constraints faced by the various organisations, including private sector ones, is necessary.
4. There is a need to establish vibrant, dynamic and assimilative marketing structures and systems in the wake of the liberalised economic scenario.

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5. There is a need for a thorough overhaul of existing policies, rules, regulations, legal provisions which inhibit a free marketing system.
6. Private sector and joint ventures in setting up markets need to be encouraged with suitable policies and incentives for free and competitive trade.
7. Modernisation of infrastructure is essential for the development and operational efficiency of the markets.
8. Commodity exchanges have to be institutionalised and their scope increased to instill confidence and awareness among market players.
9. Managerially competent and administratively viable organisations are required to administer marketing structures. Functions of APMCs and Marketing Boards have to be remodelled towards this end.
10. Regulations such as registration/licensing, traded commodity coverage, control on packaging and labeling, laws affecting market places and controls on the movement of produce, volume of commodities traded, laws relating to access to credit and capital, dispute resolution mechanisms etc. need to be reviewed and a framework evolved, keeping the current domestic and global scenario in view.
11. Direct marketing is one of the alternative marketing structures that needs to be promoted. This will economise upon transportation cost and improve price realisation. The role of the private sector may be encouraged outside the purview of the APMCs.
12. Cooperatives will have to be freed from the control of politicians and bureaucrats.
13. Information dissemination systems — websites, databases, information packages and other generic as well as customised software on agriculture marketing has become indispensable. All these need to be upgraded and promoted.
14. The number of commodities under forward contracts may be enlarged to facilitate a competitive marketing system, which will also minimise price fluctuations across the regions and across seasons.
15. Pledge financing enables the usage of inventories of graded produce as collateral. Existing limits on priority sector credit should be revised upwards. A full-fledged agriculture marketing credit policy needs to be re-designed. All financial institutions — RBI, NABARD, commercial and cooperative banks — may work out a detailed exercise.
16. Public sector is to play important role in marketing efforts in remote and difficult areas.
17. Specialised markets for fruits, vegetables and other horticulture products may be promoted with comprehensive and efficient infrastructure facilities.
18. Mega markets and/or alternate marketing structures with the involvement of private, public, cooperative or joint ventures may be promoted on a large scale for efficient marketing of perishable and other agriculture products. These need to be encouraged outside the purview of APMCs.
19. Professionalisation of the personnel in the marketing structures is necessary and their training modules and facilities need improvement.
20. Infrastructure for quality assurance, specially for perishables, standardisation, grading and quality control infrastructure needs to be promoted with Government support.

AGRICULTURAL EXPORTS

5.1.152 Agricultural exports are a major component in the country's merchandise export basket. The range of the products is diverse, covering cereals, oil, oilseeds and oil meals, pulses, horticulture-based products, both fresh and in processed forms, jute and cotton, dairy products, poultry, meat and products etc. The most significant point about agricultural exports is that a majority of these items are net foreign exchange earners, since the import content is either nil or negligible, unlike many manufactured and industrial products, where import content is very high. The WTO has opened up new opportunities for developing countries and India can hope to achieve substantial growth of exports in the coming years. The country's strength lies in its rich bio-diversity, diversity in agro-climatic conditions, a large labour force, the low use of agro-chemicals etc. All these can provide a boost to the exports.

Review Of Ninth The Plan

5.1.153 The relative share of agricultural exports in the country's total exports has been declining over the years (Table 5.1.27). The share of agricultural exports declined from 20.40 per cent in 1996-97 to 13.54 per cent in 2000-01. Such a situation is unavoidable as the share of non-agricultural export has grown faster. Moreover, the export earnings per unit of product have also been declining in the case of agriculture in recent years. The value of

agricultural exports during 1996-97 was Rs. 24,239 crore. There was, however, a set back in 1999-2000 and agriculture exports declined by more than 9 per cent over previous years. During 2000-01 exports stood at Rs. 27,423 crore. There was thus a rise of 13.14 per cent in four years.

Major Constraints In Agricultural Exports

5.1.154 Although the export performance of agriculture products has been constantly increasing, it is still hampered by a number of constraints (Box 5.1.4).

Tenth Plan Strategy

5.1.155 A product-specific export strategy will be necessary, keeping in view the potential and international requirement for each product or its derivatives. Besides removing restrictions on the export of agriculture products, there is need for establishing a single window system to deal with the requirements of farmers for promotion of plant and animal products, incentives for research to deal with plant protection and quarantine regulations in line with the WTO regime, etc. Therefore, export inspection systems and sanitary and phyto sanitary measures require enhanced support and adequate strengthening. Interventions are needed for educating farmers, upgradation of their skills and intensive training which would enable them not only to increase production, but improve the quality of

Table-5.1.27
Agricultural Exports and Share in Country's Total Export

(Rs. crores/\$ Million)

Year	Value of Agri-Export	Country's Total Export	Percentage of Agri-Export in Total Export	% age change over previous year Agri. exports	Country's total exports
1996-97	24,239 (6,828)	1,18,817 (33,470)	20.40	-	-
1997-98	25,419 (6,840)	1,30,101 (35,006)	19.54	4.87	9.50
1998-99	26,104 (6,205)	1,39,753 (33,218)	18.68	2.70	7.42
1999-2000	24,576 (5,671)	1,62,925 (37,599)	15.08	- 9.06	16.58
2000-01	27,423	2,02,509	13.54	11.59	24.30

Source : Economic Surveys (Figures in parenthesis indicate the value in \$ Million)

Box 5.1.4
Common Constraints on Exports of
Agricultural Products

1. Restrictive and ad hoc trade policy towards agricultural products.
2. High cost of production and export transactions.
3. Lack of sound and efficient infrastructure for post-harvest management such as storage, cold storage and bottlenecks at mandis.
4. Insufficient and inadequate storage and handling facilities at ports.
5. Absence of adequate and timely market intelligence for the producers and exporters.
6. Poor quality of products and absence of standards, presence of a high level of pesticide residues.
7. Poor quality assurance system and absence of certification system to conform to international requirements.
8. Lack of modern and technologically sound certification agencies and laboratories.
9. Absence of appropriate technology protocols for handling, storage, transportation
10. Inadequate efforts in market development and brand building.
11. Over-dependence on a few markets.
12. Poor packaging and gradation.
13. Lack of organised production.

the products. A comprehensive strategy for the development of international market intelligence for specific agriculture products, with a focus on potential in importing countries, quality standards, competitive price scenario etc. is called for. All these will be useful for working out a comprehensive strategy for promoting the agriculture exports. With quantitative restrictions on imports of agricultural commodities having been removed, there is no rationale of continuing restrictions on such exports. Promotion of multilateral trade and trade among countries of the South Asian Association for Regional Cooperation (SAARC) would need focused attention.

5.1.156 The Export and Import (EXIM) Policy valid for the April 2002-March 2007 period contains several measures to encourage agricultural exports. Agri-export Zones (AEZ) are proposed to be set

up for end-to-end development for the export of specific products from a geographically contiguous area. The Policy also includes a number of market access initiatives.

5.1.157 There is a vast potential for the export of organic food, cereals, oil seeds, fresh and processed fruits, vegetables, floriculture, spices, cashew, guar gum, products derived from medicinal and aromatic plants, dairy products, meat and poultry products, marine products, etc. Concerted efforts will be made to integrate various activities relating to R&D, production, post-harvest management, processing and value addition and marketing. All these efforts will be tailored to fit into the provisions of the market access initiatives in the EXIM Policy.

AGRICULTURE STATISTICS

5.1.158 Agriculture statistics are characterised by major data gaps, besides considerable time lag in collection, compilation and analysis of basic agricultural data. This adversely affects its timeliness. Scientific methods prescribed for assessing yield rates are often ignored. Area, production and yield statistics of minor crops, horticulture crops including floriculture, medicinal and aromatic plants, mushroom etc are not available, although their contribution to the agriculture GDP has increased by more than 24 per cent in recent years. The traditional patwari agency and girdawari has proved to be cost effective and efficient. The system requires to be modernised, with the use of new tools of information technology etc.

5.1.159 The Government has appointed the National Statistical Commission to go into the entire gamut of problems of the statistical system and suggest remedial action. The Commission has made major recommendations for improving agriculture statistics.

Tenth Plan Strategy

5.1.160 The implementation of recommendations of the National Statistical Commission will remain the basis for the overall strategy of improving agriculture statistics in the Tenth Plan.

Box 5.1.5**Recommendations of the National Statistical Commission (NSC) on Agriculture Statistics**

1. Timely Reporting Scheme (TRS) and Establishment of an Agency for Reporting Agricultural Statistics (EARAS) should be regarded as programmes of national importance. Crop area forecast and final area estimates should be based on TRS in the temporarily settled states while EARAS should continue in the permanently settled states. These estimates should be based on 20 per cent random sample of the villages.
2. Patwaris and their supervisors should be mandated to accord highest priority to girdwari
3. Systematic training for patwaris and primary staff should be arranged.
4. States should take necessary measure to generate reliable estimates under General Crop Estimation Surveys (GCES).
5. Improvement of Crop Statistics (ICS) should be strengthened and its survey design modified for providing alternative all India estimates.
6. The two series of experiments conducted under National Agriculture Insurance Scheme (NAIS) and GCES should not be combined.
7. National Centre for Crop Forecasting (NCCF) should be adequately strengthened.
8. Forecasting Agricultural Output using Space, Agro-meteorology and Land based observations (FASAL) should be actively pursued.
9. Crop Estimation Surveys (CES) on fruits and vegetables including floriculture, herbs and mushroom, should be reviewed and an alternate methodology for estimation of horticulture crops developed.
10. The nine-fold classification of land use should be enlarged to cover social forestry, marshy and waterlogged land and land under still waters.
11. The divergence between irrigation statistics generated by the Ministry of Agriculture, Ministry of Water Resources and by State Governments should be reduced to the maximum extent possible
12. Agriculture census should be on sample basis and conducted in 20 per cent sample villages. There should be an element of household enquiry in the temporarily settled states.
13. Computerisation of land record should be expedited
14. Manual of instructions on the collection of wholesale prices may be prepared by the Ministry of Agriculture
15. Agriculture market intelligence units may be re-evaluated and their functions streamlined
16. Cost of Cultivations Studies (CCS) should be continued. A review of the number of centres, methodology, sample size etc. should be undertaken.
17. The quinquennial livestock census should be undertaken in 20 per cent sample of villages. The census should include minimum information about households.
18. The basic unit of enumeration in the agriculture census is an operational holding, whereas in the livestock census, it is a household. Both of these should be integrated and taken together.
19. The Indian Agricultural Statistics Research Institute (IASRI) should be entrusted with the task of developing appropriate methodologies for filling up data gaps in the estimation of meat, pork, poultry etc.
20. The survey design for the estimation of marine production should be modified. IASRI and Central Inland Fisheries Research Institute (CIFRI) should be provided adequate support to develop programme on priority
21. Remote sensing techniques should be extensively used to improve forest statistics, including timber and non-timber forest products. The State forest departments should be given adequate support in the collection and compilation of forest statistics from diverse sources.
22. Training support should be provided to all concerned in the collection and compilation of statistics.

Agricultural Development In the Northeastern And Eastern Region And Other Eco-Fragile Regions

5.1.161 The northeastern region, hill areas, coastal areas and the rainfed areas in the country have lagged behind in agricultural development. In the Tenth Plan, the emphasis would be on facilitating the development of the potential and bridging yield gaps so as to have an impact on the overall development of such regions. The major emphasis would be on sustainable development of natural resources through soil and water conservation, watershed development and the development of minor irrigation facilities together with rainwater harvesting and conservation. The farming system's approach based on the agro-climatic conditions and endowment of the regions with land and water resources would be adopted for the development of agriculture.

5.1.162 In the eastern region, which is endowed with immense ground water potential, minor irrigation infrastructure would be developed which will help adopt improved crop production technologies, crop diversification and multiple cropping resulting in higher productivity and returns. A centrally sponsored scheme 'On-Farm Water Management' has already become operational for developing the groundwater potential. However, in other areas where water availability is inadequate, rain water harvesting and conservation through watershed development approach would be promoted. To economise on water use and improve water use efficiency, water saving technologies and water saving devices such as sprinkler irrigation, drip irrigation etc. would be promoted, besides area-specific cropping systems being encouraged.

5.1.163 The low input use in the northeastern region and other eco-fragile regions gives it a natural advantage in the production of organic food, bio-products, etc. In order to tap this inherent advantage, emphasis will be laid on organic farming systems with special focus on rural-urban compost, crop residue utilisation, cultivation of legumes and use of bio-fertilisers/ INM and bio-control of insect-pests and diseases/ IPM.

5.1.164 To take the advantage of agro-climatic conditions favourable for the development of fruits, vegetables, tree cropping, agro forestry, emphasis will be given for the development of post-harvest handling infrastructure and creating conditions conducive to development of such activities. Post-harvest management, storage, processing and value-addition infrastructure will be developed besides the development of marketing infrastructure. The Technology Mission on Horticulture for the North Eastern States has already become operational.

5.1.165 Special attention will be given to creating requisite infrastructure for the development of off-farm production activities. The flow of credit in these regions will be given special attention and extension reforms will be introduced to make the system demand driven and motivate the diversification of agriculture, besides encouraging the effective transfer of technologies, dissemination of information and input support services.

AGRICULTURAL RESEARCH AND EDUCATION

5.1.166 The ICAR is the nodal agency at the national level for the promotion of science and technology in the areas of agricultural research and education and demonstration of new technologies as frontline extension activities. The ICAR has developed a national grid comprising 46 institutes including four deemed universities, four national bureaux, nine project directorates, 31 National Research Centres, 158 regional stations and 81 All India Coordinated Research Project (AICRPs) in different parts of the country. The educational programmes are carried out by 31 SAUs and the Central Agriculture University (CAU). The National Bureau of Animal Genetic Resources (NBAGR - Karnal), National Bureau of Fish Genetic Resources (NBFGR - Lucknow), National Bureau of Plant Genetic Resources (NBPGR- New Delhi) and Horticulture Gene Bank, Lucknow have been further strengthened to enhance their work capacity in respect of collection, acquisition, quarantine, characterisation, evaluation, maintenance, documentation, conservation and awareness generation. Establishment of a National Bureau of Agriculturally Important Microbes has also

been taken up in the Ninth Plan, which will be completed and further strengthened.

5.1.167 The emphasis in the Tenth Plan would be on demand-driven research besides adequate thrust on modern biotechnologies like development of transgenics and space technology and on sustainable development of natural resources together with preservation and exploitation of our rich bio-diversity. Besides, the ICAR-SAUs research system would also be encouraged to produce the breeder seed of different crops/varieties in required quantities so as to increase the availability of certified/quality seeds. The ICAR would also take up the transfer of technology through its Institutes/centres to bridge the gap between the research yields and farmers yields. The research strategies would include:

- ☒ Strategic research involving frontier technologies, such as bio information, space, nuclear and renewable energy technologies needs considerable intensification.
- ☒ Participatory research with farmers in order to develop location-specific technologies which are environmentally sustainable and socially acceptable.
- ☒ Cooperative research with private sector R&D institutions.

5.1.168 Important areas of focus for research would be the following:

Bio-technology

Application of bio-technology to evolve new genetically engineered strains of plants, animals, birds and fishes has to be given due priority. Proper testing of transgenic products and bio-safety will have to be addressed effectively. Intensified research efforts are also needed in the application of bio-technology for increasing shelf life and converting food stuff into more palatable, nutritious and stable forms.

With technological advancement, a very valuable tool in the form of 'genetic engineering' has

become available for mankind. The seed technology/ genetic engineering are to play a major role in evolving high potential material to meet the future requirement of food, feed and fibre and the raw material to various industries. Whereas these technologies are required to be developed and adopted, the country has to be careful about the likely adverse impacts of Genetically Modified Organisms (GMOs). While research activities relating to this need to be intensified, the commercial utilisation of GMOs must be allowed only after thorough testing.

The other development in bio-technology is the 'terminator technology' which has been patented by 14 multinational companies. There is apprehension that the use of terminator seeds may affect the natural bio-diversity and also the commercial plants/ crops. Therefore, the country has to be very vigilant. In the Indian context, incorporation of such genes in varieties being propagated for mass cultivation would be extremely detrimental. The technology to identify the terminator seeds needs to be developed so as to prevent the entry of such seeds into the country.

Farming Systems Approach

For efficient and sustainable agriculture, it will be essential to change over from a commodity-centric approach to a 'farming systems' approach. This will call for multi-disciplinary and inter-institutional efforts. The judicious utilisation of available agro-biodiversity should receive the highest priority. Hence, germ plasm collection conservation, optimum utilisation and enhancement have to receive greater attention.

Protection of Environment through Soil Health Care and Balanced Nutrition

The necessity to cater to the food, fibre and fuel needs of the country has put the primary natural resources like soil, water and vegetation under severe stress. Protection of environment and sustainability of resources are the high priority areas for research in agriculture. Balanced nutrition and restoration of soil health would receive due attention. Suitable technology and modules for integrated pest management, blending all appropriate control

methods would be evolved, at least for major crops where pests and diseases inflict huge losses.

Trade Opportunities

Changing consumption and demand patterns and new trade opportunities have brought about greater diversification of farming systems through enhanced emphasis on horticulture, animal husbandry, milk, poultry, fish and other animal products, non-food crops and agro-forestry. Scientific land use planning and resource optimisation would be emphasised. Special attention will be paid to reorient our research agenda in the context of diversified agriculture, value-addition, post-production technology and agri-business.

Cost Reduction And Quality Improvement

To capitalise on increased market access and remain competitive globally, adopting cost-effective crop technology, continuous upgradation of post-production technology becomes imperative. Post-production technology upgradation with emphasis on on-farm handling and storage systems for different commodities, minimising losses, covering sanitary and phyto sanitary measures, packaging, transport, marketing, value addition, both for domestic and export market would be given due consideration.

Exploiting The Rich Terrestrial And Marine Fauna/ Flora

Besides human food, the rich terrestrial and marine fauna/ flora should also be exploited for extracting rare chemicals, drugs, enzymes and hormones of pharmaceutical, medicinal and nutritional importance. Utilisation of crop residues and by products for food, feed and industrial products through value addition is another area which would be strengthened.

Mechanisation For Small Farms, Hill Agriculture, Horticulture And Energy Management

Agricultural engineering research during the Tenth Plan will lay greater emphasis on small farm mechanisation by developing appropriate technologies for timeliness, precision, maximising

input utilisation efficiency, reducing losses, value-addition and post-harvest technology and conserving energy and natural resources of soil and water. It will also lay greater emphasis on mechanisation of hill agriculture, horticulture, energy management and greater use of renewable sources of energy in agriculture, human comfort and safety and gender issues to reduce drudgery in farm operations and agro-processing.

New Technology To Increase Fisheries Production

The fishery sector has been growing at the rate of 6 per cent per annum during the last decade but the growth rate of aqua-culture is about 10 to 12 per cent. In this sector, the intensification of research efforts in the field of bio-technology, selective breeding of cultivable fishes and prawns for increase production are needed. Location-specific technology will be developed for brackish water aqua-culture to utilise inland saline land/ water. Immuno-pathological researches have to be oriented towards disease diagnosis, prevention and control of viral and bacterial disease of shrimps and fishes. More emphasis will be given on quality of fish products, harvest and post-harvest technology.

Promotion Of Excellence In Agriculture And Education

Continuous efforts have to be made to ensure improved standards of education and capacity building through human resource development. A strong educational infrastructure is required for the on-going programme and for new initiatives. The manpower engaged in research will have to be continuously trained to maximise its output. Excellence in agriculture and education in different streams would be promoted and supported. Similarly, efficient human resource utilisation through appropriate programmes would also be given due emphasis. During the Tenth Plan, agriculture research and education in the States shall be strengthened by earmarking funds for agricultural research and education in State Plans.

5.1.169 In order to harness science to achieve food and nutritional security, alleviation of poverty and

unemployment, natural resource management and globalisation, research focus would be on:

- ☒ Conservation and enhancement of the ecological foundations of farming (land, water, biodiversity, forests, oceans and the atmosphere), through an integrated natural resources management strategy involving PRIs and NGOs.
- ☒ Organisation of multi-disciplinary monsoon and climate management in different agro-climatic zones in order to help in maximising the benefits of good monsoons and minimising the adverse impact of aberrant monsoons. The other aim would be to take proactive action against potential adverse changes in temperature, precipitation and sea levels as a result of global warming.
- ☒ Dry land farming through appropriate land use and water conservation measures.
- ☒ Special attention to the northeastern region, hill areas, coastal regions and islands.
- ☒ Diversification of cropping and farming systems and greater attention to crop-livestock integration, taking note of the current trends and changes in the relative consumption of cereals and other food products. Also, livestock and livelihoods are intimately intertwined in dry farming and arid and semi-arid areas.
- ☒ Intensification of research on under-utilised crops, thereby expanding the food basket; changing the nomenclature 'coarse cereals' into 'nutritious cereals'.

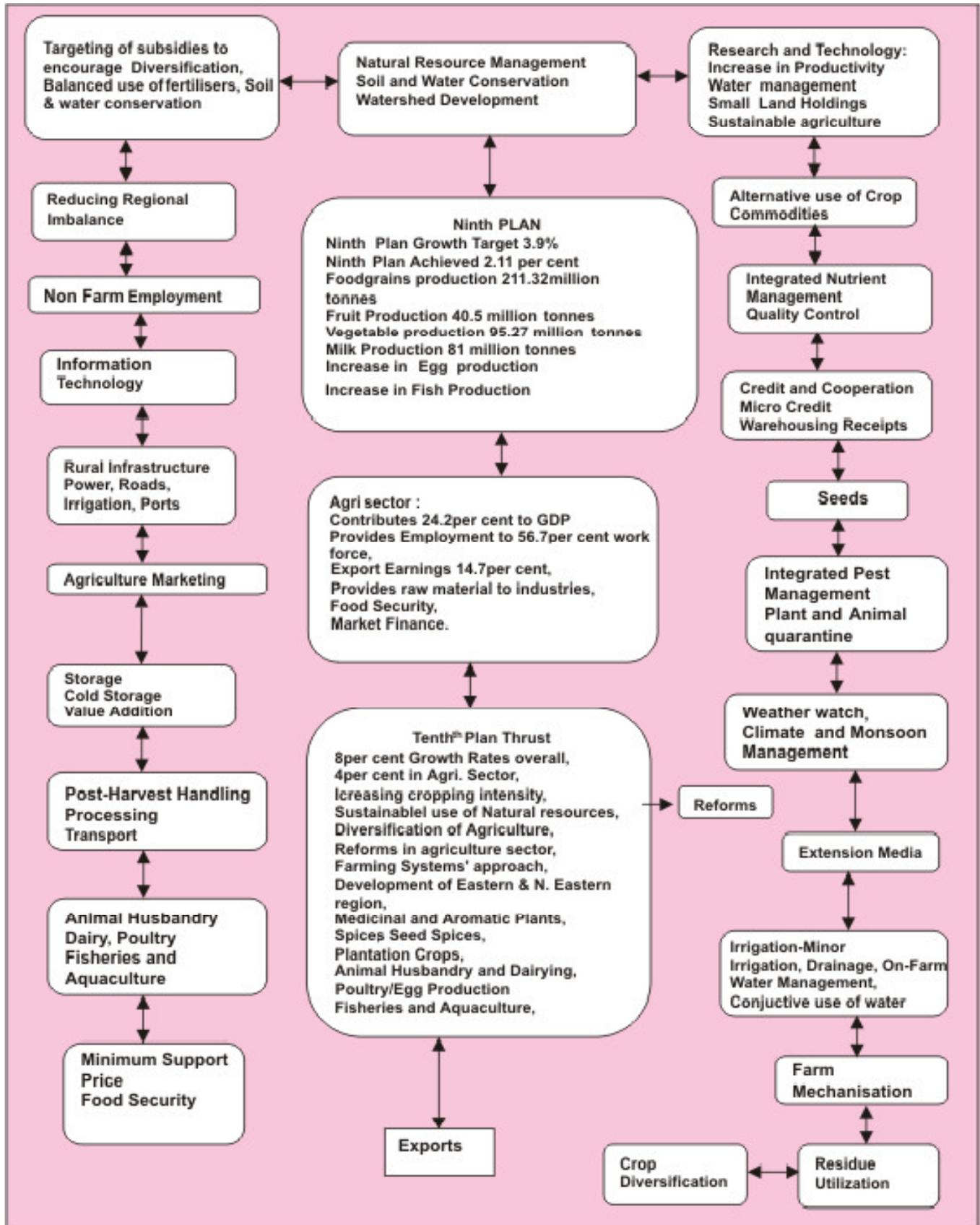
- ☒ Intensification of research on sustainable capture and culture fisheries and development of a strategy for the optimum utilisation of two million sq km of sea surface area available under the Exclusive Economic Zone (EEZ).

5.1.170 A major research thrust is required to achieve a breakthrough in pulses and oilseeds, seed spices, medicinal and aromatics plants and the management of diseases like coconut wilt. The force of technology in increasing productivity seems to have declined, which calls for re-orientation of research by the ICAR - SAUs research system. The organisational structure of this system also needs to be reviewed by an independent agency or a group of eminent persons drawn from the fields of science, industry and exports and other stakeholders including farmers, so that research could be re-oriented to sustainable development, water conservation, input management, soil conservation, processing, organic farming, IPM, nutrient management, residue management etc.

5.1.171 So far, research in agriculture has been largely confined to the public sector. Private sector research has generally been confined to agro chemicals and seeds. In the coming years, the environment is to be made conducive to encourage research in partnership with private sector.

5.1.172 Allocation to DARE/ICAR for agricultural research and education, for the Tenth Plan has been increased to Rs. 5368 crore as compared to Ninth Plan allocation of Rs. 3376.95 crore and realization of Rs. 2673 crore. The schemewise break up of the Tenth Plan are given in Appendix.

Strengthening Linkages and Policy Support:



THE PATH AHEAD

Opportunities in Agriculture

5.1.173 The Tenth Plan is being formulated at a time when agriculture faces challenges from both domestic and external sources. The challenge before policy makers is not only to reverse the slowdown of agricultural growth in the 1990s but to ensure that the gains of agriculture in alleviating rural poverty are not lost and the estimated 200 million under-nourished population get access to food.

5.1.174 Agriculture strategies and policies will have to be redefined to benefit all regions by increasing investments and maintenance in irrigation, power, roads, post harvest, handling, processing and marketing infrastructure.

5.1.175 Forward and backward linkages will have to be established and strengthened to give a better deal to farmers.

5.1.176 The Tenth Plan envisages an overall GDP growth rate of 8 per cent per annum. The National Agricultural Policy has envisaged:

- ☒ Growth that is based on efficient use of resources and conserves our soil, water and bio-diversity;
- ☒ growth with equity, i.e., growth which is widespread across regions and benefits all farmers;
- ☒ growth that is demand-driven and caters to domestic markets as well as maximises benefits from exports; and
- ☒ growth that is sustainable technologically, environmentally and economically;
- ☒ growth rate in excess of 4 per cent.

5.1.177 The strategy to achieve the envisaged growth rate of 3.97 per cent in the sector during the Tenth Plan, would be a regionally differentiated one based on agro climatic conditions and land and water resources of different regions.

5.1.178 Thrust would be given for the development of the eastern and northeastern regions together with other eco-fragile regions - hill areas, coastal areas, etc. -- by further expanding the On-Farm Water Management scheme which has been introduced to exploit the rich ground water potential. The Technology Mission on Horticulture has become operational in the northeastern region and backward and forward linkages will be ensured.

5.1.179 States where there is stagnation/ deceleration of growth due to environmentally unsustainable practices, will be encouraged to improve management practices and diversify to crops which will restore soil health.

5.1.180 The thrust areas during the Tenth Plan would include

- ☒ Increasing cropping intensity;
- ☒ diversification to high value crops/ activities;
- ☒ development of minor irrigation and utilisation of created irrigation potential;
- ☒ rainwater harvesting and conservation for the development of rainfed areas - watershed approach;
- ☒ reclamation/ development of problem soils/ lands;
- ☒ utilisation of unutilised/under-utilised wastelands and degraded lands by allocation/leasing;
- ☒ timely and adequate availability of inputs like seeds, fertilisers, implements;
- ☒ thrust on seed production - breeder, foundation and certified -- to achieve the desired seed replacement rate;
- ☒ bridging the gap between research and farmer's yields;
- ☒ encouragement to the private sector for effective extension and input support services;
- ☒ promotion of a farming system approach;
- ☒ cost effectiveness while increasing productivity;

- ☒ promotion of organic farming, with the use of organic waste, IPM and INM;
- ☒ strengthening of marketing, processing and value-addition infrastructure;
- ☒ upgradation of indigenous cattle and buffalo using certified semen/high quality pedigreed bulls and providing services at farmer's door;
- ☒ conservation of threatened breeds of livestock and improvement of breeds used for draught and pack;
- ☒ creation of disease-free zones and a national immunisation programme against most prevalent animal diseases;
- ☒ adequate availability of fodder seeds and improvement of pasture lands;
- ☒ increase in fish production from both culture and capture resources; and
- ☒ emphasising the quality and safety aspects of produce in agriculture, animal husbandry, and the dairy and fisheries sector.

5.1.181 With increasing population, land holdings are getting fragmented and becoming unviable. The average size of holdings has decreased from 2.28 ha in 1970-71 to 1.57 ha in 1990-91. To deal with problems of fragmented and small holdings:

- ☒ A clear policy regarding transfer of agricultural land has to be implemented.
- ☒ Transfer of land has to be made easy to enable the farmers to augment their holdings to viable size units.
- ☒ Stamp duty on transactions of land for agriculture to be rationalised.
- ☒ Leasing of land and contract farming to be allowed/promoted and made easy which will help generate income for both lessee and lessor/ contractor.
- ☒ Legislation needs to be enacted to facilitate land utilisation - transfer, leasing contract farming.

- ☒ Technologies suited for small holdings have to be developed to increase the productivity and returns of small holdings.
- ☒ States would be asked to take up the consolidation of holdings and computerisation of land records.

5.1.182 While, on the one hand, the per capita availability of land has declined, there are vast areas which are unutilised or under-utilised. If such lands are put to productive uses, the production will increase and millions of farm families will get livelihood support and their income will increase. For utilisation of unutilised/under-utilised degraded/wastelands, States would be persuaded to consider the following:

- ☒ Allotment/leasing of Government/panchayat lands for production purposes to landless and weaker sections.
- ☒ Providing access to grasses and fodder from forest area and allowing growing of grasses/ fodder and medicinal and aromatic plants.
- ☒ Wastelands which require huge financial resources for development will be earmarked and used for generating raw material for industry in partnership with the private sector

5.1.183 Sustainable development of natural resources would be given a major thrust through watershed approach and appropriate measures like:

- ☒ Formulation of a perspective plan for the development of rainfed/degraded land;
- ☒ implementation of watershed development programme as a single national initiative;
- ☒ thrust on people's participation in planning and execution of field activities in the implementation of the watershed development programme;
- ☒ emphasis on rain water harvesting and conservation;
- ☒ development of minor irrigation, especially in the eastern region having abundance of ground water;

- ☒ promotion of on-farm water management, water-saving technologies and devices for increasing water use efficiency;
- ☒ increasing forest/tree cover to facilitate recharge of ground water;
- ☒ completing irrigation projects expeditiously and ensuring maintenance of canals and other irrigation projects;
- ☒ setting up of water user associations and recovery of water charges so that there is better maintenance; ensuring that there is sufficient water for drinking, agriculture and other uses. Enaction of legislation on use of ground water will be followed up with the States;
- ☒ as electricity is an important input for agriculture, effort will be made to link pricing/tariff as a policy reform for providing adequate power;
- ☒ special thrust on research for efficient water utilisation and conservation - promotion of water saving methods and devices such as diggi, drip/ sprinkler irrigation;
- ☒ encouraging water conservation and recycling of water by households, urban local bodies and industry.

5.1.184 The strategies for the development of horticulture and plantation crops would include:

- ☒ Improving production, productivity, reducing cost of production, supply of good quality, disease-free, high yielding seeds and planting material and promotion of inter-cropping/multi story cropping;
- ☒ value addition and quality improvement through propagation of latest technologies and improved farm practices (micro-irrigation, fertigation, integrated nutrient/ pest management and promotion of protected/green house cultivation, precision farming, etc.);
- ☒ strengthening of organisational support, promotion of human resource development, capacity building and enhancement of the knowledge base of

farmers and other functionaries engaged in the horticulture/plantation sector;

- ☒ promotion of bee-keeping and medicinal and aromatic plants on a large scale;
- ☒ promotion of re-plantation, gap filling, rejuvenation, and expansion of coverage in new areas;
- ☒ encouragement for processing and product diversification with adequate financial incentives;
- ☒ shift towards credit linked subsidy regime in favour of planters and processors through commodity boards, NABARD, commercial/ cooperative banks;
- ☒ market development and export promotion by way of improving international market intelligence and promotion of Indian brands abroad.

5.1.185 Measures to increase the availability of quality agricultural inputs in adequate quantities would include ;

- ☒ Thrust on seed production and distribution to achieve higher seed replacement rate (SRR).
- ☒ Emphasis on bio-technology for development of high yielding seeds.
- ☒ Restructuring of the NSC and SFCI to operate as a single agency.
- ☒ Replacement of the Seed Act, 1966 for development of the seed sector.
- ☒ Promotion of the balanced use of fertilisers and INM with emphasis on the use of organics together with management/ utilisation of crop residues.
- ☒ Encouragement to organic farming.
- ☒ Strengthening of testing facilities for seeds, fertilisers, soil, water, pesticides, pesticides residues, etc.
- ☒ Emphasis on adoption of IPM with emphasis on natural controls, need-based use of pesticides and strengthening of pest surveillance and forecasting facilities for the promotion of the IPM concept.

- ☒ Creation and strengthening of plant quarantine facilities at all entry points to check the entry of exotic pests and diseases.
- ☒ Promotion of efficient and energy saving implements and machines through involvement of the private sector in mass production of quality implements.
- ☒ Development of facilities to import agri machines/implements and study these for the development of models suited to Indian conditions.

5.1.186 Over the years the established credit infrastructure has provided a valuable support to the farmers in adopting improved production technologies. But, of late, the system has been under strain and the availability of credit to the farm sector has remained inadequate. Against the recommended 18 per cent share of agriculture in priority sector lending by banks, the relative share in the net bank credit stood at 15.8 per cent in March 2000 and 15.7 per cent in March 2001. The following efforts will be made to increase the flow of agricultural credit.

- ☒ Ensuring that Kisan Credit Cards are issued to all entitled farmers by the end of the Tenth Plan.
- ☒ States would not be eligible for funding by cooperative sector/ NCDC till they adopt the Multi-State Cooperative Act for providing more functional and financial autonomy.
- ☒ Cooperative banks will be strengthened through recapitalisation.
- ☒ Micro financing would be encouraged through self-help groups/women's groups.

5.1.187 The present agriculture extension system has become outmoded and ineffective. It is not able to effectively meet the present-day demands of farmers. Therefore, the following steps will be taken:

- ☒ Agricultural extension will be reformed and strengthened to make it demand driven, using the print and electronic media to disseminate information;

- ☒ private sector involvement will be encouraged in extension and services support such as agri-clinics;
- ☒ IT and the print media will be used to reach information to farmers;
- ☒ linkages between KVKs of ICAR and State/district extension services will be strengthened together with that of private sector /NGOs involved in agriculture extension;
- ☒ utilisation of infrastructure available with KVKs/ICAR Institutes and SAUs for providing input support services to the farmers, including testing and certification of inputs and farm produce.

5.1.188 Efforts to create and strengthen storage/cold storage infrastructure would include:

- ☒ Enhanced back-ended credit-linked financial incentives for taking up storage/cold storage, post-harvest processing and value-addition infrastructure;
- ☒ encouragement to the private sector in the creation of agriculture infrastructure by way of reduction in fiscal levies (excise, custom, central sales tax levied by the Central Government and reduction/rationalisation of sales tax and other local levies by the State Governments) on equipment, machinery, etc.; and
- ☒ review and abolition of statutory controls to the extent possible to attract private sector and investment.

5.1.189 Indian agriculture has undergone a change from subsistence farming to commercial production. Marketing infrastructure and prices play a very important role in the development of a crop commodity and the development of a particular area or region. No appreciable growth can be visualised without adequate marketing support. States will, therefore, be persuaded to amend their respective APMC Acts to provide for:

- ☒ Phasing out of all the remaining restrictions on movement, stocks, credit, exports and processing;

- ☒ development of integrated agricultural markets in private and cooperative sectors;
- ☒ direct marketing of agricultural produce by setting up farmers' markets;
- ☒ contract farming involving a commitment on the part of the farmers to produce a specific commodity and commitment on the part of the contractor to purchase the produce at a pre-determined price;
- ☒ abolishing all restrictions in various Acts which impinge on free trade of agriculture commodities; and
- ☒ enlargement of commodity coverage under forward contracts/future trading.

5.1.190 Besides the development of domestic markets for agri- commodities, adequate thrust will also be given for export promotion through:

- ☒ Formulation of a product-wise strategy;
- ☒ phasing out all restrictions on exports;
- ☒ promotion and setting up of with adequate financial incentives and facilities;
- ☒ incentives for modernisation of processing facilities and promotion of value-added products;
- ☒ rationalisation and improvement of the export inspection system, sanitary and phyto-sanitary measures with adequate strengthening and appropriate interventions in terms of education, training, upgradation of skills, knowledge, etc.;
- ☒ undertaking comprehensive international market intelligence and development of product profiles for identified agricultural products, having potential in different countries, keeping in view quality standards, price competitiveness, etc.; and
- ☒ promotion of Indian brands abroad for identified products.

Food Security and Diversification of Agriculture

5.1.191 As on 1 April 2002, there was 55.95 mt of foodgrains stock with Government agencies (24.91

mt of rice and 26.04 mt of wheat). The Expenditure Reforms Commission has recommended a buffer stock of 10 mt (4 mt of wheat and 6 mt of rice). Keeping in view environmental considerations and consumer demand, it would be necessary to encourage horticulture, livestock/dairy products. This would require a holistic approach to issues relating to:

- ☒ targetting food subsidies properly and providing access of food to the poor in an efficient manner;
- ☒ review of pricing and procurement operations under MSP to make them more effective;
- ☒ integration of marketing, value-addition and exports to deal with marketable surplus of cereals, fruits, vegetables and livestock products.

Research For Increasing Productivity and Quality

5.1.192 The growth in total factor productivity seems to be decelerating, suggesting a decline in the force of technology. In some areas like that of pulses and some other crops, there has not been any research breakthrough. The thrust and strategies for research would include:

- ☒ Thrust on modern technologies like development of transgenics, space technology and sustainable development of natural resources together with preservation and exploitation of rich biodiversity;
- ☒ reorientation of research in the context of diversified agriculture, value addition, agri-business;
- ☒ thrust on technologies for sustainable development of natural resources and cost reduction and quality improvement technologies;
- ☒ emphasis on research on mechanisation of small farms, hill agriculture, energy management and use of renewable sources of energy in agriculture;

- ☒ thrust on research to achieve a breakthrough in pulses and oilseeds, management of coconut wilt, seed spices, medicinal and aromatic plants etc.;
- ☒ review of ICAR/agriculture research.

Reforms And Opportunities In Agriculture

5.1.193 There will be a fresh look at agricultural subsidies, pricing and procurement operation under MSP for:

- ☒ Rationalisation of agricultural subsidies, especially those adversely affecting natural resources;

- ☒ utilising MSP and procurement operations as a tool to bring in desired diversification in the cropping/farming system;
- ☒ quality control of inputs and produce;
- ☒ encouraging crop production for alternative use - ethanol, feed, starch etc.;
- ☒ Convergence of Central sector and Centrally sponsored schemes of various departments and also in schemes being implemented under State Plans for the efficient utilisation of financial and manpower resources.

CHAPTER 5.2

ANIMAL HUSBANDRY AND DAIRYING

5.2.1. The contribution of animal husbandry and dairying to total gross domestic product (GDP) was 5.9 per cent in 2000-2001 at current prices. The value of output of livestock and fisheries sectors was estimated to be Rs 1,70,205 crore during 2000-2001, which is 30.3 per cent of the total value of output of Rs 5,61,717 crore from the agricultural and allied sectors. The contribution of the milk group alone (Rs. 1,01,990 crore) was higher than wheat (Rs. 47,091 crore) and sugarcane (Rs. 27,647 crore). It is estimated (1993-94) that almost 18 million people are employed in the livestock sector in principal (9.8 million) or subsidiary (8.6 million) status. Women constitute about 70 per cent of the labour force in livestock farming. The overall growth rate in the livestock sector is steady (around 4.5 per cent) in spite of fact that investment in this sector is not substantial. As the ownership of livestock is more evenly distributed with landless laborers and marginal farmers, the progress in this sector will result in a more balanced development of the rural economy.

REVIEW OF NINTH PLAN

Cattle And Buffalo Development

5.2.2 The broad frame-work of the cattle and buffalo breeding policy being followed since the mid-sixties envisaged selective breeding of indigenous breeds in their breeding tracts and use of such improved breeds for upgrading of the

Achievements in Livestock Sector

India is currently the largest producer of milk (84.6 million tonnes during 2001-02) in the world.

India ranks 5th in Egg production (33.6 billion nos during 2001-02).

Rinderpest, a dreadful disease of ruminants has been eradicated from the country

nondescript stock. While the States accepted the framework, appropriate implementation through field level programmes could not be done. Lack of interest in promoting Breed Organisation/Societies and related farmers' bodies contributed to the gradual deterioration of indigenous breeds. Government intervention for breed improvement is not available to majority of owners of indigenous breeds of cattle. Eventually, the availability of good quality bulls needed for natural mating in breeding tracts became scarce, leading to further deterioration of indigenous breeds in these tracts. Production of quality indigenous bulls has been a long-neglected area and would require a major thrust in order to harvest the best male germplasm available in the country. The present production capacity of frozen semen doses is about 30 million against the estimated requirement of 65 million doses annually. Except for a few pockets in important breeding tracts and in sperm stations, indigenous bulls of unknown pedigree and with poor quality semen are generally used. Crossbreeding, which was to be taken up in a restricted manner and in areas of low producing cattle, has now spread indiscriminately all over the country. Continuous emphasis on cross breeding with exotic breeds even in the tracts of indigenous breeds led to the near-extinction of some of the known breeds. Further, the indiscriminate use of contaminated semen or infected bulls results in the spread of sexually transmitted diseases like Infectious Bovine Rhinotracheitis (IBR) at an alarming rate.

Milk Production

5.2.3 Milk production in India remained more or less stagnant from 1950 to 1970. Thereafter, it increased rapidly, reaching 84.6 million tonnes (mt) in 2001-02 (anticipated). But the Ninth Plan target of milk production (96.49 mt) was not achieved. The per capita availability of milk increased from 112 gm per day in 1973-74 to about 226 gm per day in

2001-02. However, it is still below the world average of 285 gm per day. Investment in the dairy sector in the Ninth Plan decreased significantly compared to the Eighth Plan. Out of 168 Milk Unions, 58 Milk Unions (34.5 per cent) were running in loss as of March 2000. So far, the Government policy in the dairy sector has been to give preference to the establishment of milk processing plants linking rural milk producers to urban consumers through a network of cooperatives. Restrictions on establishing new milk processing capacity under Milk and Milk Products Order (MMPO) has now been removed. No policy measures have been undertaken so far to give a fillip to the unorganised sector involved in the production of Indian dairy products (like ghee, paneer, chhena, khoa etc.), which have tremendous potential in the export market in Asian and African countries.

Egg Production

5.2.4 The Indian poultry industry has come a long way – from a backyard activity to an organised, scientific and vibrant industry. It is estimated that the egg production in the country is about 33.6 billion numbers (2001-02) against the Ninth Plan target of 35 billion numbers. The most notable growth among the livestock products has been recorded in eggs and poultry meat. Since 1970-71, their output has grown at 5.87 per cent per annum. The significant achievement in poultry development has come from the initiatives taken up by the private sector for commercial pure-line breeding. However, despite the huge investment made, mostly by the private sector, the poultry-processing sector is incurring losses.

The status of the poultry sector as to; whether it falls under agriculture or industry, is somewhat ambiguous and, therefore, it has remained deprived of various benefits available to these sectors. Poultry farming should be declared as an agricultural activity. The poultry production model in vogue (high input-high output using commercially developed strain of birds) has been primarily responsible for the rapid growth in production of eggs and broiler meat in the country, but it is successful mainly in large-scale units (more than 1,000 units of birds). Due to high

feed cost, non-availability of credit and marketing support, most of the small farmers have become contract farmers and are exploited by middlemen. Government intervention, by way of various support mechanisms, is now needed for the promotion of poultry in rural areas. Indigenous poultry breeds, including the improved strains that can survive with low quality raw feed and better resistance against diseases, can be reared under free range conditions by rural unemployed youth and women for some additional income and employment.

Meat Production

5.2.5 In India, meat production is largely a by-product system of livestock production utilising spent animals at the end of their productive life. Meat production was estimated at 4.6 mt in 1998. Projects sanctioned during the Seventh and Eighth Plans for improvement/modernisation of abattoirs and carcass utilisation centres for fallen animals are still to be completed.

Goat Development

5.2.6 Despite the least attention from the planners, goat population in India has increased at the fastest rate among all major livestock species during last two decades. However, instead of increasing the goat population, emphasis should be laid on productivity per animal, organised marketing and prevention of emergence of new diseases like Peste des petits ruminants (PPR) which has led to higher mortality and abortion in goats. The goat improvement programme is to be given a push through extending credit to the poor landless farmers.

Sheep Production

5.2.7 During the last four decades, there has not been much increase in the sheep population. Production of wool has increased from 43.3 million kg in 1996-97 to 49.0 million kg (anticipated) in 2001-02. The Ninth Plan target of wool production (54.0 million kg) was not achieved. The fine wool production in the country is around 4 million kg against the demand of around 35 to 40 million kg. Indian wool is primarily

used for the production of carpet, drugget, wall hangings etc. To enhance the quality and quantity of carpet wool, shepherds need incentives like credit, health coverage, breed improvement programmes and timely disposal of wool and surplus animals at a reasonable price.

Pig Development

5.2.8 Pig husbandry is the most important activity in the animal husbandry sector in the northeastern region inhabited by tribal people. The region also has a substantial pig population, which constitutes around 25 per cent of the country's pig population. The bulk of the population is, however, of the indigenous type whose growth and productivity is very low. The major difficulty in pig development is the acute shortage of breeding males.

Animal Health

5.2.9 Since the Second Plan, efforts have been made to control diseases namely, Rinderpest, Foot and Mouth Disease, Haemorrhagic Septicemia, Black Quarter and Anthrax. Although Rinderpest has been eradicated from the country, the prevalence of the other diseases continues to be one of the major problems in the animal production programme. Some of the emerging diseases like PPR, Bluetongue, Sheep Pox and Goat Pox, Classical Swine Fever, Contagious Bovine Pleuropneumonia, New Castle Disease (Ranikhet Disease) are causing substantial economic losses. The programme for creation of disease-free zones was sanctioned in the Ninth Plan but was not implemented. The Department of Animal Husbandry and Dairying is also not well equipped with the necessary infrastructure and qualified technical manpower to execute the programmes and perform its mandatory duties and responsibilities like disease diagnosis and accreditation as per the international standards, development of an effective surveillance and monitoring system for diseases, mass immunisation against the most prevalent diseases etc. Dovetailing the Animal Research Institutes of the Indian Council of Agricultural Research (ICAR) with the Department would not

only improve its efficiency but also provide it with an effective delivery machinery to carry out its regulatory and certification authority functions, including the conservation of endangered breeds of livestock. The suggestion for the establishment of an Indian Council for Veterinary and Fisheries (ICVFR) by carving out the animal science and fishery institutes from ICAR has not yet materialised.

Animal Statistics

5.2.10 The Livestock Census Scheme suffers from quantitative as well as qualitative problems. The present arrangements for conducting the Livestock Census in the States and Union Territories are not satisfactory in relation to timely collection of data and reporting. The Integrated Sample Survey Scheme for estimation of production of major livestock products also needs improvement.

Conservation

5.2.11 The last few decades have witnessed serious erosion, and even extinction, of some indigenous animal breeds in the country. Many existing breeds are facing varying degrees of threat, endangerment and are heading towards eventual decimation. In all States, crossbreeding of cattle is now occupying a dominant position in the production programme and, in this process, the native cattle breeds, which are well adapted, have suffered wilful neglect resulting in their progressive elimination from the production system. India is bestowed with rich domestic animal biodiversity, having 30 breeds of cattle, 12 breeds of buffalo, 20 breeds of goats, 40 breeds of sheep, eight breeds of camel, six breeds of horses, three breeds of pig and 18 of poultry. Besides, there are other species like equine, mithun, yak, turkey, ducks, etc. Indigenous breeds/types are rich in variability and are endowed with many positive traits like superior disease resistance, better tolerance to high heat and humidity and other characteristics suitable to particular agro-climatic environments. It has also been noted that indigenous breeds are more efficient in feed conversion particularly the crop residues and naturally available low quality roughages. Indigenous breeds at risk are:

Cattle	: Red Sindhi, Sahiwal, Tharparkar, Punganur and Vechur.
Buffaloes	: Nili-Ravi, Bhadawari and Toda.
Sheep	: Nilgiri, Muzaffarnagri, Malpura, Chokla, Jaisalmeri, Munjal, Changthangi, Tibetan, Bonpala from Sikkim and Garrole sheep
Goat	: Beetal, Jamunapari, Chegu, Changthangi, Surti and Jakhrana.
Camel	: Bacterian, Jaisalmeri and Sindhi.
Yak	
Mithun	
Poultry	: All the 18 indigenous breeds of poultry are facing extinction. The three important breeds are Aseel, Kadaknath and Naked Neck,

It has been globally recognised that conservation and improvement of native animal genetic resources are essential for sustainable development in agriculture and animal husbandry. The conservation and improvement programme should be decentralised and each State/adjoining States where a breed exists should take necessary steps with the active involvement of institutions, Gaushalas, Non-government Organisations (NGOs) and Breed Societies. The efforts should, however, be effectively coordinated centrally.

5.2.12 Given the severity of the resource constraint, all the Central sector and Centrally sponsored schemes were subjected to zero-based budgeting during the Ninth Plan. The objective was to retain only those schemes that are demonstrably efficient and essential. The schemes that are similar in nature would be converged to eliminate duplication and resource flow would be linked to performance. Out of 41 schemes, 23

schemes were weeded out, one scheme was transferred and six schemes were merged.

TENTH PLAN FOCUS AND STRATEGY

5.2.13 Animal husbandry and dairying will receive high priority in the efforts for generating wealth and employment, increasing the availability of animal protein in the food basket and for generating exportable surpluses. The overall focus will be on four broad pillars viz. (i) removing policy distortions that is hindering the natural growth of livestock production; (ii) building participatory institutions of collective action for small-scale farmers that allow them to get vertically integrated with livestock processors and input suppliers; (iii) creating an environment in which farmers will increase investment in ways that will improve productivity in the livestock sector; and (iv) promoting effective regulatory institutions to deal with the threat of environmental and health crises stemming from livestock. The Tenth Plan target for milk production is set at 108.4 mt envisaging an annual growth rate of 6.0 per cent. Egg and wool production targets are set at 43.4 billion numbers and 63.7 million kg respectively. The allocation for animal husbandry, dairying and fishery is Rs. 2500 crore during the Tenth plan. The scheme-wise break-up of the Tenth Plan outlay given in the Appendix.

A transition from subsistent livestock farming to sustainable and viable livestock and poultry farming

Technology support is imperative not only for enhancement of productivity but also reduction of per unit cost

Transfer Of Technology

5.2.14 Use of technological and marketing interventions in the production, processing and distribution of livestock products will be the central theme of any future programme for livestock development. The generation and dissemination of appropriate technologies in the field of animal production as also health care to enhance production and productivity levels will be given greater attention. Integration of Animal Research Institutes with the Department of Animal Husbandry and Dairying is essential to facilitate transfer of technology as well as to undertake sanitary and

Table 5.2.1
Average Annual Growth rate of Milk and Egg Production 1950-51 to 2000-01

Year	Milk (%)	Eggs (%)
1950-51 to 1960-61	1.64	4.63
1960-61 to 1973-74	1.15	7.91
1973-74 to 1980-81	4.51	3.79
1980-81 to 1990-91	5.68	7.80
1990-91 To 2000-01	4.21	4.46

phyto-sanitary measures. This would provide an effective delivery machinery to the Department enabling it to work primarily as a regulatory body in the liberalised era.

Human Resource Development And Extension

5.2.15 Sustainable rapid growth and development in this sector can only be ensured if the livestock owners, service providers, veterinarians and planners become knowledge based and acquire the ability to absorb, assimilate and adopt developments in the veterinary sciences and related technologies. Efforts will be made to improve the skills and competence of all stakeholders by involving village schools, veterinary colleges and universities in collaboration with the ICAR and its institutions including Krishi Vigyan Kendras (KVK), State Agricultural Universities and their field stations. Steps will be taken to ensure that veterinary education is regulated as per the guidelines of the Veterinary Council of India. Introduction of animal science education (rearing of poultry, cattle, sheep, goat and pig) in the school curriculum will be one of the focus areas during the Tenth Plan. Training of para-veterinarians, Artificial Insemination (AI) technicians, laboratory technicians on a regular basis will be given priority. Similarly livestock extension, which is primarily based on providing services and goods, will be treated differently from crop-related extension activities that are primarily based on transfer of knowledge. Livestock extension will be driven by technology transfer. As women play an important role in animal husbandry activities, deployment of women extension workers will be encouraged and they will work as links between farmers, the animal husbandry department and workers of NGOs.

Integration Of Programmes

5.2.16 Besides the Ministry of Agriculture, schemes relating to animal husbandry and dairying are being implemented by other ministries viz. Ministry of Rural Development, Ministry of Non-conventional Energy Sources etc. Many schemes operated by these ministries have similar and overlapping objectives and target the same population. Generic components like extension, training, and infrastructure get repeated in most of

THRUST AREA

Conservation of native livestock to maintain diversity of breeds

Immunization Programme against important animal diseases and creation of disease free zones

Enhancement of feed/fodder production and improvement of common property resources.

Creation of National Animal Health and Production Information System.

such schemes and are not complementary. Efforts will be made to consolidate and bring in convergence in these areas.

Livestock Services

5.2.17 Most of the livestock services like artificial insemination/natural service, vaccination, deworming etc. are time-sensitive, which Government institutions, at times, are not able to deliver due to financial as well as bureaucratic constraints. This necessitates the providing for efficient and effective decentralised services in tune with demands emanating from users. Efforts will be made to provide such services at the farmer's door, linked with cost recovery for economic viability. Availability of credit in time and technology support are the two important services needed for livestock development in the rural areas.

Livestock Breeding Strategy

5.2.18 A national livestock breeding strategy needs to be evolved to meet the requirements of milk, meat, egg and other livestock products. Major thrust will be given to genetic upgradation of indigenous/native cattle and buffaloes using proven semen and high quality pedigreed bulls and by expanding the artificial insemination and natural service network to provide quality semen and other services at the farmer's level. Improved bulls for natural breeding will be made available to private breeders, Gaushalas, NGOs and panchayats in remote and hilly areas. The programme of providing exotic males for improvement of sheep in the northern temperate region and pigs in the

RECENT INITIATIVES

- Withdrawal of Milk & Milk Products Order MMPO)
- Introduction of National Project on Cattle & Buffalo improvement Programme
- Database & Information Network
- Creation of disease free zone (proposed)
- Conservation of threatened livestock breeds (Proposed)
- Feed & Fodder production enhancement (Proposed)
- Dairy/Poultry venture capital fund (proposed)
- Clean Milk Production (proposed)

northeastern region will continue in the Tenth Plan. Financial and technological support would be needed to promote breeding programmes.

Conservation Of Breeds

5.2.19 Conservation of threatened breeds of livestock and improvement of breeds used for draught animals and packs would be one of the major goals of the Tenth Plan. It will be the national priority to maintain diversity of breeds and preserve those showing decline in numbers or facing extinction. The improvement programme of indigenous breeds possessing desirable characteristics like disease resistance, heat tolerance, efficient utilisation of low quality feed etc. will be taken up. This is essential even for a sustainable crossbreeding programme. Steps will be taken to coordinate all the activities related to the efficient utilisation of draught animal power and animal by-products. Similarly efforts will be made to conserve indigenous birds and propagation of other birds like quail, guinea fowl and duck in those parts of the country where they are popular.

Milk Production

5.2.20 The bacteriological quality of raw milk at the time of milking in India is comparable with that in the advanced dairying nations. Subsequently, however, the quality deteriorates due to improper handling of milk and lack of availability of infrastructure like all-weather roads, cooling facilities, potable water, regular electric supply and sewage disposal. A holistic approach will be taken to address the issue of clean milk production, which is imperative for marketing and promoting export of dairy products. Steps will also be taken for

development of unorganised milk sector that controls a significant portion of the liquid milk and sweetmeat market.

Fodder Development

5.2.21 The importance of feed and fodder in livestock production hardly needs to be emphasised. Three major sources of fodder supply are crop residual, cultivated fodder and fodder from common property resources like forests, permanent pastures and grazing land. A significant portion of crop residue, particularly paddy and wheat straw, is being wasted. Emphasis will be given on enrichment of straw/stover, preparation of hay/silage to overcome fodder scarcities during the lean season, conversion of fodder into feed block to facilitate transport of fodder from surplus areas, establishment of fodder banks and promotion of chaff cutters. The productivity as well as carrying capacity of public and forestland are decreasing due to improper management of common property resources and lack of coordination between the different agencies involved. For sustainable and economic livestock production, this problem will be addressed through scientific utilisation of traditional pastures and integration with the Watershed Development Programme, especially for silvi-pastoral development. For enhancement of grass production, measures will be taken to bring larger areas under joint forest management and treatment of wastelands and areas under problem soils. As the scope for increasing areas under cultivated fodder production is limited, efforts will be made to increase productivity through promotion of intensive fodder production technologies, quality fodder seed production by specialised agencies and use of wasteland for tree and bush based fodder production.

Animal Feed

5.2.22 Oil cakes, maize and cereal by-products are important ingredients of animal feeds. Coarse grains and cottonseed are traditionally used as cattle feed. Measures will be taken to fill up the deficit in the requirement of feeds in quantitative and qualitative terms. At present, a very small portion of grains produced in the country is utilised for livestock and poultry feeding. Rain-fed and arid zones present enormous prospects for production of feed grains. Steps will be taken to develop specifications for many agro by-products like mango seed kernel, mahowa cake, neem cake, soya pulp, whey powder etc. so that these could be utilised for feeding livestock. Quality control of animal feed will be given importance in the Tenth Plan.

Animal Health

5.2.23 Enhanced and sustainable productivity through improved animal health will be one of the major strategies during the Tenth Plan. After the successful eradication of Rinderpest disease, the major thrust will now be to adopt a National Immunisation Programme against the most prevalent animal diseases. Animal disease diagnosis and accreditation as per the international standards, development of an effective surveillance and monitoring system for animal diseases, animal quarantine, certification and enforcement will be the major functions of the Department of Animal Husbandry and Dairying and necessary schemes will be evolved during the Tenth Plan. Further, measures will be taken to ensure that firms producing veterinary biologicals like vaccine, diagnostic kits etc. are following Good Manufacturing Practices (GMP) and meeting Good Laboratory Practices (GLP) requirements.

Poultry Production

5.2.24 The present system of production of commercial hybrid broilers and layers has become highly successful. To give a boost to export of poultry products, measures will be undertaken for the development of infrastructure like cold storage, pressured air cargo capacity and reference laboratory for certification of health and products. Programmes will be formulated to improve

indigenous birds and promotion of backyard poultry farming which could help employment generation as well as economic empowerment of poor women in rural areas. There is tremendous scope for exporting poultry products produced from birds fed on organically produced feed.

Carcass Utilisation

5.2.25 Projects sanctioned during the Seventh and Eighth Plans for improvement/modernisation of abattoirs and carcass utilisation centres will be completed. Emphasis will be given on establishing/improving carcass utilisation centres for naturally fallen animals in rural areas.

Marketing

5.2.26 The development of a marketing network and remunerative price support to the producers are great incentives for higher animal productivity and these will be encouraged for all types of livestock products. Even the advanced countries are giving direct and indirect price support to livestock farmers. Priority attention should also be given to improve processing, marketing and transport facilities for livestock products and value addition thereon. External markets are an extremely important source of demand and these will be tapped much more aggressively. In order to encourage exports, licensing control for processing of livestock products/by-products will be repealed and restrictions on the export of livestock and its products will be removed. The immediate focus will be on export of animal and poultry products to Asian and African countries. The minimum requirements for sustainable export are creation of disease-free zones, organic farming and potable water. These will be made available in selected areas having large marketable surplus. India has a large number of animal markets where livestock are traded but these are not developed on scientific lines. Market facilities are generally inadequate and, if available, are poorly maintained. Development of organised markets with adequate facilities will, therefore, be taken up. The concept of organic farming can also be extended to animal products. Indian animals are reared in village pastureland and they are not generally treated with hormones, feed-antibiotics, or other drugs, so their products are healthy,

wholesome and natural in every sense of the word. In rural India, cow dung and biomass are primarily used as manure. Initiative for export of 'Grassfed' animal products will be taken. Necessary infrastructure for certification procedures related to organic animal farming will be promoted.

Quality And Safety Of Livestock Products

5.2.27 Quality and safety of livestock products depend upon a quality and safety assurance system for which legislation for setting up standards, corresponding to Codex standards, is obligatory. These do not exist nor is there any method for reviewing and rationalising the quality and safety guidelines. Efforts will also be made for harmonisation of infrastructure facilities for testing food quality and safety with international standards.

Database

5.2.28 Currently, there is absence of a lot of data like those relating to breed-wise milk production of cattle and buffalo, egg production from commercial farms and households, cost of production of milk, egg and wool, availability of livestock resources etc. A National Animal Health and Production Information System will be established with the active involvement of research Institutions, Government departments, panchayati raj institutions (PRIs), urban local bodies (ULBs), private industries, cooperatives and NGOs. This will work as the national database.

Animal Welfare

5.2.29 Animal welfare is also related directly with the productivity of animals. The well-being of animals is affected during management under the intensive production system, in the animal market, during handling and transportation, rearing of buffalo male calves in urban areas etc. There is a great deal of wastage, as well as animal suffering due to ill-designed agri-implements, carts and implements attached to animals. Efforts will be made to strengthen the institutions working on a livestock care system so that they can ensure and promote animal care and well-being. Research and technology development will be taken up for enhancing efficiency and reducing drudgery of

animals by improving the design of carts, yokes, implements and toolbars used in agriculture. A good example is the buffalo-drawn bogey fitted with rubber tyre and bearings.

Development Of Location Specific Animals

5.2.30 Camel will continue to be important in desert areas for quite some time. Effective support for providing nutrition and health cover is needed for its improvement. The Department of Animal Husbandry will continue its programme for improvement of better studs both for horses and donkeys used for transport in hilly areas. Horse riding is now becoming an integral part of amusement parks and this will be encouraged as a niche industry. To encourage the breeding of horses, mules and asses, technological and financial support will be extended to entrepreneurs. Animals indigenous to specific agro-climate regions like Yak and Mithun will be developed.

Capital Formation

5.2.31 Public sector lending in the livestock sector is low and inadequate credit support leads to poor capital formation. As the organised financial sector is unwilling to finance livestock programmes that are not in their interest, especially after the initiation of financial sector reforms, the livestock farmers are mainly dependent on the financial intermediaries and they end up bearing a higher interest rate than would be available otherwise. Attempts would be made to create a favourable economic environment for increasing capital formation and private investment. Financial institutions would actively participate in livestock credit programmes through standardised ready-made bankable projects with back-ended subsidy. Creation of a venture capital fund is needed to assist the private entrepreneur in establishing units that could provide services and goods at the district/block level.

THE PATH AHEAD

5.2.32 The programmes that will be emphasised during the Tenth Plan are:

1. The major thrust will be on genetic upgradation of indigenous/native cattle and

- buffaloes using proven semen and high quality pedigreed bulls and by expanding artificial insemination and natural service network to provide services at the farmer's level. Production of progeny-tested bulls in collaboration with military dairy farms, government/institution farms and gaushalas will be taken up.
2. Conservation of livestock should be the national priority to maintain diversity of breeds and preserve those showing decline in numbers or facing extinction.
 3. After the successful eradication of Rinderpest disease, the focus would now be to adopt a national immunisation programme to control prevalent animal diseases. Efforts will be made for the creation of disease-free zones.
 4. Development of fodder through cultivation of fodder crops and fodder trees, regeneration of grazing lands and proper management of common property resources.
 5. Improvements of small ruminants (sheep and goat) and pack animals (equine and camel) should be taken up in the regions where such animals are predominant.
 6. Building infrastructure for animal husbandry extension network. Panchayats, cooperatives and NGOs should play a leading role in generating a dedicated band of service providers at the farmer's doorstep in their respective areas
 7. Strengthening infrastructure and programmes for quality and clean milk production and processing for value addition.
 8. Programmes would be implemented to improve indigenous birds and promotion of backyard poultry in rural areas.
 9. An information network would be created based on animal production and health with the active involvement of Research Institutions, Government departments, private industries, cooperative, and NGOs.
 10. Strengthening of veterinary colleges as per the norms of Veterinary Council of India. Strengthening of Department of Animal Husbandry and Dairying is also crucial if it has to work as a regulatory and monitoring authority.
 11. A regular interaction between the Department of Animal Husbandry and Dairying and research institutes like the Indian Veterinary Research Institute, National Dairy Research Institute, Institutes on cattle, buffalo, sheep, goat, equine and camel.

FISHERIES

5.2.33 The fisheries sector is one of the important sectors in the socio-economic development of the country. More than six million fishermen and fish farmers, a majority of whom live in 3937 coastal villages, besides fishermen hamlets along major river basins and reservoirs in the country, depend on fisheries and aquaculture for their livelihood. The sector has also been one of the major contributors to foreign exchange earnings through exports. India is the third largest fish producer in the world and second in inland fish production. The fisheries sector contributes Rs. 19,555 crores to national income which is 1.4 % of the total GDP.

The country is endowed with an Exclusive Economic Zone (EEZ) extending to 20.2 lakh sq. kms. with a continental shelf area of about 5.2 lakh sq. kms. having about 8118 kms. coastal length with some of the richest fishing grounds in the world. The estimated potential for fish production from inland water bodies is about 4.5 million tonnes(mt). The main inland fishery resources include about 1.20 million hectares (m ha.) of brackish water area, about 23.81 lakh ha. of fresh water ponds & tanks, about 7.98 lakh ha. lakes and about 20.31 lakh ha. of reservoirs, besides about 1,91,000 kms of rivers and canals.

REVIEW OF THE NINTH PLAN

5.2.34 During the last five decades, fish production has increased with an annual growth rate of 4.1 percent. Fish production touched 5.67 mt in 1999-2000 and is estimated to be about 5.66 mt in

2000-01. It is likely to reach a level of 6.12 mt by the end of the Ninth Plan, which is much below the target of 7.04 mt. This is because of slow progress in the fish production to the extent of 1.44 percent per annum [marine : (-) 1.32 percent and inland :4.87 percent] during the first four years of the Ninth Plan. At present, resource-wise (reservoirs/ rivers/ ponds/ tanks etc.) data on fish production and productivity are not available in the country. In the absence of any major initiative for strengthening of infrastructure, fish seed production remained almost static (16,000 million fry per annum) during the first four years of the Ninth Plan.

5.2.35 Inland Fish Production: The share of inland fishery sector in fish production, which was 29 percent in 1950-51 (0.22 mt), has increased to about 50 percent in 1999-2000 (2.84 mt). In spite of this, the present level of fish production in the country is about 67 percent of the estimated potential of 8.4 mt. There is enormous scope both for augmentation of production potential as well as enhancement of productivity in the inland fishery sector. The 429 Fish Farmers Development Agencies (FFDAs) have covered about 5.67 lakh ha. (inclusive of 1.70 lakh ha. in Ninth Plan) of the total water area under scientific fish culture and trained 6.51 lakh fish farmers (1.11 lakh in Ninth Plan). But the average productivity from waters covered under this programme remained almost static at about 2.2 tonnes/ha./year during the Ninth Plan period. States like Andhra Pradesh, Punjab and West Bengal have shown better response and faster development. The highest productivity of about 5 tonnes/ha/annum from FFDA ponds/tanks has been achieved in Punjab. About 6240 ha. was brought under brackish water aquaculture activities during the Ninth Plan through 39 Brackish Water Fish Farmers Development Agencies (BFDAs). The performance of the programme has also been affected due to litigation.

5.2.36 Marine Fish Production: Marine capture fisheries play a vital role in India's economy. The sector provides employment and income to nearly two million people. Marine fish production level has risen from 0.53 mt in 1950-51 to 2.81 mt in 2000-01 with a growth rate of 3.43 per cent. Most of the major commercially exploited stocks are showing signs of over exploitation. Problems of juvenile

finfish mortality and bycatch discards increased with the intensification of shrimp trawling. Plateauing of catches and over-fishing at several centers and inter sectoral conflicts in the coastal belts have highlighted the need for caution. Proper management of coastal fishery resources with suitable enforcement mechanisms like uniform ban on fishing during monsoon which is considered the breeding season for majority of commercial species, regulation on craft and gears etc. are the priority issues in the sector to allow for its rational exploitation. The development of the deep-sea fishery industry is of concern to the entire marine fishery sector because it would have considerable impact on the management of near-shore fisheries, shore-based infrastructure utilization and post-harvest activities both for the domestic market and exports. With the growing demand for sea food, it becomes imperative that the current level of marine fish production from the exploited zone to be sustained by closely monitoring the landing and the fishing effort and by strictly implementing the scientific management measures.

5.2.37 Infrastructure: The existing fishing harbours and infrastructures need to be modernized to meet minimum international standards necessary for fish quality assurance. Under the Fisheries Extension & Training Programme 28 training centers and 15 awareness centers have been established for the benefit of fishermen and fish farmers during the Ninth Plan. Research projects in the area of aquaculture and marine biotechnology are supported to strengthen the gap in the areas of fish health and disease diagnostics, transgenic aspects, cell and tissue culture, intensive prawn culture, carp-culture, feed and seed production, bio-active compounds and development of culture technology in non-conventional species etc. by the Department of Bio-technology during the Ninth Plan.

TENTH PLAN FOCUS AND STRATEGIES

5.2.38. Development of Fisheries: The major thrust during the Tenth Plan will be on integrated development of riverine fisheries, habitat restoration and fisheries development of upland waters, development of reservoir fisheries, management of coastal fisheries, deep-sea fisheries with equity

participation, vertical and horizontal development of aquaculture productivity, infrastructure development and improved post-harvest management, policy intervention including monitoring, control and surveillance. The Tenth Plan has proposed a fish production target of 8.19 mt envisaging a growth rate of 5.44 percent per annum (marine 2.5 percent and inland 8.0 percent).

5.2.39. Development of Aquaculture: In the recent years, there has been a spurt in the growth of aquaculture in the country. The inland fisheries sector has registered an impressive growth rate of 6.55 percent per annum in the 1990s. However, in spite of the vast resources of culturable water bodies as well as availability of proven technology for aquaculture, the levels of production and productivity are not adequate and there is a large gap between the potential and actual yields. Therefore, increase in productivity and production of fish/shrimps from freshwater and brackish water areas under ongoing programmes would continue during the Tenth Plan. The present production level of about 2.2 tonnes/ha./year from fish farming will be raised considerably by adopting existing advance technology. Programmes will be devised to develop fisheries in fallow derelict water bodies, waterlogged areas, saline waters, lakes, beels, etc. for enhancing fish production. Aquaculture activities will also be taken up for development of cold-water fisheries in the hill areas of the ecologically fragile zone. On the basis of experience of pilot projects taken up for fisheries development in reservoirs during the terminal year of the Ninth Plan, programme to enhance fish production will be formulated on a large scale during the Tenth Plan. An integrated approach to marine and inland fisheries, designed to rational exploitation and to promote sustainable aquaculture practices, will be adopted. Bio-technological applications in the field of genetics and breeding, hormonal application, immunology and disease control will receive particular attention for increased aquaculture production.

5.2.40. Seed and Feed Development : Seed and feed are critical inputs required for the development of fisheries and aquaculture for enhancing production and productivity. Research and development (R&D) programmes will be taken up for production of quality fish/shrimp seed and feed.

Box 4.1.12

Enhancing Productivity and Production from Inland Waters.

Technical and financial support for enhancing production and productivity.

R & D programmes for Enhancing Production of quality Fish/ Shrimp Seed and Feed.

Diversification of Activities for Development of Fisheries and Aquaculture.

Improving post harvest management by processing, value addition, setting up of cold chains and packaging.

Creation of health and sanitary check facilities to ensure quality of products as per international standards.

Integrated Approach for Sustainable Development of Fisheries and aquaculture.

The present level of fish seed production of 16,000 million fry will be raised to 25,000 million fry by the end of the Tenth Plan at an 8 percent growth rate per annum. Diseases-free and diseases-resistant fish/shrimp seed will be ensured with strict quarantine measures. Besides, adequate infrastructure will be required for increasing production and productivity of other commercially important fishes/prawn such as freshwater prawn, catfish, sea bass, grey mullet, grouper, snapper, chanos, etc. for diversifying fishing activities during the Tenth Plan. The Research Institutes under the ICAR like Central Institute of Fisheries Education (CIFE), Mumbai, Central Marine Fisheries Research Institute (CMFRI), Kochi, and Central Institute of Fresh Water Aquaculture (CIFA), Bhubaneswar, have developed technology for pearl culture, which needs to be taken up on a commercial basis through concerted efforts for further development during the ensuing Plan period.

5.2.41. Training of Fisherwomen: Traditionally, women have played an important role in the fishery sector, and they have a much larger role to play in the emerging scenario of fisheries and aquaculture

development. One of the important ways to improve the status of fisher-women in a community is to train them to improve their participation in their own development. Programmes for human resource development with emphasis on training and skill development in post-harvest/processing and marketing activities particularly for fisherwomen besides other income generating revenues will be taken up. Emphasis will be laid on the development of marketing infrastructure and techniques of preservation/ storage and transportation with a view to reducing post-harvest losses and ensuring a better return to the grower.

5.2.42. **Strengthening of Database:**

Notwithstanding the existing efforts made by several agencies, the fisheries database is poor and needs considerable strengthening. In the inland sector, the priorities are standardization of methodologies for estimation of catch from the diverse aquatic resources and establishing mechanisms for regular collection and dissemination of data by States and Union Territories. In the marine sector, the existing methodologies need revision and also subsequent re-orientation of the Departments of Fisheries on collection and estimation of methodologies. To strengthen the efforts in this direction, the use of remote sensing and Geographical Information System (GIS) in estimation of resource size and productivity also needs to be integrated in the existing programmes of fisheries catch statistics.

5.2.43. **Overexploitation of Coastal Resources:**

A major emphasis will be placed on positive and purposeful checks on over exploitation of resources in the near shore areas through appropriate regulations on the number of fishing vessels, their operational areas, ban on monsoon fishing/close season, mesh size, use of the right type of fishing gear and other such restrictions to prevent un-economic and oversize fishing.

5.2.44. **Exclusive Economic Zone:** Exploitation of offshore resources in the EEZ will be considered in terms of both the resource available and the infrastructure. Along with the absolute right on the EEZ, India has also acquired the responsibility to conserve, develop and optimally exploit the marine living resources within this area. Efforts will be made

to exploit fishery resources in the EEZ on a priority basis. Satellite-assisted Vessel Monitoring System (VMS) will be helpful in the EEZ for both Indian and foreign fishing vessels. This would ensure the safety of fishers and vessels, and also provide emergency help whenever required. This would also help in the collection of fishery-related technical data as well as determining the number of fishing vessels required in a particular area for exploiting the available fishery resources.

Formulation and introduction of a new deep sea fishing policy consistent with the national interest to exploit fishery resources in the EEZ should be given top priority. The present gap in the potential and current exploitation has several repercussions, the more important of which is leaving the EEZ opening to other neighbouring countries like Nepal, Bhutan etc. and owners of foreign fishing vessels which may take advantage of the situation. Besides, even land locked neighbouring countries like Bhutan, Nepal etc. may stake their claim legally unless we put our efforts together on under-exploited marine resources in the Indian EEZ.

Efforts are also needed to maintain World Trade Organisation (WTO) catch levels by rational exploitation of our resources and to counter measures taken by neighbouring countries like Pakistan in collaboration with USA which is resulting in the over-exploitation of resources in the adjoining areas and there by curtailing our rights in these areas. Besides it should also be ensured that suitable measures are taken to exploit resources beyond the EEZ so that we put our due stake in the international waters alongwith other countries.

5.2.45. **Investment:** Increasing public/private investment is needed for strengthening infrastructure for diversifying fisheries and aquaculture activities enhancing fish production and productivity. Enhanced public investment is also required in research programmes, strengthening infrastructures for training, post-harvest, marketing etc. Setting up of minor fishing harbours and creation of common facilities for maintenance and usage of dredgers by the Government should be given priority for improvement of infrastructure facilities in the marine fishery sector. Product

development by value addition of low quality fish and development of products like chitosane out of wastes like prawn shells, products out of fish bladder etc. need to be encouraged. Private sector investment in fisheries will also be encouraged particularly in seed and feed production, adopting existing technologies for higher production, human resource development, post-harvest management and marketing. For sustainable development of coastal areas, establishment of agro-aqua farms along coastal regions, linking ecological security with livelihood security would be encouraged by States/NGOs. Such farms involve concurrent attention to culture and capture fishery and forestry and agro-forestry programmes. Besides, conservation of fisheries resources, these farms would also be used for demonstrations of diversifying activities of different techniques to be used for fishing operations. Emphasis would be given for technological upgradation of the traditional fishing sector with improved motorised crafts and gears for the development of coastal fisheries and for the introduction of new generation of fishing vessels, for development of off-shore fishing with modern communication equipments to ensure safety of fishermen while out at sea etc. Proper credit and technological support for standard bankable projects and ventures by small fishermen groups in the inland sector and setting up of cooperative marketing network in marine sector should be ensured through institutional finance from the National Bank for Agriculture and Rural Development (NABARD) and National Cooperative Development Corporation (NCDC).

New Initiatives

5.2.46. The new initiatives for development of fisheries during the Tenth Plan would be to increase production and productivity from deep seas, inland capture fishery resources like rivers, canals etc. and from culture sources like reservoirs, beels, ox-bow lakes, measures for replenishment of fishery resources through mariculture etc. Besides, development of infrastructural facilities for better post-harvest management, technology for sustainable aquaculture, setting up of cold storage and marketing network through viable fishermen cooperatives etc., are also proposed to be taken up to ensure better livelihood for fishers and

enhance export promotion for economic development of the country.

The Path Ahead

5.2.47 The main thrust for fisheries development during the Tenth Plan would be to utilise the full potential of inland fishery resources as well as deep seas to increase per capita consumption to a substantial level from the present level of 9 kg. per head per annum. Special emphasis will be given on :

- Increasing the depth of fishing harbours especially for small fishermen using dredgers and the upgradation of hygienic conditions there.
- Strengthening of data base and information networking in the fisheries sector for standardisation of methodologies and estimation of catch from diverse aquatic resources.
- Aquaculture and development of capture fisheries of inland water resources.
- Measures will be taken to increase fish production from the deep sea marine sector.
- Infrastructure development, post harvest management for marketing by setting up of model fish markets and establishment of cold chain through viable fishermen cooperatives.
- Popularisation of pearls developed by CIFA, CMFRI etc. and value added products developed by the Central Institute of Fisheries Technology (CIFT), Kochi and Integrated Fisheries Project (IFP), Kochi made out of low value fish with suitable credit/subsidy support.
- Welfare measures for fishers will be strengthened to ensure their safety at sea etc. and also to involve more women in fisheries sector.
- Research & technology needs in fisheries institutes to be upgraded to meet the growing demands.

- Formulation of a comprehensive deep sea fishing policy and passing of the Aquaculture Authority Bill in Parliament to be expedited for rational exploitation of deep sea fishery resources and sustainable aquaculture development.
- Strategy for an effective enforcement mechanism is needed to prevent poaching in the EEZ and thereby safeguard our resources.
- Suitable mariculture programmes need to be undertaken for commercially important fin/shell fish species for replenishment of resources in our seas.
- Setting up of disease control laboratories and quality certification centres to ensure international standards for fishery products.
- Technologically improved fishing boats with proper communication network etc. to be introduced for the benefit of small fishermen.

CHAPTER 5.3

DEVELOPMENT OF WASTELANDS AND DEGRADED LANDS

5.3.1 Land, a non-renewable resource, is central to all primary production systems. Over the years, the country's landmass has suffered from different types of degradations. Degradation of land is caused by biotic and abiotic pressures. An ever-increasing population places enormous demands on land resources. This is particularly acute in India, which has only 2.4 per cent of the world's geographical area but supports over 16 per cent of the world's population. It has 0.5 per cent of the world's grazing area but has over 18 per cent of world's cattle population. These pressures have led to drastic changes in the proportion of land utilised for agricultural activities, urbanisation and industrial development.

5.3.2 Intensive agricultural practices that rely heavily on water, chemical fertilisers and pesticides have caused waterlogging and salinity in many parts of the country. The expansion of the irrigation system without adequate steps for treatment of the catchment areas has exacerbated this. The quest for increased agricultural productivity has led to intensive cultivation of marginal lands causing their degradation. These pressures on land are compounded by the fact that over 69 per cent of our geographical area falls within dry zone as per the Thornwaite classification. Land degradation has a direct bearing on the productivity of soil, its vulnerability to rainfall variations, scarcity of drinking water, fodder and fuel wood. Given the interlinkages of crop production, livestock economy and environment, land degradation has a major impact on the livelihoods of the people, especially in rural areas.

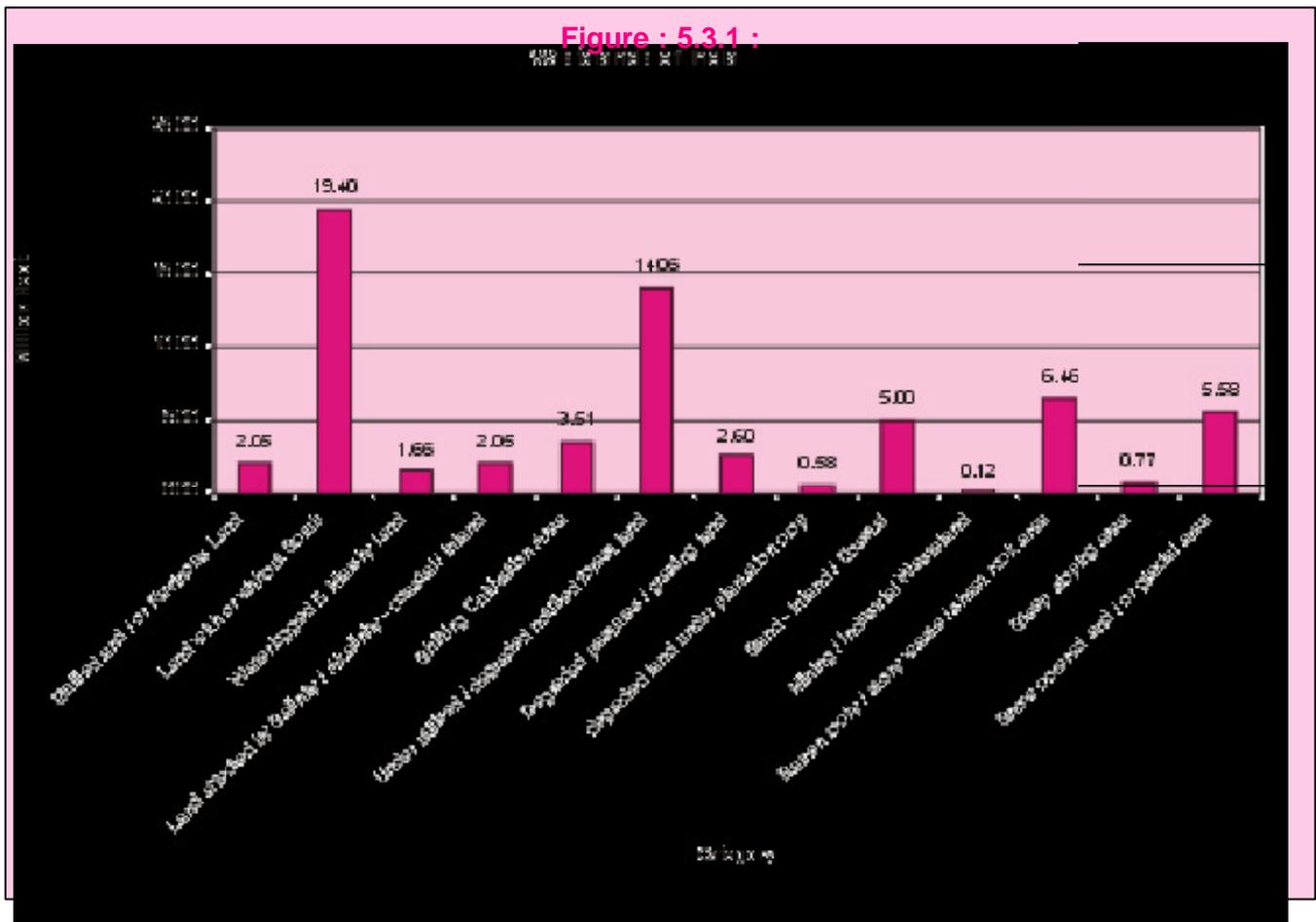
5.3.3 Estimates of degraded land vary considerably and the extent of land degradation is yet to be determined precisely. Estimates of

wasteland differ considerably due to definitional and coverage inconsistencies. According to the land use statistics for 2002 published by Department of Agriculture, the current estimates of culturable wasteland are 13.9 million hectares (m ha). However, the information on the land use statistics does not clearly indicate the extent of wasteland and degraded land, which could be restored with some interventions.

5.3.4 National Remote Sensing Agency (NRSA) carried out a district-wise mapping of a wastelands on 1:50,000 scale using satellite data. The wastelands in the country were placed at 63.85 mh. They occur in different agro climatic and soil zones of the country. Figure 5.3.1 below depicts categories of wastelands. These wastelands form the core of degraded lands in India. They are in urgent need of attention and have to be accorded the highest priority for treatment under watershed programmes.

5.3.5 Some of the most degraded lands in the country are the common property resources (CPRs). CPRs are resources on which people have an equal right of use. These resources include community pastures, community forests, wastelands and common dumping and threshing grounds. In spite of concerted efforts to check deforestation and the various afforestation schemes taken up during successive Plan periods, large tracks of forest continue to be classified as degraded. The 1999 Forest Survey of India placed the actual forest cover at only 19.39 per cent of the total geographical area as against the recorded forest area of 23 per cent. Of the total forest area, 31 m ha suffers from some form of degradation and 14.06 m ha of forests suffer from extreme degradation and are part of 63.85 m ha of wastelands reported by the NRSA.

Figure : 5.3.1 :



5.3.6 In addition to the wastelands identified by the NRSA, other areas such as deserts, drought-prone, flood-prone and tribal areas have been subjected to severe forms of degradation. The capacity of these lands is limited due to environmental factors. Pressures of human and livestock population have further compromised them. Table 5.3.1 provides estimates of degraded land on the basis of the factors that caused the degradation.

5.3.7 These areas co-relate very strongly with the incidence of poverty in the country. The prevention of land degradation and the augmentation of the carrying capacity of land to provide food, fuel and fodder requirements have, therefore, been a primary concern of the Government. Special Area Development Programmes have been funded to mitigate the

harsh living conditions of people through better land management, water harvesting and conservation practices on a watershed basis.

5.3.8 Watershed is a geo-hydrological area that drains at a common point. The watershed approach is a project-based development plan that follows a ridge to valley approach for water harvesting, water conservation and other related economic and social activities that seek to enhance the production potential of an area on a sustainable basis. The watershed programmes implemented by different ministries usually take up a micro watershed of about 500 hectares each. However, the actual project area could vary depending on the local conditions. An indicative list of activities that could be taken up under watershed development programmes are listed in Box 5.3.1:

Table-5.3.1 :
Causes of Land Degradation

Causes of Degradation	Area (million hectares)	Percentage of total area
Water erosion	107.12	61.7
Wind erosion	17.79	10.24
Ravines	3.97	2.28
Salt-affected	7.61	4.38
Waterlogging	8.52	4.90
Mines & quarry wastes	-	-
Degraded land due to shifting cultivation	4.91	2.82
Degraded forest lands	19.49	11.22
Special problems	2.73	1.57
Coastal sandy areas	1.46	0.84
TOTAL	173.64	100.0

Source : Ministry of Agriculture, Government of India (1985)

Box 5.3.1
Watershed Components

- Land development including in situ soil and moisture conservation measures like contour and graded bunds fortified by plantation, bench terracing in hilly terrain; and nurseries for fodder, timber, fuel wood, horticulture and non-timber - forest produce
- Afforestation including block plantations, agro-forestry and horticultural development. Shelter-belt plantations, sand dune stabilisation, etc.
- Drainage line treatment with a combination of vegetative and engineering structures.
- Development of small water harvesting structures such as low-cost farm ponds, nalla bunds, check-dams and percolation tanks and ground water recharge measures.
- Renovation and augmentation of water resources, desiltation of tanks for drinking water and irrigation.
- Pasture development either by itself or in conjunction with plantations.
- Repair, restoration and upgrading of existing common property assets and structures in the watershed to obtain optimum and sustained benefits from previous public investments.
- Crop demonstrations for popularising new crops and crop varieties or innovative crop management practices.
- Promotion and propagation of non-conventional energy saving devices and energy conservation measures.

Source: Guidelines for Watershed Development (Revised 2001) Department of Land Resources, Ministry of Rural Development

Watershed Development Programmes in the Ninth Plan

5.3.9 Introduced in 1973-74, the Drought Prone Area Programme (DPAP) was the first major programme aimed at soil and moisture conservation in drought prone areas. Currently, it is being implemented in 971 blocks across 16 states. The Programme is designed to combat the adverse effects of drought on crop production, livestock and land productivity. The primary objective of the programme is promotion of overall economic development and mainstreaming of marginalised and vulnerable sections.

5.3.10 The Desert Development Programme (DDP), which was introduced in 1977-78, is being implemented in 7 states and covers 234 blocks in 40 districts, including the cold desert areas of Jammu & Kashmir and Himachal Pradesh. The major objectives of the Programme are to restore the ecological balance, conservation of soil and water and to arrest the formation of deserts through shelter belt plantation. The Integrated Wasteland Development Programme (IWDP) started in 1989-90 seeks to develop government wastelands and CPRs, based on village/micro watershed plans. The IWDP is aimed at overall economic development and improving the economic conditions of the resource poor population.

5.3.11 The allocation of funds for the DPAP, DDP and IWDP was stepped up substantially during the Ninth Plan. The cost norms and funding pattern were also streamlined to improve the efficacy of the programmes.

5.3.12 The Technology Development Extension and Training (TDET) scheme, launched in 1993-94, has also been in operation during the Ninth Plan. Hundred per cent Central grant is provided for projects relating to the demonstration of technologies for development of wastelands. The Investment Promotion Scheme (IPS) was launched in 1994-95 to promote participation of the corporate sector and financial institutions in the development of non-forest wastelands. The scheme was restructured during the Ninth Plan and the thrust was on the development of degraded lands belonging to small and marginal farmers including scheduled castes and scheduled tribes (SC/STs).

However, the performance under TDET and IPS during the Ninth Plan period was not satisfactory and only a small area was covered.

5.3.13 The National Watershed Development Project for Rainfed Areas (NWDPA), initiated in 1990-91 has the twin objectives of improving agricultural production in rainfed areas and to restore ecological balance. With the deceleration in agricultural production in the Green Revolution areas in recent years, the country's food security would critically depend on the ability of rainfed agriculture to increase production. Returns on additional unit of investment in rainfed areas are greater than returns on investment in irrigated areas in the present context. However, the area covered under the programme during the Ninth Plan was less than 2.5 m ha. This is clearly inadequate given the need to treat over 70 m ha of rainfed agricultural land.

5.3.14 In order to channelise greater resources for rainfed areas, the Watershed Development Fund (WDF) was set up in 2000-01 at the National Bank for Agriculture and Rural Development (NABARD) with a corpus of Rs. 200 crore. The fund is to be used for integrated watershed development in 100 priority districts across 14 states in a phased manner through a participatory approach. Six states, -- Andhra Pradesh, Maharashtra, Gujarat, Madhya Pradesh, Orissa and Uttar Pradesh--would be covered in the first phase. In the second phase, the programme would be extended to Bihar, Kerala, Rajasthan, Tamil Nadu, Jammu and Kashmir, West Bengal, Himachal Pradesh and Haryana.

5.3.15 In the Ninth Plan, special attention was given to the control of shifting cultivation in the north-east both by the Ministry of Agriculture and by the Department of Land Resources (DoLR). These initiatives were underpinned by the Government's resolve to allocate 10 per cent of the Plan resources for the development of the north-eastern states. The Watershed Development Programme in Shifting Cultivation Areas (WDPSCA), first launched during the Fifth Plan as a pilot project, was revived in 1994-95 for the north-eastern states, including Sikkim. The programme seeks to control shifting cultivation practices and settle the jhumia families on a permanent basis. The DoLR gave special attention to the development of degraded lands under the IWDP in the north-east and 81 projects

were sanctioned for treatment of 6.87 lakh hectares. A sum of Rs. 93.75 crore was released during the Plan period for these projects.

5.3.16 Two centrally sponsored schemes for soil conservation and integrated watershed management in the catchments of flood-prone regions are being implemented. The schemes were aimed at enhancing productivity of degraded lands, minimising siltation of reservoirs and chances of floods in flood-prone rivers. During the Ninth Plan, both schemes were merged into a new one -- 'Soil Conservation for Enhancing Productivity of Degraded Lands in the Catchment of River Valley Projects and Flood Prone Rivers'. The scheme is being implemented in 45 catchments spread over 20 states. The scheme for reclamation of alkali soil was extended to all states in the Ninth Plan. The scheme relates to treatment of land affected by alkalinity. It attempts to improve land and crop productivity by taking up production of crops suitable to the soil conditions, with farmers being encouraged to take up horticulture, fuel wood plantation and fodder species.

5.3.17 The fragile eco-system of the Western Ghats and other hills is a cause for concern. The Western Ghats Development Project (WGDP) and the Hill Area Development Programme (HADP) are aimed at restoration and preservation of the ecology of identified hill areas. Sustainable use of resources in these areas and preservation of their bio-diversity is a prime consideration. The programmes seek to provide livelihood to the people of the hill areas without disturbing the ecology of the region. Hence projects for the development of minor irrigation, dairy development, animal husbandry, agricultural development, afforestation, non-conventional energy sources and other activities for generation of employment and enhancing incomes are taken up.

5.3.18 The programmes for the development of degraded and wastelands got a major boost during the Ninth Plan period. Table 5.3.2 provides information on the physical and financial performance under different programmes that promote development of degraded and wastelands.

Table: 5.3.2
Area Treated/Reclaimed under Watershed Development Programmes

Sl.No.	Scheme	Year of Start of Scheme	Up to Eighth Plan		During first four years of the Ninth Plan (1997-98 to 2000-01)	
			Area Treated (Lakh ha)	Total Investment (Rs. crore)	Area Treated (Lakh ha)	Total Investment (Rs. crore)
1	2	3	4	5	6	7
I DEPARTMENT OF AGRICULTURE & COOPERATION						
(i)	NWDPRA	1990-91	42.33	967.93	21.19	792.15
(ii)	RVP & FPR	1962 & 1981	38.89	819.95	8.17	470.14
(iii)	WDPSA	1974-75	0.74	93.73	1.30	63.40
(iv)	Alkali Soil	1985-86	4.84	62.29	1.00	13.75
(v)	EAPs		10.00	646.00	5.00*	1,425.00*
	Sub Total	96.70	2,589.90	36.66	2,764.44	
II DEPARTMENT OF LAND RESOURCES#						
(i)	DPAP	1973-74	68.60	1,109.95	44.94	657.31
(ii)	DDP	1977-78	8.48	722.79	24.77	518.67
(iii)	IWDP	1989-90	2.84	216.16	35.65	496.32
(iv)	Sub Total		79.92	2048.90	105.36	1672.30
III MINISTRY OF ENVIRONMENT & FORESTS						
(i)	IAEPS	1989-90	2.98	203.12	1.23	141.54

* Likely achievement during the Ninth Plan,; DAC, DOLR and MoE&F

Figures for DOLR given under column 6 & 7 are for Ninth Plan Period (1997-98 to 2001-02)

Box 5.3.2: Assessment of Watershed Development Programme in Gujarat

Assessment of Watershed Development Programme in Gujarat was conducted in four watersheds, of which two were in plain / non-tribal district of Panchmahal and two were in the district of Dahod dominated by the tribals.

The study assessed the impact of watershed projects on rehabilitating the natural resource base of the project area and impact on availability of food, fodder / fuel, income and employment of the inhabitants, especially the poorer and disadvantaged groups.

The study reveals that activities like land leveling / bunding, water resource development, drainage line treatment and tree plantations significantly improved the soil moisture, and led to increase in crop area and improvement in crop yield in all four watersheds.

The increase in crop productivity / yield is evident from the following tables:

(Percentage of all farmers / cultivators)

Sl.	Crop yield information	Watershed Numbers				All WS
		I	I	III	IV	
1	Increased yield reported	83.9	100.0	85.2	100.0	92.8
2	Extent of yield increase					
(a)	Upto 5%	0.0	80.6	8.7	0.0	23.3
(b)	6-10%	15.4	12.9	30.4	0.0	12.9
(c)	11-25%	73.1	6.5	52.2	0.0	28.4
(d)	26-50%	11.5	0.0	8.7	2.8	5.2
(e)	51-100%	0.0	0.0	0.0	75.0	23.3
(f)	Above 100%	0.0	0.0	0.0	22.2	6.9
Sl.	Crop yield of cereal and pulses	Watershed Numbers				
		I	I	III	IV	
1	Before Project					
(a)	Cereal (maize): kg/acre	800	1000	750	600	
(b)	Pulses (gram): kg/acre	250	300	200	180	
2	After Project (1998-99)					
(a)	Cereal (maize): kg/acre	1000	1100	1000	1000	
(b)	Pulses (gram): kg/acre	350	350	300	300	
3	% increase in yield					
(a)	Cereal (maize)	25	10	33	67	
(b)	Pulses (gram)	40	17	50	67	

The programme had a significant positive impact on creation of employment opportunities for the villagers, both landless as well as landowners. The overall perception of sample households consisting of both landless and landowner was that increased employment benefit is the most favourable impact of the watershed programme followed by improvement in ground water table.

However about 90 per cent of the development activities / expenditure are confined to private crop land and major benefits flow to land owing class. Absence of non-farm development activities has an adverse effect on the socio-economic condition of poor. Exclusion of poor from benefits also affects the maintenance of watershed structures and other assets adversely as they have no stake in sustaining these structures.

Source : Policy and Development Initiatives, Vadodra, Gujarat

5.3.19 Programmes of wasteland development have been evaluated for their impact on the project area and the findings present a mixed picture. Increase in crop productivity and bio-mass production, have been reported in successful projects. Box 5.3.2 summarises the findings of one of the evaluation studies and this scheme can be replicated elsewhere.

5.3.20 It is widely accepted that successful watershed projects make a significant difference to the quality of life in rural areas. However, there are major weaknesses in the implementation of these programmes. The Mid-term Appraisal of the Ninth Plan highlighted some of the major concerns in this field (Box 5.3.3).

Box 5.3.3:

Watershed Programmes : Key concerns

- Lack of people's participation.
- Field staff unfamiliar with participatory approaches.
- Insecurity about fund availability at the grass root level.
- Limited time for preparatory activities.
- Little emphasis on cohesive group formation.
- Lack of transparent criteria for selecting areas and villages.
- Limited human resource capabilities.
- Lack of involvement of senior government functionaries and line agencies.
- Weak horizontal linkages among various agencies at the district level.
- No exist protocol for withdrawal after project completion.
- Plethora of watershed development programmes with different guidelines and cost norms

Source : Mid Term Appraisal of Ninth Five Year Plan

5.3.21 Given the findings of the Mid-Term Appraisal, there was a rethinking on the structure of watershed programmes in the last two years of the Ninth Plan period. The Central ministries evolved a common guideline, which clearly

delineates the specific responsibility of the ministries. Box 5.3.4 highlights the important elements of the common approach.

Box 5.3.4

Common Approach to Watershed Development

- Convergence on selected programme components/activities with commonality in approach.
- Rationalisation of unit cost norms depending on the nature of programme content, work items and institutional arrangements.
- Feasibility of territorial delineation to be decided in terms of eligibility criteria, ministerial mandate, programme focus and development objectives.
- Scope for enlarging the process of capacity building involving local bodies, non governmental organisations (NGOs), community groups and extension functionaries.
- Broad basing of financial resources through inter-institutional credit linkages.
- Unified approach supporting programme measures and building suitable institutional framework for ensuring long-term sustainability.

Source : Common Approach to Watershed Development: Ministry of Agriculture, March 2002.

5.3.22 Area Development Programmes have emerged as one of the major anti-poverty programmes during the Ninth Plan. However, the vast physical spread of degraded lands indicates that greater efforts would have to be made to bring all the degraded lands under treatment.

TENTH PLAN STRATEGY

5.3.23 The Planning Commission had set up a committee in February 1997 to prepare a 25-year perspective plan for the development of rainfed areas. The committee submitted its report in April 1997. It highlighted the resource base and development potential of rainfed areas in different agro-climatic zones and the major constraints in

realising it. It examined past approaches to development of rainfed areas and suggested a perspective plan for the treatment of degraded and rainfed areas in the country over 25 years. The main objective of the plan was elimination of poverty and unemployment and realisation of the full growth and development potential. The plan made a strong plea for a participatory approach to watershed development and the use of appropriate technologies in micro watersheds. It recommended that people be empowered to select technologies in view of their experiences. In addition to giving detailed guidelines on agriculture diversification in different zones, the plan also emphasised the need for a coordinated approach to the development of degraded lands in the country.

5.3.24 During the Ninth Plan, programmes for wasteland development were revamped to incorporate the major recommendations of the '25-year Perspective Plan for the development of rainfed areas'. Convergence of programme components and a common approach with clearly delineated responsibilities were accomplished during the Plan period. Warasa-Jan Sahbhagita guidelines for NWDPR, issued by Ministry of Agriculture and Guidelines for Watershed Development (Revised-2001) issued by Ministry of Rural Development internalise the new approach. The Tenth Plan would carry this process forward with greater allocation of physical and financial resources. Watershed Development Programmes would be an important part of the anti-poverty strategy. The development of the wastelands, degraded lands and rainfed areas would be implemented in an integrated manner. These lands would be used for food crops, horticulture, agro-forestry and social forestry depending on the soil characteristics. Concerns regarding restoration of ecological balance and augmentation of biomass production would drive the programmes.

5.3.25 The watershed programmes are important for bringing land area under tree cover. The Tenth Plan has set an ambitious target for afforestation. Even with the afforestation of degraded forestland to be taken up during the

Plan period, the forest cover would fall short of the target. Close to 30 million hectares of nonforest land would have to be brought under tree cover to achieve the afforestation programme. It is necessary to create an environment that encourages people to grow trees on their farmland. Marginal lands are not suitable for crop production but they could be brought under tree crops with technical inputs.

5.3.26 Promotion of farm-forestry and agroforestry on marginal lands has to be encouraged. The marginal lands and lands with slopes of more than one degree are ideally suited for tree crops. However, the food requirements of the farmers force them to put these lands under crop production. Crop production on such lands is not only inefficient but it also contributes to the degradation. To encourage the farmers to put their marginal lands under tree crops, the country's abundant food grain stocks could be leveraged to provide assured food supply to the farmers. It is essential to disseminate innovative technologies in the rural areas along with the provision of quality planting material, credit and marketing infrastructure. States would be persuaded to explore these possibilities in the Tenth Plan.

5.3.27 Watershed programmes would require significant upscaling during the Tenth Plan to prevent further land degradation and for the restoration of the carrying capacity of lands that are classified as degraded. The Working Group on Watershed Development, Rainfed Farming and Natural Resource Management for the Tenth Plan had projected that 107 m ha of land in the country are subject to degradation. A total of 27.5 m ha was expected to be treated under different programmes by the end of the Ninth Plan. In addition, uplands in low rainfall areas also require water and soil conservation measures. It is estimated that 88.5 m ha would have to be treated under watershed programmes in the Tenth and subsequent Plan periods. These estimates also include the forest areas that need afforestation. The 20-year Perspective Plan envisaged by the Working Group for treatment of degraded lands during the Tenth to Thirteenth Plan is presented in Table 5.3.3:

Table 5.3.3
Watershed Development Programme during the Five Year Plans

(Rs. crore)

Five Year Plan	Area covered (million ha)	Estimated Cost of development (Rs./ha)	Total Cost	Cost sharing Ratio*	By Centre	By States	By People
Tenth Plan (2002-07)	15.0	5,000-7,000	9000	50:25:25	4,500	2,250	2,250
Eleventh Plan (2007-12)	20.0	6,000-8,000	14000	40:30:30	5,600	4,200	4,200
Twelfth Plan (2012-17)	25.0	7,500-9,500	21250	30:30:40	6,375	6,375	8,500
Thirteenth Plan (2017-22)	28.5	9,000-11,000	28500	25:25:50	7,125	7,125	14,250
Total	88.5		72,750		23,600	19,950	29,200

*Cost-sharing ratio between Centre, States and people/community

5.3.28 The Perspective Plan emphasizes the fact that the watershed development programme would have to become a people's movement in order to succeed. The people have to grow out of the culture of dependence on government funds in the form of grants, loans and subsidies. The cost of development has to be shared between the Centre, states and the community.

5.3.29 The Mid-term Appraisal of the Ninth Plan had highlighted the characteristics of successful watershed projects (Box 5.3.5).

5.3.30 The factors that make for a watershed project successful have been incorporated in the 'Watershed Plus' approach to watershed development. In the Tenth Plan, the watershed programme would be implemented on this basis. Box 5.3.6 highlights the new paradigm of Watershed Plus development.

5.3.31 The basic objective of the watershed programmes would be "holistic development seeking sustainable livelihood security system for all life forms in the area". There is no conflict between production systems and the need for conservation measures. The conservation

Box : 5.3.5

Successful Watershed Projects

- They devote significant resources to social issues.
- A high proportion of staff members have experience and skills in social mobilisation.
- Project leaders are fully committed to participation and, in most cases; donors or senior officials apply pressure to ensure participatory approaches.
- Project monitoring explicitly checks whether local organisations of users have been formed.
- Staff members have an incentive to undertake participation.
- Communities, being organised, have capacity to influence how the field staff work.

Source : Mid Term Appraisal of Ninth Five Year Plan

measures and production systems would have to be conceptualised in the relationship of means and ends, i.e. conservation measures as means and production systems as ends. The conservation

Box 5.3.6 :
Watershed Plus

Watershed programmes have been implemented in the country under schemes initiated by the Central Government. Many states have taken up development of degraded areas under the watershed approach on a mission mode. NGOs have played a major role in the regeneration of degraded lands in order to increase the carrying capacity of the land and water resources for ensuring sustainable livelihood opportunities and food security for the rural poor. A paradigm shift in the approach to watershed development came in 1995-96 with the adoption of revised guidelines in line with the Technical Committee Report headed by Dr. C.H.H Hanumantha Rao. The new paradigm of Watershed Plus recognises the need to involve the community as a necessary condition for the sustainability of a watershed programme. Watershed development is not just a technical project but encompasses a social programme as well. The inclusion of women and vulnerable groups and a strong focus on equity is what distinguishes the Watershed Plus approach from previous watershed programmes. The programme seeks to ensure convergence of all other programmes that promote economic activities and generate increased employment opportunities. Conscious efforts to promote non-farm employment and increased land access for the landless as well as promotion of self-help groups form a part of the new approach.

The revised programme guidelines seeking to operationalise the Watershed Plus philosophy issued by the Department of Land Resources, Ministry of Rural Development, in 2001 provide for:

- A programme-specific and focused project approach.
- Greater flexibility in implementation.
- Well-defined role for state, district and village level institutions.
- Removal of overlaps.
- A provision for keeping the watershed development projects on probation
- An exit protocol for the project implementing agencies (PIAs)
- A twin track approach that provides for short term and long term benefits in the implementation of projects
- A combination of government organisations/NGOs as PIA
- A greater role for women
- An effective role for the panchayati raj institutions (PRIs)
- Bringing self-help groups comprising rural poor, especially those belonging to SC/ST categories to the forefront
- Establishing a credit facility from financial institutions
- Transparency in implementation
- Effective use of remote sensing data furnished by the National Remote Sensing Agency.

Source : Department of Land Resources, Ministry of Rural Development, Government of India

measures would have to be integrated in a framework that enhances the production of people's basic needs. Conservation practices that compromise on people's requirements would be unsustainable in the long run. Improved land management and sustainable production through good land harnessing techniques would be encouraged.

5.3.32 Rainwater harvesting and conservation would be the focus of development planning in this context. Use of indigenous technology and local materials would be promoted. Construction of check-dams in the lower reaches of water sources is expensive and its benefits are restricted. A series of small structures for water harvesting in the watershed area would be undertaken to reduce costs and maximise of benefits from watershed projects. The existing village ponds and tanks that have got silted over the years would be desilted on a priority basis during the Plan period. Rainwater management should also take into consideration multiple uses of water such as drinking, domestic use, livestock and irrigation requirements. Equitable distribution of water should be a part of the water management policy.

5.3.33 The technical specifications of watershed projects vary from one region to the other. Hence no single model for watershed could be specified. Evaluation studies have shown that the watershed structures were damaged within a short time of their construction, as the technical parameters of these structures were unsound. Weirs and other structures did not conform to the contour lines of the area and in many cases, topographic factors were ignored. Robust technical design and execution of the projects should therefore receive priority. There is no contradiction between the need for technical excellence and people's participation. This aspect would have to be reinforced to ensure the sustainability of the structures that are created in the watershed. Training programmes to educate people in this regard will have to be undertaken in collaboration with technical institutions and NGOs, which have the requisite expertise in this field.

5.3.34 Adoption of water conservation technologies for irrigation in watershed areas of low or scanty rainfall have to be promoted. Investments

in drip irrigation, sprinkler irrigation and in research for crop varieties and irrigation systems specific to different agro-climatic regions are important and would receive greater attention at the planning stage. Indigenous cropping systems in the rainfed areas were developed keeping in mind the availability of water and quality of soils in these areas. Many of the crop varieties that were suitable in these areas have been ignored with the advent of new agricultural technologies. The emphasis on cereal production has also seen a disruption in the complex interaction between food and non-food crops in these areas. There is a need for greater investment in research for augmenting production potential of the indigenous crop varieties suited for rainfed areas.

5.3.35 Resource-poor areas support activities that provide low-wage refuge employment. In an agriculturally prosperous area, on the other hand, though the proportion of income from non-farm employment is low, the level of non-farm income is higher as people are engaged in activities that service a dynamic agriculture. With the successful completion of a watershed project, farmers adopt intensive agricultural practices and it, therefore, becomes necessary to equip people with technical skills so that they can cope with the requirements of a growing agricultural sector. Training needs, credit facilities, and creation of agro-processing infrastructure for value-addition must be provided. Banking and insurance facilities, veterinary services and other related services would be provided to the underdeveloped regions for the expected benefits of watershed development to materialise. Though the guidelines on watershed projects mention the need for ensuring these linkages, the progress has not been satisfactory. The convergence of other programmes in a watershed area would be given priority in the Tenth Plan.

5.3.36 Direct gains from a watershed project accrue largely to the landholders. Marginal farmers and agricultural labourers benefit from the increased agricultural activity that expands employment opportunities. If benefits from the watershed project are not specifically channelised to these groups, in terms of greater access to CPRs and fodder for their cattle and fuel requirements, there is little incentive for them to cooperate in the rejuvenation

of the CPRs through social fencing or any other method that the community might choose. The issue of equitable distribution of gains, therefore, is crucial to the long-term sustainability of the project. Providing access to land to the marginal farmers and landless agricultural labourers through rights on harvested water could be one way of accomplishing this. A mandatory sharing of water by all residents could also be one of the preconditions for selecting a village for a watershed development project.

5.3.37 Water, fodder and fuel have always been the responsibility of women in the rural areas. Even those watershed projects that do not address the concerns of women in terms of their role in the decision-making and employment opportunities make their life easier by increasing the availability of water, fuel and fodder in the vicinity of the villages. This reduces the burden of domestic chores on women, giving them more free time. It is, therefore, necessary to provide creative employment opportunities for women. Training programmes that impart skills, improve access to credit and marketing facilities and other support service would have to be arranged for them.

5.3.38 Watershed Committees handle the day-to-day management of the project. However, panchayat members have no designated role in project implementation. Given the scale of financial assistance for a watershed project, money becomes a bone of contention between panchayats and the Watershed Committee members. This issue would have to be resolved. Similarly, NGOs have played a major role in regeneration of degraded lands in a number of states. In fact, most of the successful watershed projects have been implemented by the NGOs. Annasaheb Hazare's experiments in Ralegaon Siddhi, Tarun Bharat Sangh's work in Rajasthan, MYRADA in Karnataka, Sadguru Foundation in Gujarat are a few shining examples of the excellent work done by the NGOs. These need to be enlarged in the Tenth Plan in order to bring more land under watershed projects. NGOs would, therefore, do well to forge a partnership with the PRIs in order to carry this programme further.

5.3.39 Since the extent of degradation of land and area under wasteland in the country is a matter of

conjecture, a complete census of degraded or wasteland -- its location, extent of area, ownership, the vegetative cover currently available and the chemical properties of land - needs to be done in order to formulate an appropriate treatment plan. Similarly, in spite of a number of schemes for the development of wasteland/degraded lands, there is a lack of authentic information on the extent of land treated under different schemes. A Management Information System (MIS) with clearly defined benchmarks indicating the type of structures created, the area of land treatment, increase in water table and other relevant parameters needs to be designed to get a realistic picture of the progress achieved and the tasks ahead. The creation of a National Management Information System for natural resource management would be given priority during the Plan.

5.3.40 The allocation for Tenth Plan for various centrally sponsored and central sector schemes operated by the Department of Land Resources is given in the Appendix. Allocation for watershed schemes operated by the Department of Agriculture & Cooperation is not shown separately as these schemes have been subsumed under macro management.

THE PATH AHEAD

- A National Policy on Land Resources Management would be formulated for optimum management of land resources to meet socio-economic demands. The policy would also promote an institutional framework that would encourage the productive utilisation of land.
- Programmes relating to conservation, development and management of land resources are handled by different Central Ministries and Departments. In order to bring about an effective administrative mechanism to manage land resources in the country, all the land programmes/schemes would be brought under the umbrella of one coordinating agency.
- To tackle the rapidly declining water table and prevalence of dry conditions in many parts of

the country, traditional methods of harvesting and conservation of water will be encouraged. During the Tenth Plan, existing village ponds, tank other harvesting structures would be restored in a campaign mode by involving PRIs, NGOs and Self-Help Groups (SHG).

- Land and forest regeneration programmes need to be appropriately planned on a micro-watershed basis. The size of the watershed should be such that local communities can relate to it. An adequate preparatory period would be provided to ensure proper planning. The financial, economic and social needs of the stakeholders must be taken into account.
- The corporate sector would be involved in restoring wastelands and reclaiming degraded lands. Sharing arrangements would need to be worked out on public lands while farm forestry would be encouraged on private wastelands. A new initiative on wasteland development would be launched to channelise greater resources to this area through the involvement of financial institutions. Projects in forest and community wastelands would be taken for development under the new initiative.
- Capacity building is needed for Government and user communities through training programmes and awareness campaigns. Government officials would be sensitized to

involve the local population in regeneration programmes.

- A comprehensive regional land use database would be created and made accessible. The land use data would be generated using new technologies, such as remote sensing, and in consultation with the local people who are familiar with the ground realities.
- In collaboration with the NRSA, the DoLR has released a Wasteland Atlas of India in March 2000. The Atlas presents district level information on 13 categories of wastelands. During the Tenth Plan it is proposed to undertake periodical updation of the Wasteland Atlas and Annual Status of Land Records.
- In setting priorities for land use planning and management, it may be useful to identify and assess 'hot spots' of land degradation so that they get maximum benefits from the limited resources available. A focus on critical problems, on areas where population pressure is causing land degradation and conflict, and on 'critical interfaces' or boundaries between different land uses, is essential to avoid irreversible damage to the eco-system as it may lead major socio-economic problems. These key concerns would form the basic thrust of wasteland development during the Tenth Plan.

CHAPTER 5.4

KHADI & VILLAGE INDUSTRIES

5.4.1 With the liberalisation and globalisation of the economy and the removal of quantitative restrictions, the smaller units of the khadi and village industry sector are facing stiff competition. A large portion of India's population lives in the villages where illiteracy still prevails and large industry is not in a position to absorb the work force from rural areas. In view of this, it is necessary to create more employment opportunities in villages by utilising local resources and skills so that rural people can get work in the villages itself.

5.4.2 This would also reduce the migration of unemployed rural youths to urban areas in search of jobs. Only a few of them get absorbed in urban areas and this constant flow of people to urban areas has put the existing civic infrastructure under severe pressure. As a result, the number of jhuggi-jhonpari clusters and slum dwellers in urban areas is steadily increasing. The khadi and village industry sector has got the potential to create new jobs in rural areas. During the Ninth Plan period, new policy measures were provided to the sector for enhancing production and employment.

5.4.3 A committee on strengthening of the khadi and village industries sector was set up under the chairmanship of Shri K.C. Pant, Deputy Chairman, Planning Commission. The report of the Pant Committee, submitted in November 2001, recommended a special package for the development of the sector. The Ministry of Agro and Rural Industries, which is the nodal ministry for the khadi and village industry sector, is implementing this package. The package includes: (i) providing the option of market development assistance (MDA) or rebate for khadi cloth; (ii) continuity of rebate/MDA for five years; (iii) creation of a database for the sector; and (iv) intensive marketing support so that the sector may fulfil the objectives of generating rural employment and improving the quality of life of the rural people.

5.4.4 The performance of the khadi and village industries is in Table 5.4.1 while the Ninth Plan expenditure and outlay for the Tenth Plan and Annual Plan 2002-03 are indicated in Table 5.4.2. The Schemewise break up of Tenth Plan outlay is given in the Appendix. The export of village industry products, which was Rs. 13.83 crore in 1994-95 reached Rs.29.66 crore by 1999-2000 and is

Table No.5.4.1
Performance of the Khadi & Village Industries Sector
Production, Employment and Exports

(Rs. crore)

S. No.	Sub-Sector (Scheme)	Unit	Ninth Plan Actual Achievement				2001-02 (Anti.)	Tenth Plan Target	
			1997-98	1998-99	1999-00	2000-01		2002-03	2006-07 Terminal Year.
(A) Production									
1	Khadi cloth	Rs. crore	624	636	552	432	444	457	750
2	Village industries	Rs. crore	3,895	4,477	5,613	5,914	7,141	6,810	12,500
(B) Employment									
1	Khadi & Village Industries	persons million	5.65	5.82	5.92	6.0	6.6	7.02	8.95

Table No.5.4.2
Plan Outlay/Expenditure of the Khadi and Village Industries

(Rs. crore)

S.No	Sub-Sector (Scheme)	Ninth Plan Actual Expenditure					Ninth Plan (Expdr)	Tenth Plan	
		1997-98	1998-99	1999-00	2000-01	2001-02 (anti.)		2002-03	2002-07
M/o Agro & Rural Industries									
1	Khadi & Village Industries.	440.78	346.23	201.93	261.48	330.00	1,580.42	392.00	2,080.00
2	NPRI						—	1.00	5.00
	Total	440.78	346.23	201.93	261.48	330.00	1,580.42	393.00	2,085.00

expected to touch Rs. 35 crore by the terminal year of the Tenth Plan.

5.4.5 In the areas of research and development (R&D), various sponsored projects were taken up and funded by the Khadi and Village Industries Commission (KVIC) from the science and technology grant from the Department of Science and Technology. The Jamnalal Bajaj Central Research Institute (JBCRI), Wardha, one of the prominent R&D institutes under the KVIC, is in the process of being revamped. It is proposed to upgrade JBCRI to the National Institute of Rural Industrialisation (NIRI), involving an estimated expenditure of Rs. 8 crore.

5.4.6 Some of the technologies developed by the R&D institutions under the KVIC are:

- High productive 6, 8 and 12 spindle all steel new model charkha (NMC).
- Development of semi-automatic and Nepali looms for weaving.
- Development of nine spindle charkhas for muslin khadi.
- Production system for 500 and 600 counts muslin khadi.
- New shades of herbal dyes.
- Suitable and modern Jacquard looms for weaving.
- Improvement in loom for northeastern states.
- Production of portable Ghani for vegetable oil extraction.
- Isolation and naturalising of bitter aspect from neem.
- Isolation of various components from sunflower cake.
- Development of LYMPO bricks from ash of rice husk and broken brick lumps.
- Formulation of new herbal formulations and herbal soaps.
- Development of bio-manure, bio pesticides and bio insecticides.
- Use of non-edible oils in soap formulations.
- Use of cashew nut liquid in rubber manufacturing.
- Use of different fibres in hand made paper.
- Decorticators for oil seeds and pulses.
- Development of paddy de-huskers and rice polishers
- Improvement of the potter wheel.
- New technology for tile making.
- Neera preservation.

- Value added products of honey, bakery and fruit products.
- Curing of bee diseases and artificial insemination of bees.

5.4.7 Over the years, the production of khadi cloth has been on the decline. Hence employment in this area is also falling. However, production and employment in village industries have grown from Rs. 3,895 crore in 1997-98 to Rs. 7,140.52 crore in 2001-02 and new job creation has been reported. The main reasons for the poor performance in khadi production were (a) uncertainty over the continuation of the rebate policy for khadi, which upset the production schedule and output of khadi producers; (b) high stock of unsold khadi and mismatch in khadi production; (c) the project finance approach adopted in place of existing pattern approach for village industries units took the rural entrepreneurs some time to get used to; and (d) there was a shortfall in availing funds from banks and budgetary resources.

5.4.8 In a major initiative during the Ninth Plan, the marketing of a select range of village industry products was launched under the brand name 'Sarvodaya', with a focus on quality. The National Institute of Design (NID), Ahmedabad, has been entrusted with a project to introduce new and trendy designs in khadi. New designs developed by the National Institute of Fashion Technology (NIFT), New Delhi, would be taken up for production by khadi industries. These initiatives are expected to improve the demand for khadi and to boost production and employment.

5.4.9 Apart from announcing the khadi package in line with the recommendations of the Pant Committee, the Government would emphasise on the concept of 'No Loss' against the earlier concept of 'No Profit' in order to strengthen the khadi and village industries and to make the sector viable and vibrant.

5.4.10 In 1994, the High Powered Committee to examine and suggest appropriate policy support to strengthen the khadi and village industry sector under the then Prime Minister had envisaged the creation of two million jobs in the khadi and village

industries sector during the Eighth Plan. This was to be done by the Rural Employment Generation Programme (REGP) and the KVIC was to be the implementing agency. Taking into account the progress of job creation, the target for REGP has been revised and a total of 1.5 million jobs was envisaged to be created by the end of the Ninth Plan. Till 31 March 2001, one million jobs had been created in the sector under REGP. During the Tenth Plan period, two million new jobs would be created in the khadi and village industries sector. The targets for khadi and village industries for the terminal year of the Tenth Plan are given in Table 5.4.1.

5.4.11 Since 1995-96, under the REGP, 25 per cent of the project cost is provided as margin money for projects that cost upto Rs. 10 lakh. For projects costing between Rs. 10 and 25 lakh, an additional 10 per cent of the remaining cost of the projects is also provided as margin money. For the northeastern region, Sikkim, Andaman & Nicobar Islands, Lakshadweep, hill areas, border areas, tribal areas and for weaker sections (scheduled castes, scheduled tribes, other backward classes, women/physically handicapped/ex-servicemen and minority community beneficiary/institution), margin money is provided at 30 per cent of the project cost. Initially, institutional financing was made available to KVIC in the form of a line of credit of Rs. 1,000 crore, popularly known as Consortium Bank Credit (CBC). Till 31 March 2002, the KVIC had utilised Rs. 738.14 crore for the creation of new jobs in the khadi and village industries sector.

5.4.12 In order to extend the quality control network of the sector, 17 national level laboratories have been identified. These laboratories have been accorded accreditation for testing and standardisation of khadi and village industries products and will cater to the needs of local artisans as well as institutions.

5.4.13 Marketing is the key to the success of any product. KVIC is providing the necessary marketing inputs to the khadi and village industries sector for both domestic as well as export marketing. Its main focus, however, is on domestic marketing. Financial assistance is provided to directly aided institutions, State/Union Territory KVI Boards and their aided

organisations for setting up sales outlets, renovation or expansion of existing sales outlets, purchase of mobile vans and organising exhibitions to create awareness about khadi and village industries products. KVIC has been participating in international exhibitions being organised by the India Trade Promotion Organisation (ITPO). Representatives of non-government organisations (NGOs) and KVI Boards are provided financial assistance for ITPO exhibitions. Khadi Gramodyog Bhawans are proposed to be opened in countries like the United States, the United Kingdom, Germany, South Africa, etc. for export promotion. Accordingly Export Promotion Council (EPC) status for khadi and village industry product exports is being envisaged.

5.4.14 An 8 per cent per annum growth in khadi cloth production has been envisaged during the Tenth Plan period. Employment in khadi industries is expected to increase at 3 per cent per annum and major efforts would be made up to improve the quality and value of khadi production by focusing upon design inputs and improving the quality of khadi cloth. Anti-crease treatment for khadi cloth would be achieved by technology tie-up with renowned laboratories and research institutions. Khadi institutions would be strengthened to become economically viable by developing backward and forward linkages.

5.4.15 In order to increase the earnings of khadi artisans attention would need to be given on ensuring higher productivity by introducing improved tools and equipments. Programmes to upgrade skills through training for khadi artisans would be taken up. Use of improved tools and techniques would encourage artisans to produce value-added khadi cloth items, decoratives, etc. With an eye on developing a niche market for khadi, it is proposed to restructure and strengthen the marketing strategy.

5.4.16 For village industries efforts would be made to provide adequate finance, tax exemptions, particularly in sales tax, octroi, purchase tax, etc. Awareness would be generated in village industries about the Margin Money Scheme of the KVIC and to prepare economically viable and bankable projects by village industries entrepreneurs. Efforts

would be made to increase full time employment in village industries and enable the artisans to produce items round the year. Special quality assurance and product development programmes would need to be taken up for village industries to increase their marketability. Cluster development of village industries need to be undertaken in a way that makes all inputs available at one place and provides marketing inputs to increase sales of village industries units.

5.4.17 Technology interfaces are proposed to be established in the Tenth Plan to disseminate information as well as function as technology adoption centres. One-time financial assistance would be provided to such technology interfaces. The technologists/scientists and experts attached to these interfaces will interact with the local institutions, individuals and artisans for on-the-spot assessment of their technology-related or technical problems. NIRI would act as the coordinating agency for all such technology interfaces.

Box:5.4.1

MAIN STRATEGIES OF THE KHADI AND VILLAGE INDUSTRIES SECTOR FOR THE TENTH PLAN

- Provide employment to rural people in villages.
- Produce saleable/marketable products
- Creating self-reliance amongst people and building up of a strong rural community
- More emphasis on 'No Loss' instead of 'No Profit' by khadi and village industries organisations/institutions

5.4.18 In the Tenth Plan, it is proposed to set up rural industrial estates and artisan clusters to provide necessary infrastructure and support services to the village industries. Developed land, power, water, common facility centres, training and skill upgradation centres, design and quality inputs and common packaging facilities would be provided at such clusters. The Common Facility Centres would be managed by the implementing agency for the industrial estate. Financial assistance would be provided to Common Facility Centres by KVIC or by agencies like the National Bank for Agriculture and Rural Development

(NABARD), Small Industries Development Bank of India (SIDBI), Council for the Advancement of People's Action and Rural Technology (CAPART), etc.

National Programme for Rural Industrialisation

5.4.19 Under the National Programme for Rural Industrialisation (NPRI), 50 clusters have been identified by the KVIC for cluster development. Twelve clusters were taken up in 1999-2000, out of which five have commenced production. Further work on the promotion of clusters for increasing rural employment and establishment of backward and forward linkages, setting up of Common Facility Centres, common service network support for satellite cluster units, etc, have been taken up by the KVIC.

THE PATH AHEAD

5.4.20 The Tenth Plan strategies for the khadi and village industries sector would include: (a) generation of additional employment in rural areas; (b) adoption of market-oriented production plan; (c) creation of self-employment in rural areas and building up of rural communities by fully utilising local resources, raw materials and manpower; and (d) adoption of 'no loss' practice by khadi and village

industries units instead of the present 'no profit' policy.

5.4.21 Rural industrial estates are proposed to be set up in the Tenth Plan to provide the required infrastructure and support services to village industries and artisan units. Growth of khadi cloth is expected to be 8 per cent in value terms and the sector is expected to see a 3 per cent growth in employment generation. Khadi producing institutions would need to be strengthened to become economically viable by developing backward and forward linkages. Cluster development approach would be adopted for the growth of village industries to achieve the Tenth Plan targets. A network of quality control laboratories would be necessary to provide testing facilities and standardisation of quality for village industries. Setting up of technology interfaces to serve as information dissemination and technology adoption centres would also be required for village industries.

5.4.22 More rural/village industry clusters would be taken up under the NPRI for higher production and employment generation in these clusters. The cluster development programme would envisage the establishment of backward and forward linkages, setting up of common facility centres and common service network support for satellite cluster units.

CHAPTER 5.5

RURAL WATER SUPPLY AND SANITATION

5.5.1 In line with the National Agenda for Governance, safe drinking water is to be provided in accordance with the stipulated norms on a sustainable basis to all habitations by March 2004. This is also one of the monitorable targets in the Approach Paper for the Tenth Plan.

5.5.2 The 54th round of National Sample Survey (July 1999) on drinking water, sanitation and hygiene in India provides data relating to source, quality etc. of drinking water, and conditions of sanitation and hygiene of households. This data was collected in the first half of 1998. Around 50 per cent of rural households were served by a tubewell/hand pump, 26 per cent by a well, and 19 per cent by tap. Only about 31 per cent of rural households reported having their source of water within their premises, the rest had to go out to fetch their drinking water. About 60 per cent did not have to go beyond 0.2 km for this. Seasonal disruption of supply was common, especially in the summer months. Households still depended on supplementary sources, especially where tubewell or handpump was the main source. Practices of filtering or boiling water before drinking were almost non-existent.

5.5.3 States have reported that more than 95 per cent coverage has been achieved. However, reliable data on the ground reality of rural water supply is lacking. A re-assessment survey of rural habitations has become necessary and the data should be updated periodically through a 'Return Filing' system whereby each panchayati raj institution (PRI) will report on the status of these services in its area. Random sampling will need to be done to validate this. In view of the importance of basic data, however, Central assistance for PRIs and urban local bodies (ULBs) could be made conditional on a 'Return Filing' system being established.

5.5.4 The following priorities will be set for achieving the objective of providing safe drinking water supply to all rural habitations:

- i. Highest priority to be given to ensuring that the 'not covered' habitations are provided with sustainable and stipulated supply of drinking water.
- ii. It will be equally important to ensure that all the 'partially covered' habitations having a supply level of less than 10 litres per capita per day (lpcd) and those habitations facing a severe water quality problem are fully covered with safe drinking water facilities on a sustainable basis.
- iii. Thereafter, other 'partially covered' and 'quality affected' habitations are to be covered.
- iv. Once drinking water supply facility is provided to all rural habitations as per the existing data by 2004, the remaining period of the Tenth Plan would be utilised for consolidation. This will involve covering newly emerged habitations and those which have slipped back to 'partially covered' or 'not covered' status due to a variety of reasons.
- v. Simultaneous action is needed to identify and tackle habitations where water quality problems have emerged recently.
- vi. It should be ensured that scheduled caste/scheduled tribe (SC/ST) population and other poor and weaker sections are covered fully on a priority basis. A systematic survey of all such identified habitations will be undertaken.

5.5.5 The stipulated norms of supply would be 40 lpcd of safe drinking water within a walking distance of 1.6 km or elevation difference of 100 metres in hilly areas, to be relaxed as per field conditions applicable to arid, semi-arid and hilly areas. At least one handpump/spot-source for every 250 persons is to be provided. Additional water is to be provided in the Desert Development Programme (DDP) areas for cattle, based on the cattle population. The water requirements for cattle need not necessarily be met through piped water supply and could be made through rain-water harvesting structures/spot sources.

5.5.6 In the states where 40 lpcd has been achieved in all habitations, the next step is to raise the level of availability to 55 lpcd. Population/distance/elevation norms for coverage may also be liberalised during the Tenth Plan for states which have achieved full coverage as per the existing norms, subject to cost sharing by the beneficiaries.

DECENTRALISATION OF RURAL WATER SUPPLY

5.5.7 Though planning for rural water supply is made at the Central and State levels, responsibility for proper implementation has to be borne at the local level, by the PRIs, with the help of organisations of the users.

5.5.8 Under Article 243G of the Constitution, the State legislatures may, by law, endow the panchayats with the powers and authority necessary to enable them to function as institutions of self-government. Further, such law may contain provisions for the devolution of powers and responsibilities with respect to:

- (a) The preparation of plans for economic development and social justice.
- (b) The implementation of schemes for economic development and social justice as may be entrusted to them, including those relating to matters in the Eleventh Schedule, which include drinking water and maintenance of community assets.

5.5.9 As such, PRIs should be the key institutions for the convergence of drinking water

supply programmes at the ground level. However, the financial and administrative authority has not been devolved to PRIs to the extent needed.

5.5.10 Emphasis must be laid on the participation of stakeholders at all levels, from planning, design and location to implementation and management. Presently, water supply projects are designed and executed by the implementing departments and passed on to the end-users. Experience has shown that panchayats are unwilling to shoulder the responsibility for operating and maintaining these projects. On the other hand, the State Governments do not have an effective machinery at the village level to maintain the assets.

5.5.11 This calls for a radical change in the management system. Rather than being supply-driven, the decisions relating to installation of water supply schemes, should be based on the level of local demand and capabilities to meet the responsibility for operation and maintenance. These decisions should take into account user preferences such as preference for shared hand-pumps or stand posts versus household connections, and other related issues which will emerge when people are taken into confidence and consulted. People should be aware of the technologies, and O & M costs involved in every available option, and given the facility to make their own choice, while a simultaneous exercise in capacity-building is carried out. People's participation at all stages of the project implementation is likely to help tackle the problem of sub-standard materials, poor workmanship and inadequate maintenance.

5.5.12 Besides, PRIs should meet part of the expenditure on the project. Being institutions of local self-governance, PRIs should be strengthened and entrusted with all activities relating to water supply, sanitation, hygiene and nutrition. Various development functions may be handled by the single institution of the gram panchayat, as this will increase the possibility of convergent planning and delivery of services.

5.5.13 The participatory approach, which is a part of the sector reform programme, must be seriously addressed in the Tenth Plan. However, while part of the project costs should progressively be borne

by the beneficiary community, the major source of funding for rural water supply schemes has to be the budgets of the Central and State Governments. The provision of adequate support under Plan provisions has to continue till all rural habitations are provided with a satisfactory and sustainable water supply arrangement.

INTEGRATED WATER MANAGEMENT IN RURAL AREAS

5.5.14 The three major and widely prevalent problems in sustainable supply of drinking water — scarcity, brackishness and excess fluoride content — are manifested mainly in the low rainfall and high potential evaporation areas. An integrated water management approach is, therefore, necessary to solve these problems. Water harvesting and conservation measures in a watershed as a natural physiographic unit, with emphasis on direct or indirect artificial recharge of aquifers by utilising surplus run off water, can lead to a simultaneous mitigation of all three problems.

5.5.15 Integrated water supply and sanitation programmes, with emphasis on conservation of water, will be increasingly implemented during the Tenth Plan. The implementing machinery in the Centre and the states will require organisational restructuring in order to work in a mission mode, guided by the Rajiv Gandhi National Drinking Water Mission Authority and its empowered committees. Micro watershed-based master plans should be prepared to ensure the sustainability of water sources by taking care of demand and supply. The inputs of professional institutions, non-government organisations (NGOs) and community-based organisations should be utilised in planning, development and management. All possible measures must be taken for rain-water harvesting and ground water recharging. Continuous monitoring of the sources is necessary, so that the habitations that are presently covered do not relapse into the category of uncovered. Inter-departmental coordination at the block level needs to be activated for this. Links of water supply schemes with watershed development programme should be made stronger for greater sustainability of drinking water sources.

5.5.16 As part of the integrated water management approach, traditional sources of water shall be identified, strengthened and developed with community involvement. Rehabilitating the existing village tanks, creating detention basins by storing rain water in local depressions, abandoned mines/quarries etc. for water harvesting needs to be encouraged for the development of water resources. In view of the higher efficiency of micro-watershed areas for water conservation, small dams should be built, wherever a suitable site is available. To avoid evaporation losses from such small storages, underground siphon systems which conserve water and recharge the aquifer should be used. As a general principle, open storage should be avoided and closed contour trenches should be developed as water harvesting structures in order to reduce evaporation losses which, at times, are as high as 30 per cent of the total storage.

5.5.17 The cropping pattern in drought-prone areas should be sensitive to local constraints with regard to availability of water. In areas where there is shortage of water, farmers should be discouraged from water-intensive cash crops. Agriculture borewells should not be allowed to be deeper than drinking water borewells. Recycling of waste water and use of such water for crop cultivation, should be encouraged as a part of enhancing the productive use of water.

INSTITUTIONAL FINANCE

5.5.18 Currently, rural water supply schemes are conceived as grant schemes. However, it is necessary to get institutional funding for this sector in order to mobilise additional resources for implementation of projects. The role of financial institutions like the Housing and Urban Development Corporation (HUDCO), Life Insurance Corporation (LIC), Infrastructure Development Finance Corporation (IDFC), ICICI etc. would be vital in this task and their potential should be tapped. However, efforts should be made to meet a part of the project cost through recovery of user charges.

OPERATION AND MAINTENANCE

5.5.19 More than 3.5 million hand pumps and over 100,000 piped water supply schemes have been

installed in the country under the Rural Water Supply Programme. The total estimated cost for operation and maintenance (O&M) of this, at the present value, would be around Rs. 2,000 crore per year (10-15 per cent of the capital cost). A majority of the schemes remain non-functional and many others become permanently defunct due to lack of proper maintenance and repairs for want of funds. It is, therefore, necessary to give highest priority to O&M. Most states face resource problems and, therefore, tend to neglect maintenance. Funds under the Minimum Need Programme (MNP) and the Accelerated Rural Water Supply Programme (ARWSP) are already available to meet some of the O&M costs.

5.5.20 Suitable institutional and funding arrangements through community participation need to be evolved to get the installations working. The problem of poor maintenance can best be tackled by decentralising O&M by making the beneficiaries and panchayats stakeholders in the system. The responsibility of O&M should rest with the panchayats, as already conceived in the sector reform programme. 'Village Water Committees' should be actively involved in the maintenance of drinking water supply schemes and a system of beneficiary participation introduced. Participation of village women and NGOs/voluntary organisations should also be encouraged. The mechanism and the funds available under the Training of Rural Youth for Self Employment (TRYSEM) programme should be used to impart training, so that trained manpower can be mobilised locally for the maintenance of the assets. Major repairs and replacement/rehabilitation projects may be allowed as Plan schemes.

WATER QUALITY MONITORING AND SURVEILLANCE

5.5.21 In view of the increasing problem of water quality and the resultant health hazards, it is necessary to institutionalise water quality monitoring and surveillance systems. Water quality surveillance should be done by an independent organisation,

more appropriately by the Health Department which should be provided with adequate funds for the task. Routine analysis of water samples for their physico-chemical and microbial quality should be undertaken and monitored at the state level by the Public Health Department. Central assistance under the ARWSP shall be utilised for setting up stationary as well as mobile water testing laboratories in all district headquarters.

5.5.22 The community has to be made conscious about water quality through health education and awareness campaigns and water testing kits shall be made available to a range of institutions, including schools and colleges and qualified NGOs in the area.

5.5.23 All possible measures should be taken to remove the disparity in access to potable water across regions and socio-economic groups. A system of random checks should be developed to detect the poor quality of construction.

5.5.24 The choice of technology in case of schemes related to water quality (detection of fluoride, iron, arsenic), shall be district/block specific. Further research is required to improve available technologies for treatment of chemically contaminated water, in terms of their simplification and increased cost effectiveness.

Water Supply and Rural Development

5.5.25 Rural water supply and sanitation facilities are vital elements in the overall programme for rural development. Other related elements include infrastructural issues like land and watershed management, soil conservation, afforestation etc. and social issues like primary health care, eradication of illiteracy, women's welfare, child nutrition, immunisation etc. It is desirable that the thrust and implementation of as many of these programmes as possible are converged in order to provide for integrated rural development.

BOX : 5.5.1 ARSENIC CONTAMINATION

Arsenic-contaminated habitations have been identified in eight districts of West Bengal (North 24-Parganas, South 24-Parganas, Murshidabad, Malda, Nadia, Howrah, Hugli and Bardhaman), 65 blocks, 757 muzas, 15 non-municipal outer growth areas, and nine municipalities in an area of approximately 40,000 sq. kms. About 200,000 people are actually affected and a population of 5.3 million is estimated to be at risk. There are 22,000 public tubewells and 1,30,000 private tubewells in the affected areas. The range of arsenic content varies from 0.055 to 3.20 milligram/litre (mg/l).

Some of the options for providing arsenic-free water to the affected rural population are:

- Tapping a deeper third layer beyond 100-150 metres below ground level, which is found to be arsenic-free.
- Adopting arsenic removal technique through domestic filters, attached hand pumps and arsenic removal plants in piped water supply schemes:
 - i. Oxidation followed by coagulation and filtration – a widely popular option;
 - ii. Absorption, also widely adopted;
 - iii. Ion exchange; and
 - iv. Osmosis, which is yet to gain popularity.
- Utilizing surface water from rivers, lakes, ponds, which is normally free from arsenic contamination;
- Sanitary protected ring-wells tapping the shallow aquifers.

The Government of India introduced an 'Arsenic Sub-mission' in 1994 under the Rajiv Gandhi National Drinking Water Mission to tackle the arsenic problem in West Bengal on a 75:25 cost sharing basis between the Centre and the State. A large number of projects with a total outlay of Rs. 372.70 crore have been sanctioned under this Sub-mission.

BOX : 5.5.2 USE OF SOLAR STILLS

- In areas like remote islands, deserts and other inaccessible areas, where conventional energy sources are not available or would be a costly proposition, one of the options to remove chemical contaminants from drinking water could be solar distillation through 'solar stills' at the household or community level.
- The solar still is a simple device to distill water of its impurities. Larger solar stills are generally made of glass over a formed sheet metal. But the base can be made of any material that will hold up outdoors. The most important elements of the design are the sealing of the base with black, high-temperature silicone rubber. As sunlight warms the black silicone bottom and heat is transferred to the water, the top layer of water evaporates and covers inside of the glass cover, which is tilted towards the freshwater drain. Approximately, one sq. meter of glass cover will distill around 4.5 litres of water per day with five hours of full sunlight. The capital cost of a solar still with a one sq. mtr glass cover area would be around Rs. 4,000. With bulk production, the costs may come down.
- Though the technology is appropriate for the remote, inaccessible areas, the device may become dysfunctional, if sludge removal and cleaning is not done regularly. Community awareness, motivation and participation would, therefore, be a key to the success of the technology. This technology could also be used to meet the drinking water needs in schools.
- More work is needed to develop cost-effective models and propagate them. Leading scientific and technological institutions should be assigned the task of developing solar still models.

BOX : 5.5.3
WATER SUPPLY, SANITATION, AND HEALTH

Water, which is essential for life, growth and health, can also be a source of spread of disease and cause of ill-health, if contaminated or improperly handled and stored. Safe drinking water and improved sanitation play a major role in the overall well-being of the people, with a significant bearing on the infant mortality rate, death rate, longevity and productivity.

The poor, both in rural and urban areas, bear a disproportionate burden of non-availability of water, as well as of poor quality. They often supplement public sources of water with supplies obtained at high prices from other sources. Women bear the physical burden of fetching water. Women and children are particularly vulnerable to the effects of water contamination.

Water-Borne Diseases: 70-80 per cent of illnesses are related to water contamination and poor sanitation. The national objectives of reducing morbidity and mortality largely depend on the reduction of diarrhoea and jaundice. In fact, no water supply and sanitation programme can be successful if water-related illnesses are not reduced. It is a matter of concern that despite the progress made with water supply, the level of water-related sickness continues to be high.

Causes of contamination of water are indiscriminate use of chemical fertilisers and chemicals, poor hygienic environment of the water sources, improper disposal of sewage and solid waste, pollution from untreated industrial effluents, over-exploitation leading to quality degradation. Thus, the supply of additional quantity of water by itself does not ensure good health; proper handling of water and prevention of contamination are also equally important.

Among the most important elements of the rural sanitation package are:

- ↓ Safe handling of drinking water.
- ↓ Disposal of waste water.
- ↓ Safe disposal of human excreta. Human excreta is associated with more than 50 per cent of diseases.
- ↓ Safe solid waste disposal.
- ↓ Home sanitation and food hygiene.
- ↓ Personal hygiene, particularly, washing one's hand with soap.
- ↓ Sanitation in community.

Recent studies have shown the importance of washing one's hands with soap as it reduces diarrhoeal disease by 43 per cent. Respiratory problems such as sniffles and coughs were also brought down by 45 per cent when hands were washed five times a day.

Safe sanitation practices should be made a compulsory part of school curricula, and of all programmes where women are trained in community, economic and health issues affecting the household.

SECTOR REFORM PROGRAMME FOR RURAL WATER SUPPLY AND SANITATION

5.5.26 In order to address the problem of sustainability, the Government approved sector reforms programme in March 1999 to ensure the active participation of the community in rural water supply. The implementation of the new policy has already commenced. State Governments have identified 63 pilot districts for introducing reforms. The reform projects incorporate institutionalisation of community participation through capital cost sharing and shouldering of full O&M responsibilities. The experience gained during the implementation of these pilot projects would be utilised for expanding the reform package to other districts in the second phase. This will ensure a satisfactory and sustainable rural water supply programme in the whole country. For the success of the proposed reform process, however, complementary reforms are necessary such as increasing user charges for water used in irrigation and industry.

- The new strategy thus relies heavily on the use of Central/State funding as a critical incentive to drive the reform process. As such, it is important that conditionalities for disbursement of Central funds to state administrations and from state administrations to PRIs and/or local administrations, be explicitly defined. The conditions which must be met and the activities for which funding can be applied must be clearly specified.
- Resources for information education communication/human resource development (IEC/HRD) now given for different sectors, particularly ,public health, nutrition, drinking water, sanitation etc. should be pooled together at the district/state level to the extent possible.
- NGOs are found to be particularly good at outreach and have the advantage of being able to sharply focus on and activate the participation of communities.
- All existing social organisations, women's self-help groups, cooperative societies,

civil societies, educational institutions, private institutions etc. should be involved for effective implementation of a large-scale sanitation programme.

RURAL SANITATION

5.5.27 The existing Total Sanitation Programme should include safe disposal of night-soil, rain water, domestic liquid and solid waste. It should not be restricted to construction of latrines only. Awareness of sanitation standards and health impact of unsanitary conditions continues to be low. Rural sanitation is promoted as a total package consisting of safe handling of drinking water, scientific disposal of waste water, safe disposal of human excreta including child excreta, solid waste management, domestic sanitation and food hygiene, personal hygiene and village sanitation. However, there has hardly been any significant change in the sanitary conditions in the villages in India. The 54th round of National Sample Survey indicates that only 17.5 per cent of rural population were using latrines. There is a need to implement a revitalised programme for rural sanitation which must have the following elements:

- Preference has to be given to the twin pit model of water-sealed latrines. However, the cost of such a unit may be an inhibiting factor. The successful model of Midnapur in West Bengal, where a single pit is provided initially, may also be considered for adoption in other districts with appropriate changes to suit local conditions.
- School sanitation (providing toilets) should be given highest priority to inculcate safe hygienic habits among school children.
- Village Panchayats should adopt building bye-laws where dry latrines are not permissible. Any latrine to be constructed should be of the water-sealed type with a leach-pit. This will prevent the emergence of the problem of manual scavenging.
- Considering that the programme of installation of low-cost toilets has not made

the expected degree of progress, a fresh start is required. The State Council for Sanitation proposed under urban sanitation sector should also have the mandate for rural sanitation.

- Subsidy for the low-cost household toilets should only be given to rural below-poverty-line (BPL) families, and it should be on par with subsidy for the urban households. For the success of the scheme, a subsidy of 50 per cent of the cost of the unit inclusive of sub and super-structures for the basic twin-pit pour flush system appears to be necessary during the Tenth Plan.
- A quick exercise to arrive at the realistic present costs in different regions, terrains, soil conditions, etc., should be carried out so that the subsidy amount can be estimated. This exercise should be completed by March 2003.
- In order to mobilise the required funds for rural sanitation, financial institutions/banks including HUDCO and the National Bank of Agriculture and Rural Development (NABARD) should extend loans at lower interest rates to states for provision of sanitation facilities. Low cost loan schemes like micro-credit through NGOs should be adequately supported. Various fiscal concessions such as reduced excise duty/sales tax and lower electricity charges

should be made available to the manufacturers of low cost sanitary materials. Private participation should be encouraged in setting up of building centres and sanitary marts in rural areas to provide cost effective sanitation technology to the rural households.

- The recommendations made with regard to urban low cost sanitation also apply to the rural segment. Creation and maintenance of a record of locally relevant information regarding various technological options, hydro-geological information, availability of building materials, choices in design and implementation etc. at the block level should be organized through the panchayats, sanitary marts and building centers.
- For the success of the scheme, and to overcome the huge problem of insanitary practices in the country, a large programme of education, propagation, training, designing and development, production, and installation, needs to be taken. NGOs should be mobilised to support to the programme, especially for supervision, monitoring, training and development work. A suitable provision for the participation of the non-governmental organizations in the sanitation programme should be made in the project costs.

CHAPTER 6.1

URBAN DEVELOPMENT

URBAN DEVELOPMENT

The Status Of Urban Local Bodies

6.1.1 The Constitution (74th) Amendment Act, 1992 was intended to give a more focussed thrust to decentralisation and the creation of a democratic governance structure with local responsibilities being assumed and managed at the local level. It was to address the inadequacies of the existing system of municipalities, redefine the relationship between the states and municipal bodies and lay the foundations of a new approach to urban management and governance that could fulfill the needs and aspirations of urban residents for development. Article 243W of the Act mandated the setting up of elected municipalities – urban local bodies (ULBs) - as the 'institutions of self-government'. The important features of the Act are well-known but bear repetition since all of them have not been acted upon. These are :

- Regular elections under the supervision of the state Election Commission;
- a clear tenure of five years for the elected body;
- protection for the elected body against arbitrary dissolution;
- constitution of Wards Committees for greater proximity to the citizens;
- mandate to state legislature to endow the ULBs with such powers and authority as may be necessary to enable them to function as 'institutions of self-government';
- the Twelfth Schedule which illustrates the range of responsibilities to be given to the ULBs;
- the constitution of State Finance Commissions (SFCs) to review municipal

finances and make recommendations regarding distribution of the proceeds of state-level taxes between the state governments and the ULBs, criteria for grants-in-aid, measures needed to improve the financial position of the municipal bodies, etc.;

- setting up District Planning Committees and Metropolitan Planning Committees for integrated as well as coordinated planning for urban and rural areas by the various agencies involved in providing civic, transport, economic and social services.

6.1.2 It is significant that apart from the traditional municipal functions, Article 243W allocates to ULBs the function of 'preparation of plans for economic development and social justice', and the Twelfth Schedule contains 'urban poverty alleviation' as a municipal responsibility. These take municipal bodies from being mere providers of civic amenities to a much wider arena of action encompassing economic and social planning. The Constitutional amendment has designed the ULBs as comprehensive institutions of urban self-government, and has left the details to be worked out by the state legislatures.

6.1.3 The state governments have carried out the required amendments to the municipal laws in accordance with their own requirements and some states have even enacted fresh legislation. Elections under the new dispensation have been held in most states, more than once in many. The enthusiasm among urban residents for the ULBs has been amply demonstrated by the fact that voter turnout in elections has been in the range of 65 to 70 per cent, much higher than the participation in elections to Parliament and state legislature. There are around 73,000 elected representatives in the ULBs all over the country. It has, therefore, rightly been observed that 'the democratic structure of the

country is no longer limited only to the Parliament and the state legislatures'. Now there is no denying the fact that the elected ULBs are full-fledged institutions of local self-government, a key part of democratic decentralisation in the country.

6.1.4 The challenge to be met in the Tenth Plan period is to assist these elected bodies to grow organically to fulfill the demands of urban residents for a quality of life in line with world standards. There is no doubt that the urban governance will progressively be managed at the local level ensuring better opportunities for people to express their needs and expectations, and with professional competence and capacity supplementing the democratic nature of the ULBs. The credit for this goes to the 74th Constitutional amendment, though it has been the subject of much debate from the outset.

The Urbanisation Scenario in India

6.1.5 The Provisional Census Data of the 2001 Census reveals several significant facets of urbanisation over the last decade. Of the 1.02 billion population, 285 million or 27.8 per cent live in the urban areas which comprise 5,161 towns, an increase of 2.1 per cent over the proportion of urban population in the 1991 Census. Table 6.1.1 gives the proportion of urban population to total population between 1961 and 2001:

Table 6.1.1
Proportion of Urban Population & total Population

Year	Per cent
1961	17.97
1971	19.91
1981	23.34
1991	25.71
2001	27.78

6.1.6 There is wide variation among states in urbanisation. At one end of the spectrum is the National Capital Territory of Delhi, with 93 per cent of its population living in urban areas. At the other end, Himachal Pradesh is the least urbanised state with only 9.8 per cent of its population in urban areas. Tamil Nadu is the most urbanised among the larger states with 43.9 per cent urban population, followed by Maharashtra with 42.4 per cent and

Gujarat with 37.4 per cent. Among the larger states, Bihar has the lowest proportion of urban population (10.5 per cent), below Assam (12.7 per cent) and Orissa (14.9 per cent).

6.1.7 In terms of absolute number of persons living in urban areas, Maharashtra leads with 41 million persons. Uttar Pradesh comes next with 35 million followed by Tamil Nadu with 27 million.

6.1.8 There are 27 cities with more than one million population, while the Urban Agglomerations (UAs)/Cities with population of more than one million number 35. About 37 per cent of the total urban population live in these Million Plus UAs/Cities. In Maharashtra, West Bengal and Gujarat, more than half of the urban populations live in the Million Plus UAs/Cities.

6.1.9 The decadal growth of population in rural and urban areas during 1991-2001 is 17.9 per cent and 31.2 per cent respectively, indicating a relatively higher growth in urban populations. However, it has been observed that the degree of urbanisation in India is among the lowest in the world. United Nations estimates for 2000 show that 47 per cent of total population of the world live in urban areas. While the proportion of urban population in developed countries range between 75 and 80 per cent, it is 36.7 per cent in Asia. Within Asia, countries like China and Indonesia, starting from lower levels of urbanisation in 1950, have now overtaken India with urbanisation of 32.1 per cent and 40.9 per cent respectively.

6.1.10 This is partly explained by one demographic fact : In India the decadal growth of urban population has been declining, from 46.1 per cent in 1971-81 to 36.4 per cent in 1981-91 to 31.2 per cent in 1991-2001. Correspondingly, the average annual exponential growth in UAs/Towns has also dropped from 3.8 per cent to 3.1 per cent and 2.7 per cent respectively. While this, to some extent, reflects a declining trend in total population growth, the fact still remains that urbanisation in India is proceeding at a fairly modest pace, though some states and cities are reporting exponential growth.

6.1.11 The moderate growth rate gives some breathing space to set the house of urban

governance in order. However, there are cities where there is no time to lose.

Major Issues In Urbanisation for The Tenth Plan

6.1.12 Attitudes to urban growth within the country tend to swing between two extremes. Cities are seen either as an unavoidable evil or in a more positive way as 'engines of growth'. The former view is held by those who focus on the growth of slums and squatter colonies, the congestion on the roads and environmental degradation. The others, in contrast, focus on the bustling formal and informal sectors in urban areas and their contribution to the economy, the diversification of occupations away from traditional land-based ones to newer forms of production and services, and the lower levels of poverty as compared to rural areas.

6.1.13 There is, in fact, evidence to show that urbanisation is likely to have been a key determinant of economic growth in the 1980s and 1990s, boosted by economic liberalisation. From this point of view, the moderate pace of urbanisation in the country has been a cause of disappointment. There is, however, no rural vs. urban conflict either in terms of national growth, or in development priorities. In fact, perhaps because of the success of rural development programmes along with the limited availability of land for squatting in central urban areas, there seems to be no runaway migration from rural to urban areas.

Impact Of Growth

6.1.14 The impact of the growth of population on urban infrastructure and services has mostly been adverse. Cities with high rates of growth would be expected to have more resources for investment in the cities, but the fact is that much of this potential has remained untapped. On the other hand, smaller cities with less economic growth face inadequacies of financial and other resources to cope with increasing demands on services, and this may call for supplemental support from the budget. Are the existing institutional arrangements adequate to ensure that the cities can cater to present demand as well as future needs? How far have the provisions of the 74th Constitutional amendment been implemented and how have the new institutional

arrangements helped? The institutional arrangements for urban management and the quality of services are closely linked. Strengthening the decentralised ULB structure to cope with the demand for civic services, is identified as the priority task of the Tenth Plan.

Urban Governance

6.1.15 Urban governance today is characterised by fragmentation of responsibility, incomplete devolution of functions and funds to the elected bodies and ULBs, unwillingness to progress towards municipal autonomy, adherence to outmoded methods of property tax and reluctance to levy user charges. State governments continue to take decisions on such matters as rates of user charges, property tax, octroi, role of parastatals in water supply and sanitation services, etc., with little reference to the ULBs that are affected by these decisions. Far from strengthening the constitutional role of the elected ULBs, such developments only reinforce the perception that ULBs are subordinate entities under the day-to-day control of the state governments, beholden to them not only for the development of the cities but often for their very survival. There appears to be a lack of confidence that many of the ULBs are capable of meeting their obligations as institutions of local self-governance. In the present set up, initiatives for local developmental activities rarely come from the ULBs. Experience shows that functional autonomy becomes a reality only when it is accompanied by financial independence. State governments, therefore, need to strengthen the autonomous functioning of the ULBs through positive measures, and in particular, ensure their financial self-reliance.

6.1.16 The role of the ULBs in the immediate future will be:

- To be responsive and accountable to the community;
- to develop cities with standards of service comparable to the best in that particular category;
- to constantly improve their capabilities so as to equip themselves to undertake their tasks in resource-raising, service provision, and poverty alleviation,

6.1.17 Good urban governance calls for adequate policy and legal frameworks, the existence of regulatory and planning authorities, human skills, a sound revenue base, accounting and accountability. Substantial work has already been done to upgrade the urban infrastructure and several parastatals and urban development authorities have acquired considerable skills in planning and executing projects. Programmes such as the Mega City project for five selected cities, the Integrated Development of Small and Medium Towns (IDSMT), and the Accelerated Urban Water Supply Programme (AUWSP) have shown varying degrees of success in meeting some of the urban needs. In particular, parastatal agencies and bodies such as development authorities, need to play a supportive role to the elected bodies rather than taking over functions which properly belong to the ULBs. The objective of devolution and decentralisation should be carried forward by making parastatals and authorities partners and agencies of the democratically elected ULBs, thus making a gradual transition to local management while continuing to use the expertise of the organisations set up and supervised by the State Governments. Initiating the necessary processes for partnerships between the State and its agencies on the one hand, and the ULBs on the other, is a part of the exercise of 'capacity building' in the ULBs.

The Importance of Transparency and Right to Information

6.1.18 Since ULBs are closer to the tax-payers who depend on and are affected by the standards of services and infrastructure, there is need for a greater accountability in matters relating to municipal management and transparency in their functioning. The urban development sector is required to develop processes whereby information on all important decisions impinging on the life of urban residents are made available to them. Citizens must be kept informed about the application of funds and other assets and resources of local bodies, decisions relating to land use, construction and other development activities in the cities, taxation/ user charge policy and performance and facts of financial health of the city. The people can be kept in the picture through the media, the Internet, and by the participation of municipal councilors and other

personnel in meetings of residents' associations, as well as through more formal means of public information to be laid down in municipal rules.

Sources of Urban Finances

6.1.19 The system of a smooth sharing of resources between the State Governments and the ULBs on the one hand, and between different municipal bodies on the other, which is one of the objectives of the institution of the SFCs must ensure that the transfer of funds to the municipalities is both adequate and stable. The second round of SFCs are in place in most states and, hopefully, as the system evolves, there will be greater simplicity and transparency in the process of devolution of resources to local bodies, without undue transaction costs.

6.1.20 The objective of the system of SFCs would be fulfilled if an adequate level of resource transfers to ULBs takes place. It would, however, be unrealistic to expect ULBs' finances to be healthy when State Governments themselves face acute fiscal and resource constraints. Further, the allocations by SFCs may well tilt towards areas like rural development, irrigation, etc., and may not adequately meet the needs of the cities. The Finance Commissions at the Centre are now increasingly alive to the growing needs of urban areas. The effectiveness of the system of SFCs will depend on adoption of certain healthy conventions by the State Governments. The conventions relate firstly to the choice of persons with adequate knowledge and expertise for appointment to the Commissions, and secondly to the practice of willingly adopting and fully implementing the recommendations. The different approaches adopted by the SFCs in various States to the tasks of assessing the critical needs of urban areas and making recommendations, and the policy of states in regard to acceptance and implementation of these recommendations, would be an area for study. Such a study would also show how far the objective of autonomy of the ULBs is being fulfilled.

6.1.21 Striking a balance between own resources of the ULBs and transfers from the state, is of critical importance. The system of transfer from the State Government should not lead to dilution of the

seriousness and adequacy of the ULBs' own effort to raise resources. Misguided 'populism' is a game that the ULBs can also play, and inefficiency in collection, leakage of funds, and violations of fundamental financial principles, are dangers which have been experienced in our municipal entities. There is, therefore, every need to link the transfers under SFC formulations to the degree of efficiency ULBs exhibit in raising resources which the law allows them to generate, and in conforming to proper accounting and financial principles.

6.1.22 In order to help ULBs raise their own resources, the reform of the property tax system should be completed during the Tenth Plan period. The coverage of the property tax net is far from adequate, and this calls for serious attention. Alternatives to the 'annual rateable value', frozen in fiscal terms and discredited in implementation, are available in the form of area-based assessment, and capital value-based assessment. These initiatives should be further refined to develop transparent and buoyant systems of assessment with total coverage of all properties in a city, for which self-assessment by the property owner can be a useful instrument. The levying of user charges, increasing non-tax revenues, control of costs and in particular of establishment costs, and better utilisation of municipal assets are essential measures to make ULBs financially stronger. Municipal accounting systems should be overhauled and made acceptable to lending agencies and financial markets by making it accrual-based. This is especially important for those ULBs wanting to access debt funds.

Plan Assistance For Infrastructure

6.1.23 Assistance from the Centre is an important addition to ULBs resources, though thus far it has been visibly less effective in bringing about reforms in the urban sector. A larger degree of central assistance, including external assistance routed through the Centre, as well as institutional finance from agencies like the Housing and Urban Development Corporation (HUDCO) would be necessary during the Tenth Plan in order to take up a vigorous programme of upgrading infrastructure and services. It is also necessary that these forms of assistance

strengthen the elected ULBs as the legitimate institutions of governance at the local level. The assistance must be made conditional on sector reforms, in particular, better standards of service and the collection of user charges.

6.1.24 The coverage of central assistance in the past has been uneven and inadequate, both because of procedural issues as well as limited budgetary allocations. The number of cities/towns which received central assistance under IDSMT, AUWSP, and Mega City scheme up to the end of the Ninth Plan are:

- AUWSP : Between 1993-94, when it was initiated, and 2001-02, 654 schemes have been sanctioned with central assistance worth Rs. 337.37 crore;
- IDSMT : Since it was launched in 1979-80, 1,172 towns have been assisted and central assistance worth Rs. 531.62 crore released;
- Mega City Scheme : Initiated in 1993-94, the scheme covers only Mumbai, Kolkata, Chennai, Hyderabad and Bangalore. Central assistance to the tune of Rs. 714.75 crore has been released.

6.1.25 Other programmes through which the Centre channels funds for urban improvement are:

- NCR PLAN : Rs 360.92 crore have been released as Central contribution towards provision of infrastructure in the National Capital Region.
- HUDCO, which received substantial injection of fresh equity during the Ninth Plan and has been used to leverage funds from market sources, is the other source of loan assistance to urban infrastructure projects.
- The Tax-Free Bonds scheme was introduced in February 2001, rather late in the Ninth Plan period. Since then, two ULBs (the Ahmedabad Municipal Corporation and the Hyderabad Municipal

Corporation) have got approval to raise Rs 100 crore and Rs. 82.5 crore respectively.

- External assistance for the urban sector has continued to flow in from multilateral lending agencies like the Asian Development Bank (ADB), World Bank and bilateral agencies.

6.1.26 Infrastructure assistance through the IDSMT and Mega City schemes should aim at overcoming the worst features of neglect of urban requirements, take care of unmet needs in water supply, sanitation, solid waste management, urban transport, and the development of new extensions like residential colonies and satellite towns to relieve congestion. There is a wide variation in the availability of infrastructure and services, between cities and within the cities. The bigger cities tend to have better institutional arrangements and quality of service. In the hierarchy of cities, capital cities tend to get more attention, followed by other cities with greater economic activity, while the very small towns with extremely limited resources rarely see any improvement. The larger cities often have the capacity to raise resources from the market and from domestic as well as international funding agencies. Planning and financial support will need to be targeted at reducing the notable disparities of urban centres with significant limitations in resources and glaring lack of civic amenities.

6.1.27 During the Tenth Plan, it is necessary to achieve a substantially higher, if not, total coverage of cities in need of infrastructural upgradation. A substantial step up in Central allocation to the urban sector is, therefore, required. This assistance should be contingent on the achievement of certain reforms, and an overall improvement in the ULBs' own efficiency in resource mobilisation, both through taxes and user charges, as well as service delivery. Municipal bodies need to be motivated to reduce expenditure, and improve the productivity of employees. A review of the working of on-going schemes, in particular IDSMT, Mega City, AUWSP, and Tax-Free Bonds schemes, will be undertaken in order to improve their working. The existing schemes for assistance for infrastructure such as the IDSMT and the Mega City Project, leave a significant number of cities between them without

any Central support. During the Tenth Plan, these schemes will be extended to cover the cities which have been outside their purview.

6.1.28 Urban infrastructure cannot be funded by budgetary support alone. While market borrowings are not yet a viable source of financing for urban infrastructure in most instances, a beginning has to be made for building up creditworthiness in ULBs. If this cannot be done for ULBs as a whole, then it should be attempted at least for individual sectors such as water supply, and wherever else user charges and the general resource position makes for it feasible to use debt funds to supplement grants or own resources. Assistance should be provided from budgetary sources as well as from external funding agencies, to defray the costs of implementing reform measures. This will enable the utilities to improve their performance and their finances. A City Challenge Fund was announced in the Union Budget 2002-03 and is in the process of being designed.

Broad-Based Reforms in the Urban Sector

6.1.29 The objective of reforms in land and housing policy, and of pricing of utilities, should be to augment the resources of the ULBs, provide for adequate maintenance of civic services, and undertake expansion of infrastructure to meet growing needs.

6.1.30 Cities everywhere are recognised as contributing substantially to economic, social, educational and infrastructural needs of the country. While they offer a higher standard of amenities to city-dwellers, they also have an important role in providing a range of services to the rural hinterland creating demand for rural output and providing inputs. Towns and cities act as nodal centres for providing services in marketing, health-care, education, and providing a window to the wider world, serving people other than their permanent residents.

6.1.31 In the past, the approach to urban growth, and in particular urban land issues, has been restrictive, based on the rigid comprehensive development plans, zoning and regulation of land use, with a predominant role in land assembly and

development for urban development authorities. The role of the private sector was extremely limited. The inability of the urban development authorities to meet the total housing needs of the urban residents has driven large numbers of people in need of housing in every city, to seek housing in unauthorised colonies. These colonies are now posing a serious problem in urban management. Slums are only the most extreme form of this problem.

6.1.32 It is necessary to set in motion a virtuous circle of urban growth leading to better resources which are then used for improving infrastructure, which, in turn, will lead to further growth of the cities, resulting in enhanced economic activity and growth. Meeting the needs of the urban poor also necessitates ULBs having more resources at their command. The impediments to urban growth, as well as the necessary policy reforms, have been broadly identified.

LAND POLICY AND HOUSING

6.1.33 The repeal of the Urban Land (Ceiling and Regulation) Act, 1976 has been a significant step towards reform in the urban land market. Following the repeal of the central legislation, a number of state governments have also repealed the state-level law. However, the Act still exists in some states, while several other state laws like the Land Revenue Act, Land Reforms Act, Stamp Duty Act, and Urban Development Authorities Acts/Town Planning Acts continue to hamper the availability of land for housing and other construction, pushing up land prices.

6.1.34 There is a need to take measures to ease the availability of land so that growth can take place through increased construction and housing activity, and land prices can be brought down to moderate levels making affordable shelter available to the lower income groups. This will also help prevent the proliferation of unauthorised colonies. This is by no means a measure to dilute urban planning, where enforcement has often been the weakest link. On the contrary, it will make urban planning more in tune with the changing nature of cities.

6.1.35 More flexible zoning regulations to permit change of land use where justified, easier

subdivision regulations, and extension of trunk services to new areas/new townships will help to reduce congestion and develop the cities in an orderly fashion. Innovative measures for land assembly, land pooling, and use of land as a resource to build up infrastructure will need to be continued and their administration made more efficient and transparent.

6.1.36 Since 2001, 100 per cent foreign direct investment (FDI) has been permitted in the development of integrated townships. However, investments may not materialise unless the conditions relating to land procurement are made simple. In urban areas, especially those with Master Plans, the needs of urbanisation should have precedence over land revenue and land reforms legislations in which restrictions on land ownership, transfers, and land use are incorporated in order to prevent the conversion of agricultural land. Other problems relate to the lack of clear titles, old, protected tenancies and rent control. All these problems, working together, have made it impossible for land to be procured for development in city centres, barring in small quantities. In prime areas, much of the land is used well below its potential.

6.1.37 The system of maintenance of land records and registration of property transactions are outmoded and need to be modernised through computerisation so as to speed up the process. There is need to develop and implement a system of authentication of property titles on the lines of the Torrens system now in vogue in many countries. This will make it easier for interested parties to enter into land transactions confidently. Together with the rationalisation of stamp duty, these measures will help in the development of a genuine property market, which ultimately will prove beneficial for the assessment of taxes where property values are the basis.

6.1.38 Rent control and tenancy laws also prevent the development of rental housing, thus contracting housing stock. Reform of these laws is a politically sensitive issue, as evidenced by the history of recent efforts to amend the Delhi Rent Act. However, there is some awareness that rent control at absurdly low levels with virtually no relation to market rates and extraordinary protection to tenants

over generations not only hinder the development of rental housing but also act as barriers to the growth of cities. Dilapidated structures cannot be renovated because of the difficulty in evicting tenants, with the result that rejuvenation of inner city areas is not taking place. Transitory arrangements can be made to help those who will face hardships, but zoning regulations should take into account the changing nature of inner city areas and permit their redevelopment.

FISCAL BALANCE

6.1.39 Poor management of assessment and collection has ensured that the yield from properties in the form of property tax is a fraction of the potential. In many cities, either property tax is not levied at all, or the rates are extremely negligible, as a result of which the resource position of the municipal bodies is extremely poor. On the other hand, stamp duty levied on transactions in land at 8 to 10 per cent is too high, in comparison with other countries. This has resulted in the use of 'black money' in property transactions and the practice of 'power of attorney' prevent the emergence of a genuine property market, with resultant losses to the exchequer. A further fall-out is the unreliability of information on property values.

6.1.40 Another cause of the fiscal imbalance of ULBs is the highly subsidised supply of services, in particular, water and sewerage. Insufficient revenue income prevents civic authorities from investing in services, leaving existing and future needs unfulfilled and this, in turn, hinders growth. During the Tenth Plan, emphasis will have to be placed on initiating and furthering broad-based reforms to overcome the impediments to urban growth. The reform agenda, initially mooted through the new programme of Urban Reforms Incentive Fund, will, in order to make a serious impact, need to leverage all schemes in the urban sector. Therefore the conformity to an agreed reform programme will be made obligatory for Central assistance to the sector during the Tenth Plan.

Capacity Building

6.1.41 Capacity building in urban institutions is one area which is much talked about but has been

relatively neglected in terms of action. The restructuring of the roles of the elected ULBs has to initially come about in the form of partnerships with the parastatals which have been handling a variety of services. The public service element needs to be made more professional and accountable to the people. As resources are the biggest problem of ULBs, measures for comprehensive and rational levy of property taxes and user charges are needed urgently. Adoption of modern accounting systems, improved practices of budgeting and planning, effective use of wards committees and other means of peoples' participation, and programme assistance under the schemes such as the SJSRY, should be put to use for improving urban governance.

6.1.42 Studies have emphasised that in a programme such as Low-Cost Sanitation, provision of subsidies and loan assistance have to be backed by substantial work on designs and materials relevant to each regional context, and by education, training, and propagation in the basic concepts of sanitation and hygiene. Water supply schemes have been transferred to ULBs from parastatals but without creating an ownership structure or building up the capacity to undertake operations and maintenance functions. Participatory management is still a relatively novel concept as bureaucratic approaches insulate public functionaries from public scrutiny or accountability. These are all areas that any programme of capacity building has to tackle.

6.1.43 Water supply and sanitation are the biggest challenges before ULBs and there is an urgent need to step up investment in this sector during the Tenth Plan. The tasks include efficiency improvement, better customer satisfaction, levy and collection of reasonable user charges, accessing institutional and market borrowings to provide sufficient investment funds, and institutional improvement at all levels. A number of states have shown interest in arranging public-private partnerships in this sector and these must be pursued prudently to enhance service quality and efficiency. The Low Cost Sanitation programme needs a new thrust as the sanitation problem has defied a solution so far.

6.1.44 While encouraging the entry of the private sector, the key role of public functionaries should

not be overlooked as the progress towards private sector participation is bound to be slow and may not happen at all in many urban centres. The growth of urban capabilities has to be ensured with the support of bodies such as the Central Public Health and Environmental Engineering Organisation (CPHEEO), HUDCO, National Environmental Engineering and Research Institute (NEERI), NIUA, Regional Centres at Hyderabad, Mumbai and Lucknow, the IIPA, and the various training institutions relating to the urban sector. Where needed, the institutions need to re-orient their approach with a view to strengthening the ULBs in the performance of their tasks. The leading role of parastatals has to be scaled down to give the initiative to the local bodies themselves.

Mapping, Urban Indicators And Data From The Urban Sector

6.1.45 Two of the most important tools of urban managers are maps and data. There is a need to step up the availability of both these basic requirements. While there have been individual efforts, both within and outside the Government to devise and set up a system of collection of urban data or indicators the Town and Country Planning Organisation (TCPO) has been implementing a scheme of urban mapping based on aerial photography. In the Tenth Plan, there is need to widen the availability of maps and urban data so as to cover all urban centres. City personnel as well as policy makers at the Central and State levels need basic urban data relating to settlements, slums, population, housing, transport, environmental issues such as disposal of solid and liquid wastes, and network of services such as water, sanitation, roads, public transport, drainage, streetlights, parks and playgrounds, parking areas etc. on a day-to-day basis. In addition, the status of municipal personnel, resources, assets, etc. are also required. Currently few maps of any significant scale are available. This could be remedied by using maps generated from satellite data, which are readily available. These maps can be used to supplement ground-level work on property listing for taxation purposes, as well as to monitor trends of urban growth especially in the peri-urban areas. Data on existing service levels are a sine qua non for inter-city comparisons, for bench-marking

service standards, for urban planning, and for authorities such as the SFCs who have to make recommendations regarding allocation of resources for the augmentation and maintenance of these services.

6.1.46 Efforts to secure data at the national or state level are unlikely to succeed unless data are systematically collected, validated and updated at the local level. In order to be comprehensive, data should emerge from a process of diagnosis at the municipal level, out of a felt need of municipal functionaries to get to know the requirements and status of various urban services. A scheme to generate city-level data and city maps derived from satellite imagery will be implemented during the Tenth Plan.

SUMMING UP

6.1.47 The approach to urban management issues in the Tenth Plan has to revolve around the strengthening of the democratic structure, with the assistance of the very agencies –state governments, parastatals and the urban development authorities – who have continued to take over the functions that rightly belong to the ULBs. The task is not easy, not the least because the ULBs do not have the wherewithal to imbibe the concepts and capabilities needed for their responsibilities. These will need to be built up, and legislative and institutional arrangements to achieve this task will have to be made. That the ULBs are not yet in a condition to take on all their responsibilities is no argument against making the necessary transition. On the other hand, the challenge lies in building up the ULBs, because without that there will be neither accountability nor sustained development in the urban sector.

6.1.48 The major thrust areas for the Tenth Plan can be readily identified:

1. Investments over the years and institutional effort have resulted in the setting up of a variety of urban infrastructure and services. However, there is a grave danger of these investments being rendered ineffective because of poor operations and maintenance and poor institutional

capacity. An extra effort has to be made to ensure that the capacities created in such areas as water and sanitation, transport systems, and planned city development are not permitted to degenerate.

2. Public-private partnerships should be brought on to the urban agenda for improving efficiency and better service delivery. However, capacity building in the public services has to be given highest priority, through training both elected and appointed officials, and by restructuring of municipal entities for more efficient management. Performance of the ULBs in their allotted tasks, apart from being watched by the citizens, should also be closely monitored by the State Governments.
3. Finances of the ULBs need strengthening through smooth working of the SFC awards, rationalisation and improvement of the property taxation system, and a sufficient level of levy of user charges. Transfers from State budget should be linked to defined levels of performance of the ULBs in resource-raising, expenditure control, proper financial management, and transparency in functioning.
4. Broad-based urban sector reform measures should commence during the Tenth Plan. The fundamental need is to strengthen the autonomy - functional as well as financial - of the ULBs. There is need for improving the debt-servicing capabilities of ULBs so that investment funds from financial institutions and market borrowings can be made available for urban infrastructure works. Plan support in the form of centrally sponsored schemes should be linked to the willingness in the state and local bodies to implement reform programmes.
5. The 2001 Census data provide basic information on the trends in urban growth and this will help establish the needs of the ULBs, which has to be balanced by

capabilities. Future programmes of assistance should be based on these two factors. But first, studies to develop the disaggregated picture of urban growth in different size categories, different states and types of cities should be taken up immediately based on the Census data. Planning of urban growth projects should be based on these studies.

HOUSING

6.1.49 Housing is a basic necessity as well as an important economic activity, in that it is a part of the construction industry. Construction activity accounts for more than 50 per cent of the development outlays. A study by the Indian Institute of Management, Ahmedabad, commissioned by HUDCO, to evaluate the impact of investment in the housing sector on GDP and employment, has found that the sector ranks third among the 14 major sectors in terms of the direct, indirect, and induced effect on all sectors of the economy.

6.1.50 The Housing and Habitat Policy, 1998 has specifically advocated that Government create a facilitating environment for growth of housing activity instead of taking on the task of housing itself. Housing is largely a private sector activity in both the rural and urban sectors. This is not to rule out the need for a high degree of involvement of the Government and its agencies in meeting the housing needs of the urban poor. The nature of this involvement - it may in some instances extend to house construction itself - is to be determined by the needs of a given situation.

6.1.51 The National Agenda of Governance also emphasised that housing activity would be an engine for substantial generation of employment, and all legal and administrative impediments that stand in the way of vigorous housing activity should be removed forthwith. What is undisputed is that governmental initiatives - and its 'facilitating role' - have a significant impact on the provision of housing and growth of the sector. These initiatives and interventions relate to legislations concerning ownership, transfers and development of land; stamp duty and registration laws; rent control legislation; tax policy particularly relating to housing

loans; property and land tax laws; town planning law and its actual implementation, i.e., Comprehensive Development Plans, zoning regulations, land use change; and building bye-laws. It also covers urban development activities through parastatals and urban development authorities; sites and services schemes; slum policy; provision of urban infrastructure; urban transport policy and facilities; the institutions in the public sector relating to housing development and housing finance; and house construction in the public sector.

6.1.52 With the anticipated entry of FDI into the real estate sector, care has to be taken that the needs of the urban poor and marginalised sections are not ignored. Given the large number of activities impinging on housing directly and indirectly and the multiplicity of agencies involved, designing a framework for orderly and dynamic growth in the housing sector in the Tenth Plan is a challenge to the planners.

6.1.53 The Working Group on Housing for the Tenth Plan has observed that around 90 per cent of housing shortage pertains to the weaker sections. There is a need to increase the supply of affordable housing to the economically weaker sections and the low income category through a proper programme of allocation of land, extension of funding assistance and provision of support services. The problem of the urban shelter-less and pavement dwellers has not been given the consideration that is necessary in a welfare or pro-poor State, as seen from the lack of progress in the Night Shelter Scheme. Regulation of building quality and its assurance, especially in areas prone to disasters is an issue whose urgency was reiterated after the earthquake in Gujarat in January 2000. Building designs also need to be gender sensitive and should accommodate the requirements of physically challenged population.

6.1.54 In order to increase the proportion of household savings in the housing sector, as well as to provide houses to those who cannot as yet afford to have their own houses, there is need to encourage the promotion of rental housing by the private sector, public sector, cooperatives and individuals. This requires legislative changes in the

existing rent control laws, something on which which very little progress has been achieved.

6.1.55 Availability of land has been constrained by certain provisions contained in a variety of laws such as the Land Revenue Act, the Land Reforms Act, the Urban Land (Ceiling and Regulation) Act (ULCRA), the Town Planning Act and the Urban Development Acts. Each of them has, often through its provisions and equally through the manner in which they were implemented — created hurdles for legitimate transactions in land urgently required for expansion of the housing stock. The repeal of ULCRA was expected to ease the situation to some extent. This needs to be followed up by other changes whereby legally valid availability of land for urbanization is speeded up, and people are not driven to adoption of short-cuts to obtaining housing plots and other uses.

6.1.56 Balancing the liberal availability of land, with the demands of orderly growth with adequate provision of infrastructure is no easy task, and the 'land sharks' are invariably one step ahead of the authorities that enforce regulations and provide of amenities. This has led to the proliferation of 'unauthorised layouts' and 'informal settlements'. The efficacy of town planning and urban development programmes lies in meeting the growing demand for housing in urban areas within the framework of the tenets of orderly growth. Public and private initiatives in various parts of the country have already demonstrated that, given the will and efficiency of implementation, it is possible to plan ahead and promote orderly growth. These efforts need to be made more widely known and replicated.

Institutional Financing of Housing

6.1.57 The substantial thrust on housing laid by Government through the facilitating measures including Reserve Bank of India (RBI) regulations relating to priority sector lending, fiscal concessions and budgetary incentives has started to bear fruit. Institutional credit disbursements have grown from Rs. 5,767 crore in 1997-98 to Rs. 12,626 crore in 2000-01. These disbursements are through the 28 Housing Finance Institutions (HFIs) under the ambit of the National Housing Bank (NHB).

HUDCO

6.1.58 HUDCO earmarks 55 per cent of its housing portfolio funds for the economically weaker sections (EWS) and low income groups (LIG), with differential interest rates, high loan component for lower cost units, and longer repayment period. Though its releases are somewhat less than sanctions, it is noteworthy that HUDCO has sanctioned 12.46 million urban housing units (till September, 2001) in both urban and rural areas. During 1998-2001, under the Additional 2 Million Housing programme, against a total target of 30 lakh housing units, HUDCO has supported 33.82 lakh units.

6.1.59 The other factor in HUDCO operations for the mass housing programmes is the dependence on State Government guarantees, which as noted elsewhere, disqualifies some states who have defaulted. Such states will need to take steps to fulfil their obligations under the guarantee. HUDCO is also a large player in retail lending for housing, and in two and a half years has sanctioned a total loan amount of Rs. 2,331 crore to 2,62,550 beneficiaries. HUDCO has been in the forefront of the Government's efforts to come to the aid of disaster-affected households, and has provided financial assistance for disaster rehabilitation housing to the tune of Rs. 2,360 crore for construction of over 4 million houses for earthquake, cyclone, and flood victims.

6.1.60 In order to undertake housing programmes for the poorer sections, states must create an environment favouring loan-based house construction for the EWS categories, and strengthen the state-level machinery for lending and loan recovery. EWS housing in urban areas has long remained a neglected area in relation to the demand, and without arrangements in place for credit support to this section, states will find it difficult to continue giving State guarantees to loans from HUDCO. To ensure recovery of loans, conferment of ownership rights in the name of the beneficiary family (jointly in the names of wife and husband) could be done only after the entire loan is recovered, till which time the house may be held on a rental basis. To augment housing supply for the poor, there is also need to enlarge private initiatives and public-private sector partnerships. While encouraging the

development of new integrated townships through foreign direct investment/private entrepreneurship, there should be provision for earmarking a percentage of such housing for EWS/LIG households.

Cooperative Sector

6.1.61 The National Cooperative Housing Federation operates through 26 apex cooperative housing federations in the states. There are nearly 90,000 primary cooperative housing societies with 6.5 million individual members. Up to 31 March 2001, the apex federations have mobilised Rs. 6,407 crore from LIC, NHB, HUDCO commercial and cooperative banks etc., and disbursed loans of Rs 6,800 crore to housing cooperatives and individual members. This has led to the construction of approximately 2.13 million dwelling units (completed and under construction). Housing cooperatives have been given a target of construction of one lakh houses each year under the 2 million housing programme for the EWS/LIG, and they have been able to construct a total of 2.92 lakh units in the 1998-2001 period.

Urban Housing Shortage in the Tenth Plan

6.1.62 The Working Group on Housing has estimated the urban housing shortage at the beginning of Tenth Plan at 8.89 million units. While

Box: 6.1.1

FDI in development of integrated townships Including housing and building material

In May 2001, the Government of India announced the policy of permitting 100 per cent FDI for the development of integrated townships, including housing, commercial premises, hotels, resorts. FDI was also permitted in city and regional level urban infrastructure facilities such as roads and bridges, mass rapid transit systems and for the manufacture of building materials. Development of land and providing allied infrastructure will form an integrated part of a township's development. The minimum area to be developed is 100 acres. The guidelines for the scheme were issued by the Ministry of Commerce and Industry in January 2002.

this is indeed an alarming number, it includes the 'congestion' needs of joint families, obsolescence and replacement of old houses, and upgrading of all the kutcha houses. The total number of houses required cumulatively during the Tenth Plan period is assessed at 22.44 million. There is, therefore, a good case for continuing the Two Million Housing scheme during the Tenth Plan period, as it will take care of about 3.5 million houses for the urban poor.

Strengthening Of Housing Stock In Vulnerable Regions

6.1.63 About 54 per cent of India's land area is vulnerable to earthquakes, 8.4 per cent to cyclonic wind and storm surges, and 4.9 per cent of the area is vulnerable to flood damage. The Working Group on Housing has suggested a scheme for strengthening of the vulnerable house in the EWS

and LIG category in 107 districts which face highest risk of damage because they are multi-hazard prone. According to an estimate, these houses can be strengthened and retrofitted at 10 per cent of the cost of construction of a new house on an average. What is equally important is to demonstrate retrofitting technologies relevant to the specific disaster-prone area.

6.1.64 The problem of housing slum-dwellers in decent surroundings is dealt with separately. In view of the growing problems of the housing sector, and particularly the urban poor, the following measures are necessary and should be implemented during the Tenth Plan period:

- The first priority in urban housing, particularly for the urban LIG and EWS, is the provision of land at affordable prices.

BOX : 6.1.2 GROUP HOUSING COMPLEXES

The growth of multi-storeyed apartment complexes in the cities has led to the emergence of a new set of problems with regard to the maintenance and sharing of common areas. The Delhi Apartment Ownership Act, 1976 is a typical legislation dealing with the issues of apartment owners. Its main objectives are:

- a. to provide heritable and transferable ownership right to every apartment owner; and
- b. to provide for an association of apartment owners for the maintenance of common areas and facilities in which every apartment owner has a percentage of undivided interest.

Formation of Association of Apartment Owners: The Act provides for the mandatory creation of an Association of Apartment Owners for the administration of the affairs of the apartments and the property appertaining thereto and for the management of common areas and facilities. The model bye-laws of such an Association, which include the constitution, structure, and powers of the Association and its office-bearers, are to be framed by the Administrator, and the Association will have to abide by these. . The model bye-laws will also deal with maintenance, repair and replacement of the common areas and facilities and payment for these, as well as the manner of collecting the share of common expenses from the apartment owners/occupants. In the proposed new Bill on the subject, the promoter has to apply to the Competent Authority for registration of the Association of apartments owners, and he will remain the associate member of each apartment till it is allotted, sold or transferred to a member.

The formation of an Association or Society of Apartment Owners is for the self-interest of the apartment owners. Without such a body, the many problems of sharing common services and areas, and undertaking maintenance work for the entire complex, may not be properly handled. However, instead of leaving it to the apartment owners to voluntarily come together to form an association, it is considered a good move to put a provision in the Apartment Ownership Act, making it mandatory for individual owners to become members, with the Promoter being made responsible for its registration. Besides, the legislation will also provide required legal backing to a number of issues which arise in the ownership and management of an apartment complex.

- Increased availability of developed land in urban areas through adoption of various innovative approaches like land bank for the poor and land assembly methods, vacant land tax and transferable development rights and simplification of sub-division regulations is called for.
- Unauthorised settlements have become a part of the urban scenario. They house a large number of people and there is ambivalence regarding regularisation of these settlements and extension of services to them. In many cities, they are not brought under the property tax net. Pragmatic solutions leading to security and extension of civic services are required. To prevent proliferation of such colonies, the land use and sub-division policies need to be streamlined, and their implementation rendered speedy and smooth without undue hassles to those in need of land for housing.
 - The city planning provisions need to be tuned to the requirements of the weaker sections in urban areas through adoption of appropriate and affordable standards and norms, use of cluster housing and 'growing house' concepts.
 - The feeling that urban planning ignores the needs of the urban poor, must be dispelled through effective action to meet these needs. The urban development authorities who acquire and develop large tracts of land for the growth of the cities, should reserve a major part of such land to meet the requirements of the EWS/LIG population. At present, there is little evidence that these authorities — who are often the sole organisation for development of serviced land — are providing the due share of land to the urban poor.
 - Housing and economic activities have to go hand in hand with the provision of housing for the workers close to work places. There is need for coordinating the development of industrial areas and housing areas. Layouts should be mixed in nature with the urban poor - providers of services - being enabled to live and integrate with the rest of the community.
 - Schemes such as the Two Million Housing scheme and the new scheme of housing with Central assistance for the slum population (Valmiki Ambedkar Awas Yojana or VAMBAY) should be used to provide immediate benefit to the most disadvantaged urban segments.
 - HUDCO assistance is not available to several states which are unable or unwilling to stand guarantee for these loans. A solution has to be found so that the urban poor in these states do not find themselves at a disadvantage in comparison with other states where there is greater willingness to use HUDCO loans.
 - Urban housing should mostly be based on savings and credit from HFIs. The workers of the informal sector and other urban poor including slum-dwellers are generally not served by these Institutions. At the same time, public institutions such as Housing Boards and Housing Co-operatives, have not been able to meet the needs of these sections. This will only increase the growth of unserved housing and of slums. There is a need to make housing loans available to the EWS in the cities. Credit activity by state agencies and housing co-operatives need to be revived. HUDCO and the HFIs should be encouraged to finance self-help groups or groups who have the support of an NGO and who can be of assistance in loan recovery.
- 6.1.65 Costs of urban housing are likely to be higher in comparison with rural housing programmes because of the higher land costs standards of construction in urban areas. It is for this reason that a scheme such as VAMBAY, launched in the final year of the Ninth Plan, has a combination of subsidy and loan. Expectations of fully subsidised housing should be discouraged. An

environment needs to be created to encourage housing programmes with credit to the extent that beneficiaries can afford.

URBAN POVERTY ALLEVIATION AND SLUM IMPROVEMENT

6.1.66 Reduction and alleviation of poverty, if not its complete eradication, including poverty in urban areas, has long been one of the objectives of planning. There have been encouraging trends in urban poverty in both percentage and numerical terms, though the urban poor still face age-old problems at the ground level. Besides, there are wide regional variations as well as differences among different size-class towns with regard to the extent and nature of urban poverty.

6.1.67 According to the 2001 Census, the total urban population is 285.35 million, which accounts for 27.78 per cent of the total population. While the total population in the country increased by 21.34 per cent in 1991-2001, urban population grew by 31.36 per cent during the same period. The somewhat moderate growth of the urban population is explained by the declining rate of urban growth in the last two decades : (Table 6.1.2)

Table 6.1.2
Growth of Urban Population

	Percentage of urban to total	Decadal urban population growth
1981	23.34	46.14
1991	25.72	36.46
2001	27.78	31.36

(Figures in percentages)

Table 6.1.3
Percentage of Number of Poor

Year	Poverty Ratio (percentage)			No. of poor (million)		
	Rural	Urban	Combined	Rural	Urban	Combined
1973-74	56.4	49.0	54.9	261.3	60.0	321.3
1977-78	53.1	45.2	51.3	264.3	64.6	328.9
1983	45.7	40.8	44.5	252.0	70.9	322.9
1987-88	39.1	38.2	38.9	231.9	75.2	307.1
1993-94	37.3	32.4	36.0	244.0	76.3	320.3
1999-2000	27.1	23.6	26.1	193.2	67.1	260.3

6.1.68 The encouraging feature is that apart from continuation of the fall in the proportion of the urban poor, for the first time in the 1991 Census, there is also a reduction in the absolute numbers of the urban poor. According to the large sample survey data on consumer expenditure (55th Round) of the NSSO using a 30-day recall period, 67.1 million or 23.62 percent of India's urban population were below the poverty line in 1999-2000. As is evident from the Table 6.1.3, while the percentage of persons below poverty line in urban areas had been steadily declining since it was first estimated at 49 per cent in 1973-74, the absolute number of persons below the poverty line had been rising, touching 76.3 million in 1993-94. This trend has been reversed in the latest Census.

6.1.69 Though, at the national level, the percentage of the poor in rural areas is significantly higher than in urban areas, only a few of the larger States conform to this pattern. States such as Andhra Pradesh, Goa, Gujarat, Haryana, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Rajasthan, Tamil Nadu, Delhi and the Union Territory of Pondicherry have reported levels of urban poverty that are higher than rural poverty. States where rural poverty is higher than in urban areas are Arunachal Pradesh, Assam, Bihar, Himachal Pradesh, Orissa, Uttar Pradesh and West Bengal. Analysis shows that poverty reduction among States has been uneven. The most important point about the inter-state variations in poverty is that it shows no correlation with per capita income or other development indicators like per capita consumption, levels of industrial and infrastructural development, etc., in urban areas during the nineties. While the

lack of development is the cause of urban poverty in many States, the nature and sectoral composition of development is responsible for poverty in others.

6.1.70 Unemployment data show that the overall unemployment rates are not high, though they are higher in urban areas than in rural areas. The unemployed person-day rates are higher than the rates obtained for persons, thereby indicating a high degree of intermittent unemployment. This is mainly due to the absence of regular employment for many workers. Studies have shown that casualisation of labour is the main, and increasing, source of urban poverty. The dynamics of development in urban areas of many States during the past two decades has been such that rapid economic growth has not led to a corresponding decline in poverty. While income levels are rising to meet the basic nutritional needs, other equally basic needs of shelter, civic amenities, health care, educational and social needs, etc. are not being met in an adequate fashion. Urban poverty, thus, emerges as a more complex phenomenon than rural poverty. Some aspects of the complexity of urban poverty are:

6.1.71 **Level of basic amenities:** There are serious deficiencies in urban infrastructure as a result of the rapid growth of urban population and low investment in urban development. In general, the smaller the town, the less likely it is to have a wide coverage of amenities, and the poor in such towns face correspondingly higher deprivation. It has been noted that the percentage of households having flush toilets exhibits a strong positive correlation with economic development, much more than any other indicator of amenities. The coverage of civic amenities, specifically electricity, drinking water and toilets, is uneven and variation across size class of urban centres shows regularity and a distinct pattern. The percentage of households covered by each of the three amenities increases systematically with the size class of the urban centres except for Class VI towns. Class V towns (population between 5,000 and 10,000) register a high percentage of households not covered by toilets, electricity and drinking water (61 per cent, 41 per cent, and 28 per cent respectively) in 1991. The shortages are very serious for urban centres with population of less than 50,000. This emphasizes the need for greater involvement of the State and Central Governments in upgrading the infrastructure of the

small towns. Most of the small and medium towns are not in a position to generate funds to provide civic amenities to all sections of population. These towns, particularly those located in less developed states, should, therefore, be the major focus of government policy in terms of providing basic amenities.

6.1.72 **Town or city size :** There is evidence to show that the incidence of poverty in a town, as measured by Head Count Ratio (HCR), declines steadily with increasing size. In 1987-88, the HCR in towns with less than 50,000 population was 47.40 per cent while that in towns with population of more than one million was 26.73 per cent. In 1993-94, the corresponding figures are 43.16 per cent and 20.57 per cent. The National Capital Territory of Delhi (where the urban population accounts for 93 per cent of the total population according to the 2001 Census), experienced a population growth of 51.3 per cent during the decade of 1991-2001. The percentage of people below the poverty line in Delhi stood at 49.61 per cent in 1973-74 and declined steadily over the years to 16.4% in 1991 and now stands at 9.42 per cent. A larger incidence of secondary and high-value tertiary activities in large cities gives people residing there a higher level of income. In contrast, the income levels of people in small and medium towns tend to be low because of the poor economic base and lack of employment opportunities in the organised sector. In the changing economic scenario, care has to be taken to ensure that the process of structural adjustment does not lead to an increase in urban inequality. For poverty alleviation in the broader sense, encompassing both income and environment, within a framework of balanced regional development, it would be important to restructure priorities in favour of small and medium towns and slums in larger cities, where a large majority of the urban poor live.

6.1.73 **Household size :** The fact that household size affects the poverty status of a household is well known. Larger households tend to have a higher probability of being poor.

Features of Urban Poverty

6.1.74 Poverty can take specific forms of deprivation and misery among individual households. The degree of poverty can also differ, and attempts have been made to categorise the

urban poor on a declining scale such as core poor, intermediate poor and transitional poor. Another study classifies them as declining poor, coping poor and improving poor, with different degrees of priority for the three basic needs of survival, security, and quality of life. Box 6.1.3 lists the various types of vulnerability of the poor:

Box: 6.1.3

Types of Vulnerability of the Poor

Housing Vulnerability: Lack of tenure, poor quality shelter without ownership rights, no access to individual water connection/toilets, unhealthy and insanitary living conditions.

Economic Vulnerability: Irregular/casual employment, low paid work, lack of access to credit on reasonable terms, lack of access to formal safety net programmes, low ownership of productive assets, poor net worth, legal constraints to self-employment.

Social Vulnerability: Low education, lack of skills, low social capital/caste status, inadequate access to food security programmes, lack of access to health services, exclusion from local institutions.

Personal Vulnerability: Proneness to violence or intimidation, especially women, children, the elderly, disabled and destitute, belonging to low castes and minority groups, lack of information, lack of access to justice.

Approach To Urban Poverty Alleviation

6.1.75 In an environment where the poor are exploited and ignored, there is a major role for the State and its agencies, including the ULBs and the parastatals, in the field of urban development and provision of services such as water supply, health, education, sanitation, legal protection and employment generation. This is an immense challenge because of the known weaknesses of the system like the lack of accountability, corruption, and the dominant role of elite groups who wield substantial power in urban governance.

6.1.76 The first formal attempt to experiment with the community development approach in cities was

the Urban Community Development project started in 1958. The Environmental Improvement of Urban Slums scheme was started in 1972 at the Central level to provide basic physical facilities like safe drinking water, sanitation, storm water drains, street-lighting and roads. This scheme was transferred to State Governments in 1974. Following experiments with a variety of combinations of schemes for employment generation, formation of beneficiary groups, training, community organisations and thrift/self-help groups, finally the integrated programme of Swarn Jayanti Shahri Rozgar Yojana (SJSRY) was launched in 1997.

6.1.77 The implementation of programmes for the urban poor is beset with enormous problems. The problem of inadequate funding has been compounded by under-utilisation of Central funds, diversion of funds released for specific programmes, and infructuous expenditure. Monitoring at the Central level has been weak and ineffective. Success stories have not been publicised or adopted on a wider scale. The understanding of the programmes, their objective and modalities relating to implementation has been weak and superficial, leading to inaction in many areas that are of vital concern to the urban poor. There are few master plans and very little effort at monitoring the benefits that are expected to flow to the target communities. In addition, there has been too much emphasis on engineering or the 'works' aspects of programmes without adequate understanding of the social, psychological and other dynamics of poverty. The beneficiaries have not been consulted nor given a voice in the implementation of programmes. When there is a deceleration of economic growth, especially when governments experience fiscal constraints and need to reduce deficits, allocation of funds for the social sectors suffers. This should not happen.

SLUMS

6.1.78 Provisional data relating to slums in the 2001 Census throw some interesting light on the slum population. Nearly 28 million persons lived in the slums in 1981, accounting for 17.5 per cent of the urban population. The estimates for 1991 were 45.7 million slum dwellers accounting for 21.5 per cent of population. According to the 2001 Census,

there are 40.6 million persons living in slums in 607 towns/cities, and they account for 22.8 per cent of the population of these cities. However, the latest Census data also reflect the problems inherent in not having an accepted definition of slums and absence of proper listing of slum settlements in the urban offices concerned with slum improvement and civic amenities. The practice of notifying slums under relevant laws is not being followed, especially where the land involved belongs to Government or any of its agencies. As a result of these lacunae, these data are not definitive because towns with less than 50,000 population, and slum clusters which are not formally or informally recognised if the population was less than 300 are excluded.

6.1.79 While demographic data on slum populations and on civic amenities to slum dwellers from the Census are still awaited, there appears to be no change in the basic level or improvement in the features of slum settlements despite several decades of programmes for the environmental improvement and upgradation of slums. There is cause to wonder whether 'Cities without Slums' is a slogan about an objective, which, however desirable, is believed to be unreachable, or whether it is a serious planning and urban development concern. Certainly the degree of effort to upgrade slums to a more habitable level, does not indicate a serious effort in this direction.

6.1.80 The Draft National Slum Policy drawn up by the Department of Urban Employment and Poverty Alleviation in the Ministry of Urban Development in April 1999, had been widely debated and many comments received. It needs to be finalised. A National Policy on Slums is of great significance given the degree of wrong perception regarding the nature and extent of the slum problem. Such a policy can help bring an attitudinal change among the authorities and the people at large, including the urban poor and the slum-dwellers, regarding measures to improve their quality of life and make our cities free from the worst features of slums. Slums are generally treated as the inevitable outcome of continuing migration of unskilled labour, but, in fact, most slum-dwellers are permanent residents of the city. In many instances, families in slums span several generations. The main objectives of a slum policy would be

- To create awareness of the underlying principles that guide the process of slum development and improvement and the options that are available for bringing about the integration of these settlements and the communities residing there with the urban area as a whole.
- To strengthen the legal and policy framework to facilitate the process of slum development and improvement on a sustainable basis; to ensure that the slum population are provided civic services, amenities, and economic opportunities to enable them to rise above the degrading conditions in which they live.
- To arrive at a policy of affirming the legal and tenurial rights of the slum-dwellers.
- To establish a framework for involving all stakeholders in the efficient and smooth implementation of policy objectives.

6.1.81 Focusing on slums enables planners to look beyond income levels to neighbourhood and environmental considerations and this results in a more multi-dimensional view of urban poverty. In view of the progress made in decentralised urban governance through the 74th Constitutional Amendment, it is necessary to ask how this has benefited the slum-dwellers and provided them an increased opportunity to articulate their needs, and obtain assistance from civic authorities and urban planners. It does appear that the effort has been more towards providing some amount of civic services in an un-coordinated fashion than towards devising all-embracing programmes with participation of the slum-dwellers themselves, and finding solutions which provide not only a decent quality of life with prospects of further improvement, but also make slums redundant in our urban habitations. Slum dwellers need not perennially be at the receiving end of selected doles but must be made part of the urban economic and social processes with adequate opportunities for improving their lives, while contributing what is acknowledged to be a major share in the economic activities of the cities. Upgradation of living conditions of the urban poor has to be recognised as part of the national development process.

Some of the obvious lapses in slum programmes are:

- Non-listing of all habitations, big or small, which should be classified as slums.
- Lack of basic information on the number of households in such habitations, and the status of basic amenities.
- Absence of a master plan for a period of five years to gradually increase the level of civic amenities.
- Adherence to outdated and totally inadequate standards of services to the slum-dwellers, under the EIUS component.
- Failure to provide specific provisions in municipal laws for dealing with issues relating to the urban poor, slums, and economic planning for poverty alleviation, etc., which flow from the 74th Constitutional Amendment; failure to build up capacity in municipal bodies to provide the required services to slum communities and the urban poor.
- Uncertainty regarding agency arrangement for various slum improvement tasks between the municipal authority, development authority, slum board, housing board, parastatals, etc., and failure to provide a coordinating institutional arrangement;
- Failure to implement provisions made in Comprehensive Development Plans for the housing, and economic needs (production and marketing activities) of the urban poor, especially provision of land, and facilities for street vendors and hawkers. In the absence of such planning, unplanned growth takes place leading to 'informal' or unauthorised low quality settlements, and unauthorised hawking which subjects the poor to harassment from petty officials. It is often said that 'there is no place for the poor in town planning process' and even existing provisions are not implemented for the benefit of the urban poor.
- Failure on the part of land-owning agencies on which slums are located to take decisions on permission to make environmental improvement and in situ upgradation of slum clusters.

- Failure to converge available civic services in sanitation, paved access and drainage, streetlights, health-care, water supply, education, etc., by organising responsibility cells and involving the beneficiaries in planning of services.
- Lack of a commitment to achieve a breakthrough in bringing slum-dwellers out of the stigma and misery of living in slums, and instead, use funds such as National Slum Development Programme for tinkering with the symptoms.

The Importance Of Slum Upgrading

6.1.82 Action taken so far for slum improvement or in situ upgrading is inadequate. Re-designing and re-constructing settlements with the participation of residents and assistance from public bodies is a viable option with the least amount of disturbance to the settlers or their livelihood. This method of slum improvement needs to be practised on a much wider scale. The VAMBAY project permits in situ upgradation, and it is necessary that an early decision is taken regarding land on which slums are situated in order to facilitate upgradation.

6.1.83 Various Central Government schemes – National Slum Development Programme (NSDP), Swarna Jayanti Shahri Rozgar Yojana (SJSRY), VAMBAY, Night Shelters, Two Million Housing Scheme, Accelerated Urban Water Supply Programme (AUWSP), Low-Cost Sanitation — provide for a wide range of services to the urban poor including slum-dwellers. They include identification of the urban poor, formation of community groups, involvement of non-government organisations (NGOs), self-help/thrift and credit activities, training for livelihood, credit and subsidy for economic activities, housing and sanitation, environmental improvement, community assets, wage employment, convergence of services, etc. What is needed is to ensure that the task of meeting the needs of the slum-dwellers is better organised and effectively administered, and duly monitored at both State and Central levels. There are also many instances of successful implementation of urban poverty alleviation/slum upgrading and services programmes in the Indian situation.

APPROACH AND PROGRAMMES OF URBAN POVERTY ALLEVIATION IN THE TENTH PLAN

6.1.84 The 74th Amendment is intended to increase the participation of the people and accountability in administration. State Governments should legislate the requisite amendments to the municipal laws, to clearly devolve the tasks of urban poverty alleviation and slum improvement to the ULBs.

6.1.85 A multi-dimensional strategy is called for, which will focus on empowerment of the urban poor. The community structure under the SJSRY should be made the common pattern and the foundation of all programmes for the urban poor and slum dwellers. This would be an effective way to give the poor a forum to talk about their needs and, given the empowerment of the poor when organised, ensure that their demands are then met.

6.1.86 Services required by the urban poor – physical infrastructure as well as human development services - are simple to enumerate and, over the years, most of them have been attempted at least in a rudimentary fashion. During the Tenth Plan, the focus has to be on upgrading these services, and on convergence for achieving synergy. Convergence of services such as water supply, drainage, solid waste management, as well as for health care, family welfare, education, anganwadis and crèches should be the main plank of urban poverty alleviation. Outlays on water supply and sanitation should, in particular, focus on the needs of the urban poor. Setting up basic health and education units such as crèches, anganwadis, primary schools, public health units and primary health centres (PHCs) in areas where the urban poor live, is equally important.

6.1.87 At the state level there is need to:

- Set up urban poverty and slum improvement task forces. The first task should be to upscale the old standards of services under EIUS and make them more relevant to the average level of services available to the residents of the town/city.
- City administrations should create urban poverty alleviation (UPA) cells at the

municipal level. The cell should have representation of all the services required by slum-dwellers, as well as of the Community Development Societies set up under SJSRY, and NGOs active in the field. The UPA cell should be in overall charge of urban poverty and slum related programmes.

- The UPA cells should draw up City Poverty Alleviation Plans in which the community organizations of the poor created under the Swarn Jayanti Shahri Rozgar Yojana (SJSRY) should be involved. The tasks of various agencies should be well-defined and coordination should be effective. The thrust should be on the provision of all basic services such as potable water and sanitation services, including household taps, toilets with septic tanks, covered drains, waste collection services etc. to the slum settlements. Other activities for the socio-economic upliftment of the slum populations should also be taken up, making maximum use of the SJSRY and similar schemes.
- City-wide master plans for slum improvement should be drawn up with the objective of removing the slum characteristics of the selected settlements. The annual programmes and projects, including those to be financed out of NSDP funds, should be based on such master plans.

6.1.88 Programmes for urban infrastructure supported by the Central Government, such as the IDSMT and the Mega City Scheme should have adequate provisions for meeting the infrastructural deficiencies of settlements of the urban poor.

6.1.89 The personnel who deal with UPA programmes must appreciate the many forms urban poverty can take. These programmes must also deal with the policy-related causes of urban poverty such as inappropriate framework of urban services, inadequate coverage of education, health, infrastructure and transport, lack of labour rights and unemployment benefits, land and housing regulations which make it unaffordable for the poor

to find housing and push them to disaster-prone and unhygienic areas, lack of safety nets and social support systems, etc.. The designated UPA cell in the ULBs should be sensitised to ensure that the needs of the poor are provided for in investment plans and maintenance provisions.

6.1.90 The community structures created under SJSRY need to be strengthened and further diversified. One method would be to form associations of specific groups such as street vendors, who could have their own self-help groups, and network to create a financial interface with the formal sector financial institutions in order to gain access to credit. Social security benefits would be another area to cover. During the Tenth Plan, the scope of SJSRY should be expanded to include a scheme of contributory social security assistance such as insurance against death of the bread-winner, sickness, disability, and old age benefits to members of the community structures, in which there will be a matching contribution from the Government.

6.1.91 Capacity building is required for developing communication and inter-personal skills among the people responsible for providing for the needs of the urban poor, for improving the level of services and satisfaction of the beneficiaries, and for providing coordinated services from a number of line agencies. The creation of UPA cells has to be followed up by exposing personnel to techniques of convergence and team formation, communication and planning.

6.1.92 The positive aspect of SJSRY is that it contains the two basic requirements of any programme of poverty alleviation namely, community involvement and empowerment, and employment generation. Evaluation studies show that the progress of the scheme has not been remarkable, but that is no reason to give up the scheme itself. What is needed, instead, is to take corrective measures and improve implementation. Some areas of improvement are:

- The wage employment component should be used only for building assets and infrastructure relating to the urban poor, and not for general municipal works. The requirements should be selected by beneficiaries themselves and

implementation should be from such lists of works identified by the beneficiaries.

- The guidelines need to be simplified and made more concise, removing all ambiguities and contradictions.
- The component of vocational training should be revamped and the quality of training improved;
- Community organisers and project coordinators should be appointed wherever they are not present, and the persons must be qualified in social work. The role of NGOs in projects should be strengthened. The community structures created under the scheme should be fully involved in the activities under the scheme, including selection and implementation of works, thrift-and-credit groups, group economic activities, etc. These community structures should be encouraged to fulfil their role as pressure groups for highlighting issues relating to their upliftment.
- Monitoring of the project at both the Central and State levels should be strengthened.

6.1.93 There is, in general, despondency among agencies responsible for programmes such as SJSRY with regard to availability of credit. There is a feeling that the increased emphasis on the viability of banks and reduction of non-performing assets (NPAs) is beginning to affect the availability of credit for the urban self-employed. This would be an unfortunate development. There is an urgent need to restore the banking sector's role in providing credit support to the urban informal sector, especially the self-employed urban poor. As the Task Force on Employment Opportunities noted, banks can meet the credit needs of the informal sector by financing self-help groups which provide micro-credit for informal sector activities.

6.1.94 The concept of micro-finance essentially rests on the premise that (a) self-employment/enterprise formation is a viable alternative means of alleviating poverty, (b) lack of access to capital assets/credit acts as a constraint on existing and potential micro-enterprises and (c) the poor are capable of saving despite their low level of income. Micro-finance could be referred to as providing credit support, usually in small amounts, along with other components such

as training and other related services to people with poor resources and skills but who are in a position to undertake economic activities. Significant progress has been made in this area in recent years and the effort needs to be extended. Such self-help activity can be strengthened with the assistance of NGOs with a good track record.

6.1.95 The other area requiring a thorough review and overhaul is vocational training under SJSRY, much of which is in the government sector and fails to equip the candidates with any sustainable level of skills or for self-employment. Innovative areas of employment, as has been developed in Kerala under the Kudumbasree programme, needs to be emulated in other states.

6.1.96 Land-owning agencies should be set a strict time limit to decide whether or not they wish to retrieve the land under slums and participate in a resettlement programme. If they fail to decide, the slums should be brought under in situ development without further reference to the agency.

6.1.97 The National Slum Policy which has already been subjected to wide debate and discussion, should be given a final form, followed up by implementation.

Performance Of NSDP

6.1.98 The National Slum Development Programme (NSDP) initiated in the year 1997 as a scheme of Special Central Assistance, has been providing additional central assistance to State Governments for slum improvement. However, its performance has not been satisfactory mainly because of the delays at the State level in releasing the funds to implementing agencies. The monitoring of the programme at the Central level requires strengthening. To ensure proper utilisation, during the Tenth Plan the NSDP funds should be released for specific projects. States should submit annual plans for projects which will upgrade selected slums to get over the slum characteristics. The existing practice of releasing the funds to the states should be modified to this extent.

Night-Shelters For The Homeless

6.1.99 The programme of construction of Night Shelters for those without homes in urban areas

Box: 6.1.4

VAMBAY : The Scheme for Housing of Slum-Dwellers

The objective of VAMBAY (Valmiki-Ambedkar Awas Yojana), introduced in 2001-02, is to meet a long-standing gap in programmes for slum-dwellers, namely, provision of a shelter or upgrading the existing shelter of people living below the poverty line in urban slums. Twenty per cent of the total allocation under VAMBAY will be provided for sanitation and community toilets will be built for the urban poor and slum dwellers. Each toilet block will be maintained by a group from among the slum dwellers who will make a monthly contribution of about Rs. 20 per family. Provision of water is also included in the scheme.

The programme is intended to be implemented in partnership with State Governments, who will set up the implementation machinery, arrange for land where required, and arrange for the credit component of the housing programme. The upper limit of Central subsidy will be Rs. 30,000 per unit in Delhi and the five mega cities, and Rs. 25,000 per unit in other million-plus cities, and Rs. 20,000 for all other cities and towns. The upper limit for upgradation of an existing unit shall be 50 per cent of the cost ceiling specified for the construction of a new house. The entitlement of the states for funds under the scheme will be in proportion to their slum population.

requires rejuvenation. The provision of subsidy under the scheme has to be adequate to make it feasible for NGOs working in the field of housing for the poor, to take up construction and operation of the shelters. The NGOs will also need assistance in procuring land, though the maintenance of the shelters can be left to the NGOs themselves. Hence there is need to revise the scheme, raising the grants per bed to realistic levels, so as to achieve the objective of providing a sufficient number of night-shelters. Establishment of special night-shelters for shelterless women and children will be a focal area for the Tenth Plan.

Plan Outlay

6.1.100 An outlay of Rs 29719 crore has been allocated to Ministry of Urban Development & Poverty Alleviation of which Rs 18669 will come from IEPR and remaining Rs 11050 crore will be provided as gross budgetary support. The schemewise break-up of the Tenth Plan outlay for Ministry of Urban Development & Poverty Alleviation is given in the Appendix.

CHAPTER 6.2

CIVIC AMENITIES IN URBAN AREAS

6.2.1 The traditional role of municipal bodies had been one of providing basic amenities of civic life. Services such as water supply and sanitation, roads and drains, street-lights, collection and disposal of solid waste, maintenance of public places, burial grounds and crematoria, cattle pounds, registration of births and deaths, maintenance of markets have long been seen as the function of municipal bodies. In addition, they performed certain regulatory functions relating construction of buildings, public health areas such as eating places, slaughter houses and tanneries, etc.

6.2.2 The 74th Constitutional Amendment has substantially broadened the range of functions to be performed by the elected urban local bodies (ULBs). The Twelfth Schedule brings into the municipal domain among others such areas such as urban and town planning, regulation of land-use, planning for economic and social development, 'safeguarding the interests of weaker sections of society including the handicapped and mentally retarded,' slum improvement and upgradation, urban poverty alleviation, and 'promotion of cultural, educational and aesthetic aspects'. The subject of 'cattle pounds' has been extended in the Twelfth Schedule to include 'prevention of cruelty to animals'. The Constitution thus envisages urban local bodies as being totally responsible for all aspects of development, civic services, and environment in the cities, going far beyond the traditional role.

6.2.3 Provision of basic amenities will continue to be among the core activities of the ULBs. The efficient performance of these responsibilities requires proper institutional structure, unambiguous decentralisation of powers, adequacy of resources, support of the State Governments and their entities, and a concerted effort to build up capabilities in the various sections of the ULB machinery. During the Tenth Plan, some key areas of water supply and

sanitation, urban transport, alleviation of urban poverty, the housing needs of slum-dwellers, and reforms in the urban sector with a view to strengthening the institutional and resource base of ULBs will have to be taken up for special attention.

URBAN WATER SUPPLY AND SANITATION

6.2.4 As in the Eighth and Ninth Plans, in the Tenth Plan also the approach to the water supply and sanitation sector will take into account the guiding principles suggested in the New Delhi Declaration, which was adopted by the U.N. General Assembly in December 1990. these are:

- a) Protection of the environment and safeguarding of health through the integrated management of water resources and liquid and solid waste;
- b) Organisational reforms, promoting an integrated approach and including changes in procedures, attitudes, and behaviour, and the full participation of women at all levels;
- c) Community management of services, backed by measures to strengthen the capacity of local institutions in implementing and sustaining water and sanitation programmes;
- d) Sound financial practices, achieved through better management of existing assets and extensive use of appropriate technologies.

6.2.5 Water needs to be managed as an economic asset rather than a free commodity in the same way as any other resource. The regeneration of sources shall be the responsibility of every user agency, whether they use water for

drinking, irrigation or other purposes. Supply of water to consumers should normally be based on the principle of effective demand that should broadly correspond to the standard of service which the users as a community are willing to maintain, operate and finance. At the same time, special provisions should be made to meet the needs of the poor who have less capacity to pay.

6.2.6 Within this overall perspective, the Tenth Plan envisages completing the task at hand, namely, 100 per cent coverage of rural and urban populations with safe drinking water as per the stipulated norms and standards on a sustainable basis. However, the focus should not only be on the investment requirements to augment supplies or install additional systems in sanitation and water supply. Instead, greater attention must be paid to the critical issues of institutional restructuring, managerial improvement, better and more equitable service to citizens who must have a greater degree of participation. Tenth Plan must also focus on achieving sustainability of the sector through the adoption of adequate measures in operation and management (O & M), the financial health of the utilities through efficiency of operations and levy of user charges, and conservation and augmentation of water sources. In view of the 73rd and 74th Constitutional Amendments, the task of providing and managing water supply and sanitation cannot be separated from the issue of functional and financial autonomy and strengthening of capacity in both rural and urban local bodies. External assistance, involvement of the private sector, and institutional/market finance are necessary to augment resources and to encourage participatory and innovative management practices.

URBAN WATER SUPPLY

6.2.7 According to the 54th round of National Sample Survey (NSS) an estimated 70 per cent of urban households reported being served by tap and 21 per cent by tubewell or handpump. Sixty-six per cent of urban households reported having their principal source of drinking water within their premises, while 32 per cent had it within 0.2 km. Forty-one per cent had sole access to their principal source of drinking water, which means that 59 per cent were sharing a public source. Fifteen per cent of households did not get sufficient drinking water from their principal source, between April and June, May being the worst month. In the aggregate, 91 per cent of urban households reported the quality of drinking water served by their principal sources to be satisfactory. 18 per cent reported using some supplementary source of drinking water and 96 per cent reported storing their drinking water.

6.2.8 Since independence there has been sustained effort at providing, on a priority basis, potable water to all habitations, and this has been successful to a large extent as seen from the NSS data. Almost all urban centres have been provided with some public water supply scheme which is the primary source of potable water for most urban inhabitants. State level data show that on an average 88 per cent of the urban population were provided with water supply through a public water supply facility, with many States reporting 90 per cent and more coverage. However, official reports tend to give greater weight to physical and financial progress rather than the quality, reliability and sustainability of services. The picture will be incomplete and misleading if the many and significant lacunae in the existing scenario are not highlighted:

BOX : 6.2.1 WHAT THE 'COVERAGE' STATISTICS DO NOT REVEAL

Statistics of 'coverage' of around 90 per cent, and bare figures of quantity of water supplied in the cities as claimed by authorities, tend to hide several realities regarding both the operations of the system, and the experience of consumers.

- The 'coverage' figure may relate to installed capacity. What is relevant for the consumer is the actual operating capacity of the water supply system, or the average actual supply over a sustained period.

- 'Coverage' by itself does not reveal the adequacy of the system, especially of the adequacy of storage, treatment and distribution arrangements, both in terms of capacity and operational features. Thus, there can be wide variations within a city in the quantity and quality of water supplied.
- Coverage figures do not indicate the actual functioning of the system and allowance may need to be made for breakdowns which may deprive the consumers of water for several days;
- Coverage figures also do not reveal the regularity or duration of supply, or even whether the supply is made on a daily basis or less frequently;
- Coverage does not reveal the financial sustainability of the system which may be low due to low tariff and poor recovery. In many towns, poor finances result in poor maintenance, leading to more frequent breakdowns and degeneration of the system leading to major expenditure on renovation, which could have been avoided by timely maintenance. Due to inadequate revenue raising, defaults in payment of electricity bills are quite common, making non-payment of water supply dues a major source of loss to the State Electricity Boards.
- Coverage does not reveal the year-round performance, like water availability in summer. In a number of schemes dependent on ground-water as well as surface sources, availability reduces in summer, causing serious disruption of normal life;
- Figures on treated and non-treated water supply are not available. Many urban centres lack treatment facilities, and where they do exist, they are often not used or used without quality control and testing;
- Coverage figures do not reveal information regarding the number of hours of supply in the case of household connections, and for public stand-posts, the distance, time taken to collect water, number of users of each stand-post, etc. New connections are delayed or sometimes denied, while new areas, especially unauthorised developments, remain unserved.
- Typically, the urban residents need to supplement public supplies with water obtained from private sources, and this is usually much more expensive. The extent to which this is required to be done – the proportion of water procured privately against the quantity determined as norm – is not brought out when only 'coverage' figures are provided;
- There are no accurate figures for unaccounted for water and the quantity actually reaching consumers. The supply figures often include unaccounted for water. Unaccounted for water also increases costs to consumers as the cost relating to water that is lost has to be made up in the tariff charged to legal connections.
- Most importantly, the coverage figures say nothing about the equity of distribution, while it is well-known that the poorer areas are provided with less water whereas the influential rich will get a more satisfactory service.
- Coverage figures say nothing about unauthorised connections, and contamination of supply due to poor maintenance and mixing with drainage and sewerage waters, nor about inequity in tariff due to flat rates applied equally to those who obtain superior service and those who get poor service.

Norms of Water Supply

6.2.9 The Manual on Water Supply and Treatment, published in May 1999 by Central Public Health and Environmental Engineering Organisation (CPHEEO), Ministry of Urban Development and Poverty Alleviation, specifies norms and standards of municipal water supply for domestic and non-domestic needs, such as institutional, commercial, fire-fighting and industrial requirements. The recommended minimum per capita water supply levels for designing schemes are:

1. Towns with piped water supply but without sewerage system: 70 litres per capita per day (lpcd)
2. Cities with piped water supply and existing or planned sewerage system : 135 lpcd
3. Metropolitan and megacities with piped water supply and sewerage : 150 lpcd
4. Public standposts: 40 lpcd

The above figures exclude unaccounted for water (UFW), which should be limited to 15 per cent. The requirement of water for commercial, institutional and minor industries is included. However, the bulk supply to such establishments should be assessed separately with proper justification.

6.2.10 The norms and standards of public stand-posts, including the number of households per stand-post, distance, sanitation at the stand-post and guaranteed hours of supply, need to be revised so that the households dependent on public standposts get their due share of water. The Eighth Plan specifies one source for 150 persons, with a maximum walking distance of 100 metres. The norms of services including water supply and sanitation under the Environmental Improvement of Urban Slums (EIUS) were determined many years ago, but few slums have risen above slum status despite many years of implementation of EIUS. While the prescribed normative level of supplies and services have not yet been met, there is already a need to re-define the standard of services in particular to slums and others who depend on public stand-posts for

water, and in sanitation, on community facilities. This should be taken up during Tenth Plan.

6.2.11 The existing general norms are by no means very high though they have hardly been met in most cities. The norms are not a ceiling but only a minimum. They should not, therefore, come in the way of any municipal body or water supply authority taking up projects for further augmenting supplies over and above the norms, if such projects can be financed from its own resource or borrowings, without subsidy or grants from the State or Central Government. The first priority, should however, be to plug leakages, uprate existing water works, and conserve water through proper planning of supply and maintenance of the system. Where supplies are found to be insufficient, concerted efforts should first be taken to improve the efficiency of the existing schemes. New augmentation schemes should be taken up only when these are found not to meet the needs.

Investment Needs of the Water Supply Sector

6.2.12 Assessing investment needs of a sector spread over more than 5000 urban centres, each with its own level of supply and distribution and changing needs, is no easy task. In the absence of a reliable system of collection of urban data, the status and needs of almost all civic amenities is hard to estimate.

Cost of Water Supply and Sanitation : HUDCO has estimated cost of water supply from surface sources to range from Rs 0.81 crore per mld to Rs 2.03 crore per mld at 1998-99 prices. The cost of supply from ground water sources is estimated to range from Rs 20 lakh to Rs 61 lakh per mld. Likewise, HUDCO estimates per capita investment for sanitation to be as follows:

Sewerage augmentation	–	Rs 1,620
Conventional treatment	–	Rs 162
Septic tank with soak pit	–	Rs 4,050
Twin-pit without superstructure	–	Rs 377.5 (15 users) to Rs 648 (5 users).

The India Infrastructure Report (Rakesh Mohan Committee) has estimated that the aggregate levels

of total annual investment requirement for urban infrastructure inclusive of water supply and sanitation and other infrastructure, would be in the region of Rs 28,297 crore over the period of 1996-2001, and it would be of the order of Rs 27,773 crore for the 2001-2006 period.

CPHEEO Estimates : The CPHEEO has estimated that by the end of the year 2007, the urban population of the country is likely to be around 36.3 crore. For achieving 100 per cent coverage by the end of the Tenth Five Year Plan and taking into account the urban population already covered, the requirement of funds has been assessed.

6.2.13 In regard to sewerage and sanitation facilities, it is assessed that 57 per cent of the urban population is likely to be covered by end of Ninth Plan. The estimates are based on the proposed coverage of 75 per cent of urban population. Moreover, 35 per cent of population already covered by the end of the Eighth Plan would need augmentation/rehabilitation and is included in calculation of fund requirements.

6.2.14 Based on these assumptions of requirements to be met, the CPHEEO has estimated the following requirements during the Tenth Plan :

Water Supply	- Rs 28,240 crores
Sanitation	- Rs 23,157 crores
Solid waste management	- Rs 2,322.60 crores
Total	- Rs 53,719.80 crores.

These are rule-of-the-thumb estimates which only indicate the order of magnitude of investment requirements. The figures need revision on the basis of actual urban population growth figures provided by the 2001 Census. On the ground, the investment needs will vary from town to town and will depend on the existing levels of supply and the gap vis-à-vis the normative levels, the current state of earlier installations and their performance in comparison to design capacity, and the cost of augmentation which will largely depend on the type of source, distance of the source, topographical factors, quality of water etc. Costs of operation also vary depending on the costs of pumping, treatment, maintenance etc. The exercise of assessing the water supply

needs to be fulfilled is yet to be done and should be undertaken during the Tenth Plan. State Governments need to carry out this task in cooperation with the ULBs.

State of Water Supply Services

6.2.15 The urban population faces an increasing demand-supply gap, wholly inadequate and unreliable supplies particularly in settlements of the urban poor, and deteriorating financial and technical performance of systems. To take only the metropolitan cities, according to a World Bank study, of 27 Asian cities with populations of over one million, Chennai and Delhi share the same rank as the worst performing cities in terms of hours of water availability per day, while Mumbai is ranked as the second worst performer and Kolkata as the fourth worst.

6.2.16 The problems of the sector are manifold. Transmission and distribution networks are old and poorly maintained. Consequently, physical losses are high, ranging from 25 to 50 per cent. Low pressures and intermittent supplies allow back-siphoning, which results in contamination of water in the distribution network. The utilities are overstaffed. Intermittent supplies for only two to eight hour places a burden on the women who have to fetch water from public taps. The urban poor, who constitute one-fourth of the urban population, and the slum dwellers, who may range from one-third to half of the population in certain cities, are the worst affected. Ensuring equity in distribution of available supplies is one of the key challenges of the urban water supply sector.

6.2.17 According to various studies, most cities are unable to operate and maintain the existing systems to the full capacity. The capacity utilization has been reported to be less than 50 per cent in 40 per cent of the towns, and less than 75 per cent in a further 20 per cent of towns. There is grave danger that cities may, in many instances slip back to lesser levels of water supply, due to poor maintenance and depletion of sources even as the population continues to grow. This may lead to a situation where the per capita availability of water by 2020 may actually decrease, unless corrective action is taken expeditiously.

6.2.18 There are wide variations among towns in terms of quantity of water supplied, per capita supply, achievement of normative supply, duration of supply, etc. In the case of slums, which are generally provided public stand-posts, there are wide variations in the availability and average number of households per stand. Wherever ground water is the main source, the over-exploitation of aquifers, depletion of water resources, and pollution by urban human wastes, are causing serious problems. Water supply and sanitation are, above everything else, issues in environmental health. There is a close link between water and sanitation requirements because availability of adequate water is essential for proper sanitation practices.

Finances of Water Supply and Sewerage Services

6.2.19 The general financial position of the urban water supply and sewerage sector is very poor. Only a few providers in large urban areas generate sufficient revenues to make any contribution to investment. In medium and small towns these entities typically do not collect sufficient revenue to cover operating expenses. There is no matching of revenues against expenditures. Collection efficiency is very low. A major cause of poor financial health is low tariff, resulting in direct subsidy. There is an attempt at cross-subsidization from commercial and industrial consumers to domestic consumers. According to one study, 76 percent of the responding towns did not raise sufficient revenues from water supply to cover the revenue expenditure on the service.

6.2.20 Institutions dealing with water supply and sanitation have very little autonomy on personnel and financial matters. Information systems necessary for effective management are generally lacking.

6.2.21 Water tariffs and the methods of levying them vary considerably from very low to reasonable rates. The methods in vogue in Indian cities include any or a combination of the following : water tax, flat rates, slab rates and volumetric rates.

6.2.22 In the past, when municipal functions were few and the pressure on infrastructure was not as

intense as today, many local bodies found it possible to meet the costs of water supply from general revenues. Property owners who paid taxes were assured of water supply free of any charges, up to an agreed level. With additional demand being met from water supply schemes executed at higher costs, the free supply became infeasible, but there was resistance to paying more in the absence of a demonstrated improvement in service quality. The prevailing 'subsidy culture' has been largely responsible for the reluctance to raise tariffs, notwithstanding the fact that lack of resources is one of the major causes for poor standards of service and maintenance, and inability to expand the system to cater to additional demand.

6.2.23 The resultant unsatisfactory service standards has now created a vicious circle of poor service—leading to low tariff because of less willingness to pay—leading to poor resource position—leading to poor maintenance and poor service. Although surveys show consumer willingness to pay higher tariffs, increases, if they are to be acceptable, must be accompanied by substantial improvements in service quality.

Institutional Arrangements for Financing and Execution of Water Supply Schemes

6.2.24 Water supply and sanitation schemes are capital intensive and, consequently, they are financed from the budget, borrowings from financial institutions or the market, and external funding agencies. Most State Governments have a policy relating to the financing pattern of the schemes, with shares for the ULB, State Government, and institutional finance. The Central Government provides assistance through the centrally sponsored scheme of Accelerated Urban Water Supply (AUWS) programme. The five cities covered under the Mega City scheme have been able to avail its funds for water supply and sanitation, and in the Tenth Plan, it is proposed that the scheme of Integrated Development of Small and Medium Towns may permit a similar facility.

6.2.25 The rationale for financing water supply schemes fully or partly through grant funds, is not always clear or consistent. In instances where the capital costs per capita are excessive due to

distance of the source, multi-stage pumping or water quality problems exist, and where the number of urban poor requiring targeted subsidy is large, there is need for a capital grant from the Government. Grants ranging from 20 to 50 per cent of the project cost are being provided, but many large cities have received external assistance which has been passed on fully as grants.

6.2.26 Instances where ULBs have raised funds in the domestic financial markets on their own strength, have been very few. HUDCO has been financing water supply projects for the past 30 years, especially those in small and medium towns, against State Government guarantee. As much as 28 per cent of the cumulative loan sanctions for urban infrastructure of HUDCO is towards water supply. During the Ninth Plan period, HUDCO has sanctioned 101 water supply schemes for financial assistance of Rs 4,828 crore. The schemes include water supply augmentation, rehabilitation, extension as well as new schemes with development of source for unserved areas. State Governments have routinely stood guarantee to borrowings from HUDCO and have in many instances, also undertaken to bear the repayment obligation of such loans.

6.2.27 Water supply and sanitation works are generally executed by the state public health engineering division which is a Department of the State Government, or a state-level Board or Corporation dealing exclusively with water/sanitation or infrastructure in general. In the metropolitan cities with their own water supply and sewerage boards, these bodies have executed the works with financial assistance from the sources mentioned earlier. Though water supply and sanitation are essentially municipal functions to be discharged by the ULBs, these bodies are unable to take any significant initiative because of their weak financial position. As a result action is rarely taken to augment supplies or effect improvements when they are most needed.

6.2.28 In most states, there is an unhealthy overlapping of responsibilities between the and the state-level Board/Department/Corporation, which leads to dilution of responsibility for project and service quality and accountability to the consumers.

ULBs who are the ultimate owners of the schemes, have little say in project specifications, project cost or quality control, or given assistance for subsequent operation and maintenance (O & M) of the scheme. It is quite common to see the individual city water supply schemes being tossed around between the parastatal and the ULB for O & M, customer service, billing and collection, etc.

6.2.29 The main problem in financing of urban water supply and sanitation is the sustainability of the present model which is heavily dependent on the State Governments' willingness and capacity to provide guarantees for institutional finance, apart from meeting the agreed state share of the project cost. Inability of the states to provide committed shares of project costs, and the tendency to sanction more works than financially feasible, has led to a situation of large numbers of incomplete works, project delays, and cost over-runs.

6.2.30 Some ULBs have initiated innovative cost recovery mechanisms, such as advance registration charges, connection charges, betterment charges, water tax, and application of general revenues and other receipts to meet part of the cost of capital works. However such instances are relatively rare. To encourage reform measures and prompt ULBs to become viable entities to access market funds, instruments such as the City Challenge Fund and the Pooled Finance Development Fund have been proposed in the Tenth Plan. Under the Urban Reforms Incentive Fund, financial strengthening of the municipal bodies through reforms and better enforcement of both property taxes and user charge, is a key objective.

Conservation, Augmentation, and Recycling of Urban Water

6.2.31 So far, there has been little or no thrust on conserving water either in the mega cities or in the smaller ones. For example, Delhi claims to supply water at the rate of 225 lpcd whereas cities like London supply only 150 lpcd. In most cities, large quantities of potable water is used for non-potable uses, while treatment of waste water and its re-use continue to be neglected. The following measures should be taken by all ULBs in order to optimise available water and conserve water sources:

- Water tariff should be set at levels that discourage excessive use. Water-efficient systems for flushing should be made mandatory. Conservation of water should be a recurring theme for both users as well as those managing the water supply system.
- Leakages and unaccounted for water is another constraint in cities. Due to old and rusted pipes or poor maintenance of the system, these losses sometimes go up to 50 per cent. These must be controlled and brought to the minimum level. Severe penalties should be levied on those found responsible for leakage and wastage of water.
- Reuse of treated sewage must be given priority in view of the fact that water is going to become more scarce in the near future. With tertiary treatment, water from treated sewage can be used even for air-conditioning, industrial cooling and other non-potable uses. This should be made a thrust area.
- Use of potable water for purposes like washing of vehicles, maintenance of gardens, etc. should be prohibited. In urban concentrations, dual supply of potable and non-potable water should be undertaken. For non-potable domestic uses, tubewells should be permitted to be sunk, subject to the construction of a percolation structure in the premises. This will conserve potable water without affecting ground water availability.
- Rainwater harvesting should be implemented widely. This has been taken up as a thrust area in Chennai and Delhi and must be given priority in all towns in the country. The Delhi Jal Board has taken up more than 80 works to harvest rain water and intends to cover about 200 buildings. The Delhi Government has approached the Ministry of Urban Development and Poverty Alleviation to amend building bye-laws to make rain water harvesting mandatory in the Capital. During the Tenth Plan, it shall be made obligatory for all urban areas to adopt rain-water harvesting as a part of the building bye-laws.
- Central Ground Water Board (CGWB) is engaged in developing techniques for artificial re-charge of ground water, which should be implemented where conditions are appropriate. Similarly the exploitation of ground water in urban areas must be

BOX : 6.2.2

A BLUEPRINT FOR WATER AUGMENTATION IN DELHI

A study carried out in 1999 identified numerous avenues for augmentation of water in Delhi. These included:

- On-channel storage and recharge of storm water channels.
- Off-channel storage for floodwater.
- Storage in lakes and depressions.
- Floodplain reservoirs for conjunctive extraction.
- Quarries, historical water-bodies, check-dams, paleo-channels, village ponds.
- Rooftop water harvesting, and ecoparks.

It was estimated that a total volume of over 980 MCM of water would be harvested, with an estimated annual recharge exceeding 71 MCM as a result. The estimated cost of the engineering works and land acquisition costs involved was Rs. 1,360 crore, which works out to Rs. 1.30 crore per MCM of capital cost, as compared to an average of Rs. 4 crore per MCM of capital cost for water obtained from upstream Himalayan reservoirs.

(Source: INTACH Natural Heritage Division)

ARTIFICIAL RECHARGE TO GROUND WATER THROUGH CHECK DAMS IN JNU AND IIT, NEW DELHI

The Central Ground Water Board had taken up a project of artificial recharge of ground water in the Jawaharlal Nehru University (JNU) and Indian Institute of Technology (IIT) area. A watershed of about 10 sq. km. area comprising of JNU, IIT, Sanjay Van and its surrounding area was selected. The JNU campus has a weathered quartzite formation while in IIT the formation is alluvium. Around 0.46 MCM water was going as surface runoff from the area. To harness the available runoff, three check-dams were constructed in JNU and one check-dam in the IIT campus. A study during the 1998 monsoon revealed that about 76,000 cum of water was recharged to ground water. The rise in water level was in the range of 0.97 to 13.7 m, benefiting an area of about 74 hectares. The results indicate that these structures are suitable in the Delhi ridge area as well as alluvial areas if sufficient space is available for the creation of reservoirs.

MODIFICATIONS NOTIFIED BY MINISTRY OF URBAN DEVELOPMENT AND POVERTY ALLEVIATION FOR RAIN WATER HARVESTING IN DELHI

Clause 22.4 Part-III (Structural Safety and Services) of Building Bye-laws, 1983

22.4.1 Water harvesting through storing of water runoff including rainwater in all new buildings on plots of 100 sq. meters and above will be mandatory. The plans submitted to the local bodies shall indicate the system of storm water drainage along with points of collection of rain water in surface reservoirs or in recharge wells. These provisions will be applicable as per the Public Notice (s) of Central Ground Water Authority issued from time to time.

22.4.2 All buildings having a minimum discharge of 10,000 litres and above per day shall incorporate a waste water re-cycling system. The re-cycled water should be used for horticultural purposes.

constantly monitored in order prevent the drying up of this important source.

ACTION TO BE TAKEN IN THE TENTH PLAN FOR OPERATIONAL EFFICIENCY AND SUSTAINABILITY

SUMMING UP

6.2.32 The unfinished tasks in water supply in urban areas may be summed up as augmentation to reach the prescribed norms, higher degree of reliability, assurance of water quality, a high standard of operation and management, accountability to customers and in particular special arrangements to meet the needs of the urban poor, and levy and recovery of user charges to finance the maintenance functions as well as facilitate further investment in the sector. The achievement of these tasks depends to a large on the willingness of the State Governments and ULBs to make restructure water supply organisations, levy reasonable water rates, take up reforms in billing, accounting and collection, and become credit-worthy in order to have access to market funding. In addition, measures suggested earlier for conservation, re-use, and re-charging of water sources, should be taken up.

6.2.33 Efficiency Enhancement Steps in ULBs: The solution to water supply problem is often seen as capacity addition, rather than operating the existing capacity more efficiently. This bias in favour of new projects is partly on account of the lack of accountability on the part of the agencies at both local and the State levels, because inefficient management of schemes goes un-noticed. Efficient operation of existing water supply schemes is the critical first step in any move to make the schemes operate in a viable fashion, by increasing availability, improving reliability and customer service, and reducing cost. While additional schemes will augment availability, it will not improve either the viability of the schemes, or lead to greater customer satisfaction as the quality of service will remain the same. Since the low quality of service is the single biggest obstacle to the levy of reasonable user charges, efficient operation will also help improve acceptability of higher user charges.

6.2.34 The decision to take up an augmentation project should be preceded by a detailed study of the needs of consumers, and the possibility of managing the available capacity more efficiently. The exercise should be in three parts and should be made by each city/town seeking augmentation of water supply. In fact, in view of its significance to improving the quality of civic services, the exercise should be carried out for every town and city:

6.2.35 **Diagnostic Study of the Operational Status of Existing Investments** : The first part will be a diagnostic study of the investment already made, to determine the level at which the capacity created is currently being operated, assessment of losses, causes of under-performance, and identification of components to be improved or restored. Leakage detection shall be carried out to determine the extent of physical loss, and the measures needed to reduce unaccounted for water will be identified. This will lead to an assessment of the additional quantity which can be made available through improvement of the system by restoration of its installed capacity and more efficient operation. Issues in water quality, reliability and regularity of supply, and inadequacies of the distribution system, will also be studied.

6.2.36 **Review of Practices in Management and Finance** : This will involve an examination of existing tariff and revenue collection to determine the adequacy of resources for proper O & M of the systems and, where applicable, for debt servicing. It will also examine the management structure, personnel, budgeting, and delegation of powers to the water and sanitation wing. The existing arrangements for attending to consumer needs, complaints, water quality assurance, and equity in distribution, will also be examined as measures to enhance customer satisfaction.

6.2.37 Assessment of Investment Needs –

- *Restoration and Renovation* : Assessment of the investment needs of system improvement, for plugging leakages, for ensuring more equitable distribution, and measures required to be

taken for managerial autonomy and performance improvement has to be made.

- *Augmentation* : Outline of a proposal for augmenting supply and improving distribution (including storage and treatment of water), with identification of possible sources, and line estimation of cost, will be prepared.

6.2.38 The study should preferably be carried out initially by the state-level water and sanitation agency (PHE Division, Water and Sanitation Board, etc.) in association with the concerned ULB. Experts should be engaged to help in the study in respect of particularly complex cases. Residents' associations and non-government organisations should also be associated in the study.

6.2.39 **Implementation of Efficiency Enhancement Measures** : After establishing the viability of investments through revision of tariff and efficiency of collection, the resources available under schemes such as the IDSMT, the Mega City Project, the Urban Reforms Incentive Fund, and the proposed City Challenge Fund and the scheme for Rejuvenation of Culturally Significant Cities when launched, should be tapped to make the necessary investments, in addition to State budgetary support and institutional finance. Maximum emphasis should be placed on restoration of designed capacity and achievement of full capacity utilisation, leakage detection and remedial action, because it will prevent wastage, reduce costs and increase availability, apart from preventing contamination of water. Water quality should be made a consumer right. A committee of citizens/users should be formed to create awareness of quality issues, and to monitor the process of water treatment and disinfection. Adequate levy of user charges, and putting O & M arrangements in place must also be ensured. At the same time, the O&M costs, especially the staff costs, must be controlled as many towns have excess staff in water supply divisions, with low employee productivity.

6.2.40 The issue of management of water supply schemes as utilities in the public service

sphere, must be re-emphasised. While private sector participation, and public-private partnerships can be beneficial in certain cases, the need for capacity building and organisational restructuring as public utilities is also an important issue which must not be lost sight of. During the Tenth Plan, there will be concerted action to improve the performance of the water supply utilities in the public sphere. Greater accountability of personnel should be ensured by appropriate organizational restructuring, adoption of modern management methods, strict supervision, amendments to the rules of service, and measures for training and motivation. A set of selected pilot projects of this nature will be taken up under the supervision of the CPHEEO, which will help establish the process, procedures, and utility of such efforts.

Financing of Water Supply Schemes Under Central Plan

6.2.41 Sustained efforts by State Governments with supportive Central assistance and institutional finance, have ensured that urban centres have one or more existing water supply schemes. Most new water supply schemes including those under the AUWS, are augmentation schemes. Such schemes, while necessary where supplies are inadequate, should be taken up after ensuring that the earlier schemes are being operated optimally as indicated in this Chapter.

Objective of Plan Assistance

6.2.42 The objective of provision of assistance under various Centrally Sponsored Schemes is to help the ULBs to achieve viable water supply schemes by defraying part of the cost of project, especially where the costs are high on account of reasons beyond the control of the local authorities. However, having provided part assistance, the schemes should thereafter be operated on commercial lines.

6.2.43 Assistance from Central Government for water supply and sanitation need to be clearly aimed at projects with high cost where a grant component is called for to make the project feasible and credit-worthy. The assistance should also be geared to meet the needs of the urban poor among beneficiaries who may not be able share any part of the project cost, and to small towns with limited

resources. Additionally, transitional costs of restructuring such as investment towards renovation and modernization of schemes for higher efficiency which will lead to sector reforms, may also be met. The level of grant assistance should therefore be specific to each project rather than be an across-the-board amount at a fixed per cent. A ceiling of 50 percent may, however, be placed in order to ensure that the schemes are designed as economically as possible.

6.2.44 The state which seeks Central assistance should have implemented reform measures such as setting up an independent regulatory regime, levying of user charges, and providing autonomy and functional powers to the professional teams managing water supply and sanitation.

6.2.45 Presently, state organizations such as the PHE Division or a state Water Supply Board presently have monopoly of project execution. The relationship between the ULB and the parastatal should be clear and based on mutual agreement, which will bind the parastatal or Department to quality and timely completion, with penal provision for delays and unacceptable quality of work. Opportunity should also be given to private sector consultancies to design and supervise projects, creating a competitive environment in which the public and private sectors have level playing field.

6.2.46 Local contribution should not normally be less than 10 percent of the project cost, and should be recovered from the beneficiaries of the scheme in advance of the project. The urban poor need not bear any part of the cost, and their share will be met by grants. Project details, including projected augmentation in water supply, cost and contractual details, and likely tariff, should be made available to the urban citizens.

SECTOR REFORMS

6.2.47 The reforms required relate to making the sector more professionally managed, with adequate autonomy and financial powers, and levy of user charges preferably determined by an independent regulatory authority. By the end of the Tenth Plan, the target would be to recover full O & M costs through levy of user charges.

6.2.48 It would be paradoxical if, on the one hand, urban utilities receive assistance from Government and its agencies like HUDCO without reform conditionalities, while, on the other hand, States are given additional financial support towards implementing reforms in the form of the new schemes such as Urban Reforms Incentive Fund, the City Challenge Fund, etc. The institutional restructuring and levy of user charges must be implemented in all schemes under which assistance is provided for developing urban infrastructure, and not only as a special reform programme. In fact a special reform financing arrangement may not have become necessary, had the proper policies been followed from the beginning.

Meeting the Needs of the Urban Poor

6.2.49 There is a need to modify the approach to the supply of water to the clusters of the poor. Instead of making them dependent on public stand-posts, households willing to take individual connections should be given these, subject to normal payment conditions. Funds under the National Slum Development Programme (NSDP), Valmiki Ambedkar Awas Yojana (VAMBAY), and EIUS funds could, however, be used to meet part of the cost of individual connections also. This will reduce the drudgery related to collection of water from the public stand-posts, and enable the poor to reach a higher standard of hygiene and health.

6.2.50 Where stand-posts must continue to be the source of water, the number of such stand-posts should be adequate for the population being served. There are successful examples of community supervision of the stand-posts. Community groups should be made responsible for maintenance of hygiene around stand-posts, for maintenance including prevention of wastage, and for collection of user charges from each household attached to the stand-post.

Review of Ninth Plan Schemes: Centrally-Sponsored Accelerated urban water Supply Programme (AUWSP)

6.2.51 The Centrally sponsored Accelerated Urban Water Supply Programme was launched in 1993-94 during the Eighth Plan. It aims at providing

water supply in towns with a population of less than 20,000 as per the 1991 census. A total of 2151 towns qualify for consideration under the scheme. The project funding is shared equally by Centre and State, the latter including a 5 percent contribution from the beneficiary town. The Centre meets the entire cost in Union Territories. State-wise share in the Plan allocation is based on a weightage system based on population, incidence of poverty, etc. Priority has to be given for towns with special problems such as very low per capita supply, very distant or deep water source, drought-prone areas, areas with excess salinity, fluoride, iron content in water source and high incidence of water-borne diseases. The per capita unit cost is normally limited to Rs 1000, which can be relaxed if there is sufficient justification.

6.2.52 Till 15th March 2002, schemes have been approved in 654 towns with an estimated cost of Rs 817.70 crore. Of this 223 schemes at an estimated cost of Rs 212.01 crore were approved during the Eighth Plan. A total of Rs 337.37 crore have been released by Government of India, of which Rs 68.624 crore were released in the Eighth Plan. The State Governments have released an amount of Rs 244.1 crore towards their share. The expenditure reported is Rs 390.33 crore. A total of 240 projects under the AUWSP are reported to have been completed.

6.2.53 Both sanctions and project completion have fallen short of the targets. The average time taken from sanction to completion is about two to three years. Insufficient flow of project funds from the State Governments, land acquisition delays, and inadequacies in project management in some of the executing agencies have been responsible for the delay in project execution, resulting in a large number of schemes being carried over into the 10th Plan.

6.2.54 Out of 240 completed projects, 98 are in the State of Uttar Pradesh. Other States which have made substantial progress in completed projects, are Madhya Pradesh (30), Tamil Nadu (25), Rajasthan (15), Maharashtra (12), Karnataka (8), Chattisgarh (9), Punjab (8), Gujarat (6), Orissa (6), and Manipur (5), and Himachal Pradesh (5). Haryana has completed four projects, West Bengal

Box : 6.2.3**Problems faced in AUWSP Projects**

AUWSP projects, wherever completed, have resulted in improved availability of water supply in the towns, even going up to 70 lpcd. However, several drawbacks in the implementation of AUWSP schemes, and after completion, have been noticed:

The following obstacles to successful implementation of the projects have been reported:

- Changing priority lists by the State Governments;
- non-submission or delay in submission of Detailed Project Reports (DPRs);
- DPRs not conforming to guidelines;
- delays at the State level in according administrative approval, and in release of State share; and
- delays in land acquisition.

The Problems in operation of the schemes are:

- Despite increases in revenue collection, the overall annual revenue generation is less than the actual O&M expenditure in most cases.
- The local bodies are not willing to take over the schemes for O & M because of lack of expertise, financial constraints, and because the schemes have not been executed/ completed in all respects as per the approved designs. Despite this, the State implementing agencies have handed over the schemes. In some cases, non-execution of staff quarters and compound walls have resulted in unauthorised encroachments on the project land.
- The most serious problems seem to be absence of manpower required for the maintenance of such capital-intensive projects, and resource crunch for O&M due to low levels of tariff and low collection efficiency. 'Negligence to some extent' was cited as one more reason for poor O&M. The poor status of power supply has affected the efficient running of the installations.
- Though disinfection units have been installed, they are not being used in some cases.

three, and Goa and Mizoram two each. In the States of Jammu & Kashmir, and Nagaland, one project each has been completed.

6.2.55 The Working Group on Urban Development for the Tenth Plan has recommended continuation of AUWSP in towns with population less than 20,000 as per the 2001 Census. This will make 2,433 towns eligible for assistance under the scheme.

6.2.56 In the Tenth Plan, the following measures must be taken to ensure that there is no slackness in the implementation of the scheme:

6.2.57 Land acquisition must be done prior to sanction of the scheme. No scheme should be given Central sanction unless the land has been acquired in advance.

6.2.58 In regard to project preparation and execution, the role of the PHE Division or the State Water and Drainage Board, should be redefined as has been indicated in the Chapter 6.1 – Urban Development.

6.2.59 Given the many factors causing delays in projects, advance planning for all projects to be taken up during the Tenth Plan should be undertaken in the first year of the Plan period. Each state's indicative allocation of Central assistance under the scheme during the Tenth Plan period should be communicated during 2002-03 so that the states can also make corresponding provision in their Tenth Plan, and proceed with project selection and preparation. Additional funds should be provided to states who excel in performance. At the time of Plan discussions itself it should be ensured that the state share in the scheme is provided in adequate measure in yearly budgets. The State should preferably deposit its share in advance into the account of the implementing agency before the Central share is released. States should be encouraged to use their allocation under the Urban Reforms Incentive Fund for execution of urban infrastructure schemes. In order to simplify the procedure for sanctioning projects during the Tenth Plan, state level Project Sanctioning Committees will be formed instead of referring projects to the Central Government. It is also

proposed that the Central grant be given directly to the State implementing agencies.

6.2.60 The Ministry should closely monitor progress of the scheme on a regular basis and any slackness or delay brought to the notice of the state for corrective action.

6.2.61 The scheme should be transferred to the ULB for maintenance after ensuring that it has qualified personnel who have been properly trained in the O & M needs of the scheme. Levy of user charges adequate to cover the full cost of O & M should be built into the scheme through an agreement between the State Government, the implementing agency, and the ULB.

6.2.62 The Working Group on Urban Development, Water Supply and Sanitation, and Urban Environment, has recommended that 100 per cent Central grant may be given for implementation of water supply schemes in small towns under AUWSP. However, rather than increase the outlay for individual water supply schemes, in view of the relative neglect of sanitation issues in the past, there is need to enlarge the scope of the scheme to include sanitation, especially basic sanitation such as waste water / sewage treatment, solid waste disposal, and surface drainage. The town which is provided assistance under AUWSP (to be renamed Accelerated Urban Water Supply and Sanitation Project – AUWSSP), should be bound by an agreement to take up such a comprehensive package of sanitation and water supply augmentation, and the subsidy under the scheme should be made available to these components also. Simultaneously, the town should also implement Low Cost Sanitation (LCS) programme in parallel, for which the allocations available under LCS should be utilized.

6.2.63 There is a need to subject the projects taken up until now under AUWSP to post-evaluation to assess their actual performance since commissioning. The Ministry of Urban development will undertake this exercise in the Tenth Plan.

URBAN SANITATION

6.2.64 The 54th round of NSS reported that 26 per cent of households reported using no latrine,

35 per cent reported using septic tank, and 22 per cent reported using sewerage system. This indicates that as many as 43 per cent of households in urban areas either had no latrines or no connection to a septic tank or sewerage. As regards waste disposal, 71 per cent of urban households reported removal of household waste by household members, 14 per cent by local authorities, and 12 per cent by private agreement among residents. Forty-seven percent of urban households reported removing of their waste to community dumping spot, and 30 per cent, to individual dumping spots. Ninety per cent of urban households reported concern regarding mosquitoes, 66 per cent regarding flies and 50 per cent regarding problems related to foul odour.

6.2.65 Estimates of access to excreta disposal systems in urban areas vary from a low 48 percent to a high 70 percent. Out of 300 Class-I cities, about 70 have partial sewerage systems and sewage treatment facilities. Levels of sewage treatment are reported to be very low. A study by the Central Pollution Control Board in 1994-95 shows that the total waste-water generated in 300 Class-I cities is about 15,800 million litres a day (mld), while the treatment capacity is hardly 3,750 mld. In the 23 metro cities, over 9000 million litres of sewage is generated daily, of which about 60 per cent is generated in the four mega cities of Mumbai, Kolkata, Delhi, and Chennai. Of the total waste water generated in the metro cities, hardly 30 per cent is treated before disposal. Most of the cities have only primary treatment facilities. Thus, the untreated and partially treated municipal wastewater finds its way into water sources such as rivers, lakes and ground water, causing water pollution. On the other hand, the programme of Low Cost Sanitation, which offers an affordable alternative technology, has made very little progress, despite being linked to the social problem of manual scavenging, which is prohibited by law.

6.2.66 The poor sanitary conditions, particularly in slums, are often linked to outbreaks of cholera and gastro-enteritis. Water-borne diseases are a major cause of mortality throughout India and impose a huge burden in terms of loss of lives and productivity. According a case study, water and sanitation diseases are responsible for 60 per cent

of the environmental health burden and over 11 per cent of total burden of disease in Andhra Pradesh. The single major cause of this burden of disease is diarrhea, which disproportionately affects children under the age of five.

Low Cost Sanitation

6.2.67 The centrally-sponsored scheme of Urban Low Cost Sanitation for Liberation of the Scavengers started from 1980-81, initially through the Ministry of Home Affairs and later through the Ministry of Welfare. From 1989-90, it came under the jurisdiction of the Ministry of Urban Development. The main objective of the scheme is to convert the existing dry latrines into low cost pour flush latrines and provide alternative employment to the liberated scavengers. The rehabilitation component is dealt with by the Ministry of Social Justice and Empowerment.

6.2.68 Low cost sanitation is rightly seen as an important solution to the dehumanizing practice of carrying night-soil, and the legislation prohibiting manual scavenging and its enforcement in turn strengthens the movement for installation of sanitary latrines in urban areas. Low cost sanitation is also the appropriate solution where resources do not permit the provision of underground sewerage, or septic tanks. The scheme covers all the households which have dry latrines and households having no sanitation facilities including households in slums and squatter colonies.

6.2.69 Under the scheme, loan and Central subsidy are extended simultaneously by HUDCO. Subsidy is graded according to economic status, being set at 45 per cent for EWS, 25 per cent for LIG, and nil subsidy for middle and high income groups. Loan ranging from 50 per cent to 75 per cent of the cost, is given at 10 per cent interest repayable over 15 years. Loan is also given for construction of community latrines on 'pay and use' principle, shared latrines in slums, housing chawls. Subsidy is limited to the cost of the sub-structure, but the HUDCO loan can be availed for the construction of super-structure also. The loans require State Government guarantee. For management of the programme, HUDCO was required to set up a separate cell, and the regional

offices of HUDCO were expected to render assistance to the State Governments in the formulation of proposals. The guidelines provide for the creation of a co-ordination committee at the Central level, as well as co-ordination committees at the state level. A recommendation has been made to create state-level cells or to nominate an existing institution for channelising the subsidy and HUDCO loans to the implementing agencies. The cell may be registered as a society. In the State of Madhya Pradesh, the Slum Clearance Board was nominated as the nodal agency.

Progress of the Scheme

6.2.70 According to an estimate prepared by a Committee constituted by Planning Commission, there were 400,000 scavengers and 5.4 million dry latrines in urban areas in 1989, and the practice of manual scavenging continues in 3117 towns. Seven states have declared themselves as scavenger free - Goa, Kerala, Gujarat, Manipur, Mizoram, Sikkim and Tripura. Six Union Territories - Andaman & Nicobar Islands, Pondicherry, Chandigarh, Dadra & Nagar Haveli, Daman & Diu, and Lakshadweep - have also declared themselves scavenger free.

6.2.71 The number of households without access to a proper system of removal of human excreta is bound to be much higher than the number of dry latrines estimated by the Committee, because the number of households in urban areas without even dry latrines, who use open places for defecation, is estimated to be 7.3 million. Therefore the number of households in need of low-cost sanitation or community toilet facilities may be as high as 15 million, if not more.

6.2.72 The progress of the scheme as on 15 March 2002 is as follows:

Financial Progress

Schemes sanctioned	- 847
No. of towns covered	- 1,317
Project Cost	- Rs. 1,435.51 crore
Subsidy sanctioned	- Rs. 486.891 crore
Loan sanctioned	- Rs. 592.69 crores
Subsidy released	- Rs. 250.67 crores
Loan amount released	- Rs. 309.18 crore

Physical Progress

Total units sanctioned	- 35,53,585
● Conversion	- 17,05,701
● Construction	- 18,47,884
● Community toilets	- 3,966
No. of units completed	- 14,58,274
No. of community toilets completed	- 2,982
No. of scheme in progress	
● Conversion	- 1,05,619
● Construction	- 2,12,987
● Community toilets	- 185
Towns declared scavenger free	- 387
Scavengers liberated	- 37,430

6.2.73 The data indicate that:

- In the 9th Plan, no loan or subsidy was sanctioned in Assam, Bihar, Haryana, Jammu & Kashmir, Kerala (declared to be free from manual scavenging), Karnataka, Orissa, Punjab, Jharkhand, Tripura, and Andaman & Nicobar Islands.
- Gujarat, Nagaland, Mizoram, Sikkim, Arunachal Pradesh and Himachal Pradesh have also not drawn any loan or subsidy under the scheme since inception.
- Nearly 37 per cent of the loan and 24 percent of the subsidy has been drawn by Andhra Pradesh, which has been consistent both before and during the Ninth Plan.
- Other major beneficiaries have been Haryana, Karnataka, Maharashtra, Madhya Pradesh, Punjab, Rajasthan, Tamil Nadu, Uttar Pradesh, and West Bengal. These ten States account for 92 per cent of both the loan and the subsidy released under the scheme. However, in respect of Haryana and Karnataka, the performance was only in the period prior to the 9th Plan.
- Hardly 13 per cent of dry latrines existing at the beginning of the Eighth Plan have been converted into sanitary toilets during

the Eighth Plan period and the first three years of Ninth Plan.

Review of the Programme

6.2.74 Apart from the backlog in numbers of units, there are important issues of user acceptance of the units installed. Evaluation of the scheme was in 1990 in Maharashtra and Andhra Pradesh, in West Bengal in 1991, and in Uttar Pradesh, Rajasthan, Haryana, Punjab, and Maharashtra in 1994. A 'Benchmark Survey Report for Evolving Community and Women's Participation' for Uttar Pradesh was prepared with the sponsorship of the World Health Organisation in 1994. These evaluations revealed some of the problems of the programme, and judging by the lack of any significant progress, they do not appear to have been adequately attended to in the Ninth Plan period, during which there was no evaluation of the scheme.

6.2.75 The reasons put forth for the slow progress are that the subsidy is limited to the sub-structure; the loan amount is small, and numbers of beneficiaries involved are large, which has made it a difficult task for the local bodies, who generally do not have a high performance in collection efficiency, to recover and re-pay. The states have been unwilling to give guarantees for this reason. On the other hand, in keeping with its policy, HUDCO is unable to provide loans because the municipal finances are in poor shape and most ULBs cannot be funded without state guarantee.

6.2.76 Project management has been weak, with hardly any state establishing an organisation capable of taking up the task of propagating the programme and supervising its implementation. Consequently there has been little effort at developing locally relevant options in sub- and super-structure which is responsive to user needs and preferences, using suitable and cost-effective locally available materials, training of local craftsmen to undertake construction of the units, induction of NGOs, quality control, user education, etc. Considerable delay due to bureaucratic reasons has been noticed in the States passing on the project funds to the implementing agencies. Thanks to weak supervision, defalcation of funds has also been reported in some cases.

The Importance of Low Cost Sanitation

6.2.77 Towns which do have sewerage do not often have sewage treatment plants, with the result that water sources are getting polluted. It has been assessed that 80 per cent of pollution is caused by sewage alone. It is infeasible to provide underground sewerage or septic tank latrines in all cities and for all residents. In the first place, highly urbanised, industrialised and densely-populated urban centres may be provided with sewerage, with priority being given to installing sewage treatment plants to prevent pollution of water sources. For the majority of the urban centres, low cost sanitation is the appropriate technology.

6.2.78 Low cost sanitation is not a programme solely for the urban poor or slum population. It has to be propagated as the appropriate solution wherever the costly option of underground drainage is not feasible. In this sense, there is need to offer more options to households that desire sanitation facilities which, while being based on the 'twin-pit-pour-flush' model, is in keeping with their needs and capacity to invest. Low cost sanitation is best propagated as a part and parcel of the maintenance of environmental health. This includes the areas of water supply, protection of the environment and preservation of environmental cleanliness, and promotion of health among infants, expectant and nursing mothers, and children. Within a town or city, the proper approach would be to take up a co-ordinated programme covering sanitation in schools, individual households, and public places with special emphasis on the sanitation needs of the urban poor and slum-dwellers and pavement dwellers. The practice of focusing on water supply to the exclusion of sanitation and waste water treatment, should be given up in the Tenth Plan.

PROGRAMME IMPROVEMENT MEASURES

6.2.79 Rejuvenating the Implementation Organization : States should set up a State Sanitation Council to be in overall charge of supervision of the programme. The Council should be headed by the Chief Minister or his nominee, and consist of experts, NGOs, representatives of PRIs and ULBs, HUDCO, other institutions in the field of environmental sanitation, health workers,

and other concerned officials. The mandate of the Council shall be to carry out extensive propagation of the principles of sound practices in hygiene and sanitation, and supervise the programmes of individual and community toilets, school toilets, pay-and-use toilets, and water quality. The areas of solid waste management and waste water treatment including drainage, will also be within the ambit of the Council. The Council will implement measures to promote the concept of sanitary latrines while bringing home the indignity of open defecation as well as manual scavenging.

6.2.80 Sanitary latrines have to be promoted as part of an overall health, sanitation and environmental awareness programme, especially among the young. Adequate provision should be made to meet the cost of information, education, communication (IEC) activities under the programme, which seems to be lacking at present. The Task Force had recommended that upto 10 per cent of the budget allocation be earmarked for this component. Out of this, 5 per cent could be utilised for project management and NGO involvement. The cost of training of skilled workers should also be met out of this provision and training should be organised locally with the help of NGOs, Building Centres, and technical institutions. A part of the provision should be used for organising safai karmacharis (manual scavenging workers) to undertake construction of LCS units.

6.2.81 Use of sub-standard materials and construction by untrained workers, in order to cut costs, may result in units which do not fulfill the user expectations, and these may be discarded. There is a minimum water requirement without which the unit cannot be kept clean and may lead to bad odour. Similarly, the space requirements, and suitability of soil must be taken into account before starting work on installing the unit. The guidelines prescribe the distance to be maintained from a potable water source to avoid contamination, and this must be fulfilled. The users need to be trained to keep the units clean and free from odour, and regarding the resting period and removal of the contents of the pit. The superstructure must cater to the comfort of the users, for protection against rain, privacy, etc., and has to meet the minimum criteria of acceptability. These issues will have to be tackled

to the satisfaction of the users before the programme can make headway. Strict standards for the construction of the LCS units need to be prescribed and followed in implementation.

6.2.82 The subsidy programme should, however, be based on the cost of the basic twin-pit pour flush model for a small household. Subsidy should be extended to cover the super-structure and sub-structure. The unit cost should be determined on the basis of local costs, and the loans and subsidy provided accordingly. The householder should have the option to design a unit that meets his requirement. It is suggested that the financing pattern of 50 per cent subsidy and 50 per cent loan, which existed prior to 1988-89 should be restored during the Tenth Plan with the further modification that it should be available to both the sub-structure and the super-structure.

6.2.83 There should be no distinction between the states that have scavengers and those that do not have, because the programme is intended to prevent both manual scavenging as well as open defecation.

6.2.84 HUDCO should establish state-wise units for the management of the programme to provide technical and organisational back-up. The ULBs should be strengthened to undertake the recovery of loan instalments.

Community / Pay-and-use Toilets

6.2.85 The scheme of low cost sanitation also includes community toilets. HUDCO has reported that the number of units sanctioned, completed, and in progress, as follows :

	Sanctioned	Completed	In Progress
Andhra Pradesh	158	40	58
Karnataka	117	0	0
Maharashtra	2,809	2,663	120
Orissa	10	10	0
Tamil Nadu	372	269	15
Uttar Pradesh	100	0	0
West Bengal	400	0	0

Community Toilet Complex Under Valmiki Ambedkar Awas Yojana

6.2.86 HUDCO is also involved in the implementation of the pay-and-use toilets programme under the Night-shelters schem, and has reported sanctioning 69 schemes for pay and use toilets, under which a subsidy of Rs 14,000 per seat is provided. This scheme has now been merged with the new scheme of Valmiki Ambedkar Awas Yojana (VAMBAY), as part of the sanitation component of the scheme for which 20 percent of the funds are earmarked. The stand-alone toilet complexes, as distinct from the units provided in slum housing colonies, will continue to be financed under the scheme as earlier.

6.2.87 Community toilets are needed for slum and pavement dwellers, rickshaw pullers and the floating population. However, the experience of maintenance and upkeep of these units by municipal authorities has been dismal, with the conditions turning so insanitary that people prefer open air defecation rather than use the public toilets. The maintenance of the units should, therefore, be handed over to an NGO or a community-based organisation. The beneficiary community should pay a small fixed monthly amount towards upkeep of the toilet and the money should be used for cleaning, water supply, and remuneration of a caretaker.

6.2.88 The construction and maintenance of pay-and-use toilets for the floating population or places such as bus-stands, markets, parks, and other places where people congregate, should be done by an NGO like Sulabh International. In some instances, such installations may even generate a surplus. Despite the possibility of commercial viability of some of the installations, it is premature, in the view of the Task Force, to base the programme on assumptions of viability. In the Tenth Plan, therefore, the construction of community toilets for the urban poor, and of pay-and-use toilets for the floating population should continue to be supported through subsidy from the Central Government.

Treatment of Urban Waste Water

6.2.89 Three-fourths of surface water resources are polluted and 80 per cent of the pollution is due to by sewage alone. On the other hand, in addition to organic matter sewage contains nitrogen, phosphate and potassium in sufficient quantities, which are essential nutrients for plant growth. Sewage is also viewed as an economic source of methane fuel. Thus it can be a valuable resource after with due treatment and processing.

6.2.90 Water supply has direct linkage with sewage generation. A survey of 345 towns with population between 50,000 and 100,000, revealed that over 95 per cent of them do not have any waste water treatment facilities, and disposal on land, and direct and indirect use for irrigation is the predominant mode of disposal.

Scheme to Provide Sewerage for River Bank Towns

6.2.91 The problem of pollution of river waters is particularly acute in the case of densely populated cities located on river banks and which do not have adequate treatment facilities for sewage or safe disposal of solid waste. In such cases, urban waste - both solid and liquid - finds its way directly into the rivers, causing a serious pollution problem. The Ministry of Environment and Forests is implementing a massive programme of cleaning of rivers and lakes in the country. The programme, which was started with the Ganga Action Plan (GAP) in 1985, now extends to the polluted stretches of 27 major rivers with works spread over 149 towns in 16 states. The approved cost of these works is nearly Rs. 3,100 crore. This is in Addition to the Rs. 450 crore already spent on GAP Phase-I. So far, an amount of Rs. 1,100 crore has been spent on the programmes.

BOX: 6.2.4

The problems identified in the Ganga Action Plan

- Most of the cities and towns do not have underground sewerage system as well as facilities for sewage treatment. As a result untreated sewage is discharged into the nearest water body - a river or a lake or a pond.
- To tackle the urban insanitary conditions and pollution of water bodies, an integrated approach covering all works such as, internal sewerage system, sewage treatment plants, low cost toilets, organised solid waste management and management of other hazardous wastes is necessary.
- Neither the State Governments nor the ULBs have been able to provide all the required resources for O & M of the existing facilities and the assets created under the programme.. As a result, the plants and facilities are not being properly maintained. Collection of user charges and funds for service connection are essential to improve the urban environment. For this, the 'ownership' of the units by the ULBs should be ensured in the first place.
- Technologies for the treatment of sewage are another area of concern. The conventional technologies require electricity which has to be paid for. On the other hand, low cost technologies like ponds require large areas of land that is not easily available in big towns and cities. There is a need to adopt intermediate technologies, of which there is a choice. Further research and development needs to be done in this area.
- The reduction of bacterial pollution and pathogenic matters is a matter of concern. Conventional technologies do not address this problem adequately. On the other hands, ponds do address this issue but the availability of land remains a constraint.
- Management of municipal solid waste leaves much to be desired in all towns including capital cities like Delhi. Run-off from municipal solid waste dumps contain pathogens as well as pollutants, which finally reach the nearest water body. In several towns, municipal solid waste is dumped into rivers. Similarly, management of hospital and hazardous wastes is practically non-existent in many large towns. Requirement of funds for adequate management of solid waste is a major constraint for ULBs.
- Low-cost toilets and on-site treatment facilities can significantly help in minimising generation of waste water. Public awareness and participation is necessary for improving urban environment. Not much attention has been given to this issue.

Urban Waste Water-Action Points for The Tenth Plan

- There is no scheme under the Ministry of Urban Development to deal with the problem of treatment of urban waste water. In view of the importance of the issue for environmental health, AUWSP is proposed to be enlarged in the Tenth Plan to include sanitation. Further, the assistance available in various other schemes such as the IDSMT, the Mega City Project, and the proposed Rejuvenation of Culturally Significant Cities, will also be applied to sanitation projects, including waste water treatment.
- Sewage water is already widely used in agriculture and horticulture, but the health effects of such use need to be studied. Technological solutions with a view to dispose treated waste water through agricultural reuse require further development and implementation.
- Replication of innovative models which have been successful needs to be ensured. One such model is the human waste powered water supply in slums in Kanpur.
- Conventional treatment techniques such as trickling filters, activated sludge process, extended aeration, aerated lagoons, oxidation ditches, up-flow anaerobic sludge blanket reactors, contact biological disk reactors, etc., are all proven technologies with varying degrees of efficiencies. Appropriate treatment systems have to be selected depending upon the local conditions and the final mode of disposal of treatment effluents. In urban areas where land availability is a problem, these systems are particularly useful in treating municipal waste water to a reasonable degree. However, these systems are costly from both capital as well as O&M points of view, and many are energy intensive as well. As such a majority of the urban local bodies may not be in a

position to afford such costly treatment systems.

- Under the circumstances, if sufficient land is available, simple treatment systems, such as stabilisation ponds, duck-weed ponds, artificial wet lands may prove effective. In urban areas where extensive sewerage network has not been established, particularly in the fringe areas of towns and cities, on-site sanitation systems such as septic tanks, soak pits, twin pit toilets etc. may serve as intermediate technologies. Moreover, decentralised waste treatment systems may be adopted to the extent possible.
- For waste water treatment and solid waste, several new approaches have been identified. On-site waste water management in large housing complexes and townships is one such option. Several low cost intermediate technology solutions are available for such decentralized waste water treatment plants. It should be ensured that the appropriate measures are taken for each location and habitation.

Solid Waste Management

6.2.92 India produces about 42 million tons of urban solid waste annually. The per capita waste generation varies between 0.2 kg. to 0.6 kg. per day, and the current municipal solid waste generation is estimated to be approximately 0.4 kg per capita per day.

6.2.93 It has been estimated that because of the increasing per capita waste generation of about 1.3 per cent per year, and the growth of urban population of between 3 and 3.5 per cent per annum, the yearly increase in the overall quantity of solid waste in the cities is about 5 per cent. Urban waste management by the ULBs is already under stress because of poor resources and inadequacies of the system. Unless concerted efforts are made to improve the flow of resources to solid waste management and build up systems which incorporate the basic requirements of a proper waste management practice, the problem of urban

waste will be further aggravated and cause environmental health problems. The composition of urban waste is another factor to consider, with increasing use of packaging material made of both paper as well as plastic

6.2.94 In October 2000, the Ministry of Environment and Forests notified the Municipal Solid Wastes (Management and Handling) Rules, 2000, which lay down the procedures/guidelines for collection, segregation, storage, transportation, processing, and disposal of municipal solid waste. The rules require that all cities should set up suitable waste treatment and disposal facilities by 31 December 2001. The rules also specify standards for compost quality, leachate control, and management and closure of landfill sites.

6.2.95 A comprehensive manual on Municipal Solid Waste Management has been brought out by CPHEEO for the guidance of ULBs. This manual was prepared by an expert group consisting of various bodies such as the CPHEEO, Central Pollution Control Board, National Environmental Engineering Research Institute, Ministry of Non-conventional Energy Sources, ULBs, academic institutions, etc. In pursuance of Supreme Court directions in 1996, a Technology Advisory Group for improving solid waste management in the country has also been set up by the Ministry of Urban Development, with three core groups to deal with appropriate technologies and R & D, financial resources and private sector participation, and on capacity building, human resource development and IEC.

6.2.96 Waste management in the cities is receiving attention from a number of departments relating to health, environment, agriculture, non-conventional energy, as well as urban development. Participants are not only government bodies but include NGOs, CBOs and the private sector as well as research organisations.

6.2.97 The problem of urban waste management is notable not only for the large quantities involved but also its spatial spread across over 5000 ULBs and the enormity and variety of problems faced by them in setting up and managing systems for collection, transportation, and disposal of waste. In

fact, in the municipal budgets the staff salaries relating to solid waste management are normally among the largest items, accounting for up to half of the total municipal staff. It is estimated that the ULBs spend about Rs 500 to Rs 1500 per ton on waste collection, transportation, treatment and disposal, most of it on collection and transportation and very little on disposal and treatment, and 75 to 80 per cent of this expenditure is on staff salaries. In spite of this, collection efficiencies range from 50 to 90 per cent of the waste that is generated. Localities of the urban poor and slums are likely to be the ones most neglected, exposing the residents to extreme squalor, made unbearable especially when it rains.

6.2.98 While transportation arrangements are generally inadequate due to the unavailability of the right kind of vehicles, and low productivity of the personnel, the major problem is that of indiscriminate disposal in open spaces, road margins, tank beds, etc. A survey by the CPCB on the status of municipal solid waste management reported indiscriminate dumping of garbage in open lands. There have been studies of the public health impacts and pollution of surface and ground waters resulting from the liquid and solid waste disposal practices of the small and medium towns. Sanitary landfills designed and constructed so as to prevent contamination of ground water, creation of stench, and other forms of environmental hazards, are largely absent. Studies of the existing landfill sites and their environmental effect are yet to be taken up. The ULBs find it hard to raise resources to acquire suitable land, and lack the technical capability to design a proper sanitary landfill facility. There is need to prevent dumping in open spaces and introduce sanitary landfill.

6.2.99 Resources for solid waste management is generally met out of the overall property tax receipts of the ULB, though some states provide for a general purpose tax to which surcharges towards specific services such as sanitation, water supply, etc. are added on.

6.2.100 Promotion of composting of urban solid waste was implemented by the Ministry of Food and Agriculture in the 1960s through soft loans to ULBs. Block grants and loans were given to State

Governments in the Fourth Five Year Plan (1969-74) for setting up composting plants. The Surat plague epidemic in 1994 highlighted the inadequacies and risks inherent in poor solid waste management. The Bajaj Committee in 1995 made a number of recommendations including waste segregation at source, primary collection, levy of user charges, use of appropriate equipment and vehicles, focus on sanitary land filling and composting, and encouraging private sector participation.

6.2.101 Post-Surat the country saw the emergence of more than 35 waste treatment projects between 1995 and 2000, with private sector participation, mostly for composting facilities. There has been increased awareness and people's participation in solid waste management. NGOs and CBOs have begun to participate in this movement and have found wide acceptance among municipal and State Government functionaries. Private sector participation has been encouraged with a view to economy in cost, efficiency, introduction of new technologies, and more effective service delivery. Municipal bodies have engaged private sector agencies for different activities such as street cleaning and collection of solid waste, its transportation, as well setting up composting plants. Experience in such cases has shown that with suitable agreement being reached on provision of land, supply of solid waste, and where appropriate, sharing of capital cost, the private sector and NGOs can assist in setting up compost plants.

6.2.102 There have been important developments in terms of guidelines, rules and regulations during the Ninth Plan period. These are:

- Constitution of a Committee by the Hon'ble Supreme Court of India in 1998 to look into all aspects of solid waste management in the Class I cities of India and submit a report to the Court for further direction. The report was submitted in March 1999.

- Constitution of a Technology Advisory Group on Solid Waste Management under the Ministry of Urban Development and Poverty alleviation, Government of India, pursuant to the recommendations of the Committee on Solid Waste Management for Class I cities constituted by the Supreme Court, to identify proven technologies, provide technical assistance to ULBs, channelise funds earmarked for solid waste management in various ministries, develop IEC material and promote capacity building of ULBs.
- Notification of Bio-medical Waste (Management and Handling) Rules, 1998 by the Ministry of Environment and Forests, which also incorporates comprehensive guidelines for selection of technologies and specifications for bio-medical waste apart from the rules and regulations, time frame to be followed and the duties and obligations of the generators of such waste and operators of facilities.
- Notification of Municipal Waste (Management and Handling) Rules, 2000 by the Ministry of Environment and Forests, which also incorporates comprehensive guidelines for the selection of technologies and specifications apart from the rules and regulations and time frame to be followed.
- Publication of the Manual on Municipal Solid Waste Management by the Ministry of Urban Development, in May 2000.

6.2.103 The initiatives of the Ministry of Non-Conventional Energy Sources and the Ministry of Agriculture during the Eighth Plan were not only continued but their scope and extent were broadened. The Ministry of Environment and Forests also has provided incentives in the form of subsidy for setting up municipal solid waste based compost plants as demonstration projects during the Ninth Plan Period.

Box : 6.2.5
Common Waste Treatment Facility
HYDERABAD

Given different treatment systems for compliance of the rules, individual health care establishment cannot have own arrangements for comprehensive treatment and disposal of the waste generated by them. Therefore, each town/city should have at least one common treatment facility for the management of bio-medical waste. A common treatment facility for bio-medical waste has been established at Kothur in Mehboobnagar district near Hyderabad, which is perhaps the first such facility in the country. The facility has been established by a private company on a build-own-operate basis. HUDCO has provided financial assistance for this project.

The company collects bio-medical waste from health care establishments in Hyderabad and Secunderabad in specially fabricated covered vehicles with compartments for different types of waste. The waste is transported to the Kothur plant. The facility has an incinerator with double chamber, wet-scrubber and a 30 metre high chimney stack. An indigenously manufactured microwave equipment has been installed along with a small standby autoclave for certain categories of bio-medical waste. There is a shredder for shredding sterilised waste. There is a secured landfill within the premises for incinerator ash and other sterilised waste. The company is planning to install a treatment plant for the wash water generated while washing the collection vehicles.

The facility caters to 6,000 beds per day at present and this is likely to increase to more than 10,000 beds within a year. The project cost for this facility was Rs 120.62 lakh.

SHILLONG

A common treatment and disposal facility for bio-medical waste is under implementation in the outskirts of Shillong. The facility would cater to the needs of about 2,000 beds in the Shillong and Greater Shillong area and would consist of a dual chamber incinerator with emission control facility for the anatomical waste and autoclave with steam generating and shredding facility for other bio-medical waste. A secured landfill would be created for the incinerator waste whereas the other sterilized waste would be put in the adjoining sanitary landfill site. Bio-medical waste would be collected from the health care establishment by covered vehicles and brought to the common facility by private operators.

Priority Action Areas for Sanitation

- Municipal bodies in many parts of the country suffer from inadequate resources. Assessment of demand and 'willingness to pay' by the communities, which will help arrive at a basis for pricing waste management services and to clarify the scope for adopting 'full cost recovery' policies to achieve financial sustainability, should be carried out.
- Soil fertility is being affected by excessive use of chemical fertilisers without adequate use of organic manure. The large quantity of urban waste can be a useful solution to this problem. Compulsory production of compost from urban solid waste in all cities, and promotion of this organic manure in agriculture should be implemented as this may have a significant positive impact on soil fertility. Agricultural research and extension services, as well as fertilizer producers/marketers to be involved in promoting urban compost (avoiding dumping of urban waste in raw form in the fields) in the neighbouring farms.
- Identification and development of less capital-intensive 'intermediate' waste

- management technologies, and implementation of known technologies which are cost-effective and not dependent on assured power supply, are priority areas. There is a need for both specialised technological institutions in the field of environmental concerns and NGOs, to take the lead in development and propagation of such technologies in the urban areas. Programmes in the urban and environmental sectors should provide for financing of such programmes.
- Comprehensive project preparation for each town and city for both solid and liquid waste treatment and re-cycling should be undertaken within the next two years. Identification of sites and acquisition of land should be done, keeping in view a long-term perspective, as availability of land for these purposes will sharply decline in the near future.
 - Fiscal concessions and subsidies are important. Transport vehicles for carrying solid waste may be exempted from excise, sales tax and other duties. A number of private sector and NGO providers of technology in this field have been identified by the Technology Advisory Group on Solid Waste Management. Private companies entering in this sector should be granted soft loans for the installation of compost-plants, land on lease for a period of 30 years, tax holiday, accelerated depreciation, legal and financial help and support. The organic manure produced in these compost plants should be granted some subsidy as in the case fertilisers.
 - Safe disposal of urban solid waste, especially of hospital waste, is now a mandatory requirement on State Governments and ULBs. In the interests of community health and the environment, enforcement and implementation of rules relating to bio-medical, municipal solid waste and hazardous waste has to be very strict.
 - Since there is no centrally sponsored scheme for either waste water treatment or for solid waste management for urban areas, the provisions under such schemes as the IDSMT, Mega City Scheme, Scheme of Rejuvenation of Culturally Significant Cities, and the City Challenge Fund, would have to be made use of for these purposes. The States should be encouraged to utilise their allocations under the Urban Reforms Incentive Fund also for urban infrastructure works, including sewage/waste water treatment and safe solid waste disposal.
 - However, in the Tenth Plan, a new Mission-mode state sector programme named 'Urban Sanitation Mission', with focus on setting up sanitary land-fills and composting plants for urban solid waste, and improvement to drainage in urban areas, will be taken up with Special Central Assistance.

URBAN TRANSPORT

6.2.104 A good network of roads coupled with an efficient mass urban transport system play a catalytic role in urban economic growth, with a beneficial impact on the urban poor. However, there is a growing trend towards an increasing number of personalised vehicles, especially two-wheelers which account for 60- to 80 per cent of motor vehicles. This results in congestion on the roads, slowing down of traffic and atmospheric pollution. Narrow carriageways and poor road surface add to the problems. Growing vehicular pollution in cities is a cause of great concern, as are noise levels and traffic accidents. Traffic and transport are emerging problems in many cities which are experiencing heightened economic activity and mobility of people.

6.2.105 Growth of cities leads to a sharp increase in the demand for urban transport facilities. However, the provision of public transport facilities has suffered because of a number of reasons. As population density in cities increases and cities expand in area, there is very little planning for this growth, especially for transport needs. Older areas suffered because of lack of resources for developing

appropriate carriageways and public transport systems. Capacity constraints of the existing public transport systems grew worse with densification of the inner cities, and increase in land values and development in excess of the capacity of the existing infrastructure, made the provision of relief more difficult.

6.2.106 Seventeen of the 23 largest cities have organised bus services, with a combined fleet of about 25,000 buses including private buses. Use of urban rail services is extremely limited, with only three cities – Mumbai, Kolkata and Chennai – having suburban rail systems. Phase I of the Delhi Mass Rapid Transport System is under construction. Except for mega cities, modal split in favour of public transport is poor and generally less than 20 per cent.

6.2.107 In smaller cities and towns, circulation of people and vehicles is hampered by narrow roads. This is further constrained by the fact that the carriageway is occupied at the margins by vendors, unauthorised structures, solid and liquid waste, and parking of vehicles. Poor road construction and inadequate maintenance further hamper smooth traffic flows. Failure to provide for genuine requirements such as parking areas for lorries and buses, vehicles for hire as well as for private vehicles leads to haphazard use of road space and acts as an obstacle to the smooth movement of traffic. The solution to these problems is better design and construction of roads, provision of parking areas and bus-bays, provision of suitable areas for vendors, and enforcement of traffic regulations.

6.2.108 The transport situation can be improved by better planning and coordination among the various agencies involved, and augmenting the public transport system. A meaningful urban transport policy would need to address the following:

- Ensuring the fullest use of available transport infrastructure through low-cost

optimisation measures (Transport System Management techniques).

- Development, as appropriate, of cost-effective road-based, rail-based and water-based (where applicable) forms of public systems and inter-modal integration.
- Reducing emissions from motor vehicles.
- Land use – Transport integration. Urban transport has to be recognised as a sub-system of the urban system, and transport planning has to be given highest priority in urban planning.
- Central and State Governments must provide higher levels of financial support for urban transport projects. Innovative sources of financing must be explored. Schemes of urban investment such as the Mega City Project and IDSMT should invariably address the requirements of the traffic and transport management.
- Development of suitable institutional mechanisms at the national, state and local levels for the planning, financing, construction and O&M of urban transportation systems.
- Review of the policy of nationalisation of urban public transport and bringing in the capital investment and management capabilities of the private sector with due regulation.
- Special attention to road-based public bus transport system since it is crucial especially for the lower income brackets. Increasing the capacity of the public bus systems is a key to reducing congestion on roads in cities. It will also increase the access of the urban poor to social and economic opportunities.

BOX : 6.2.6
THE CASE FOR PRIVATISATION OF URBAN PUBLIC TRANSPORT

The private sector has shown remarkable growth and entrepreneurial abilities in the transport industry. It is a matter of concern that the financial and managerial capabilities of the private sector are not being put to better use in urban public transport systems. There is inadequate appreciation of the importance of an efficient public transport system in the economic and social life of the city.

The private sector is already present in urban and suburban transport, but because of the prevailing system of 'transport permits' and nationalisation, most of the private vehicles are run in a clandestine fashion. This affects the quality of the system, apart from exposing the users to avoidable risks. A more demand-driven public transport system is called for, in the interests of the commuters in the cities.

The right course would be to de-nationalise the sector, and bring in a competitive system of road-based public transport in the cities, in a phased manner. The present systems, while subjecting the State Road Transport Corporations to losses, do not provide reliable and punctual services. With the sector being thrown open to the private organised sector, a regulator can fix the fares and determine the subsidies to be provided by the State for categories such as school-children, the disabled, and the elderly. The number of such subsidies need to be kept low.

The transport systems should be operated by corporate organisations or co-operatives of bus-owners. The minimum or qualifying level of investment capabilities and experience of operators can be defined, so that the systems are run on professional lines with attention being paid to passenger comfort, safety, reliability, and punctuality.

6.2.109 The road capacity of cities is seriously impaired due to wasteful use and neglect. Traffic management measures in most cities are inadequate. Traffic problems of different degrees are caused by:

- Poorly planned traffic circulation;
- poorly designed intersections;
- inadequate signalling/other traffic management measures;
- inadequate parking facilities and parking on the streets;
- on-street loading/unloading activities;
- heavy 'through' traffic in central areas;
- encroachment on footpaths/roads;
- general lack of regard for traffic regulations;
- inadequate enforcement of traffic rules and regulations.

6.2.110 As a complement to creating more physical capacity through major investments in urban transport infrastructure, there is a lot of potential for the effective use of existing road space by appropriate traffic engineering and management/enforcement measures.

6.2.111 During the Tenth Plan period, studies will be carried out in a number of the larger cities to develop integrated transport systems particularly to strengthen the modes of transport for the urban poor such as the urban public bus system, non-motorised transports, and informal transport. The objective will be to strengthen the public transport systems by increasing its capacity, while integrating all other modes of transport so as to optimise the options available in each city to reduce congestion and pollution, while improving access, speed and

safety. Emphasis will be laid on urban planning, including development of satellite towns, creation of ring-roads and bye-passes, and decongestion of the cities by shifting non-essential activities to the outskirts. Measures to improve the viability of public transport projects, and innovations to attract greater investment into this sector, including strengthening the network of urban transport infrastructure consisting of roads, grade separators, pedestrian subways, etc., will also be undertaken.

6.2.112 A programme of Central assistance to urban transport related investments is also proposed to be taken up during the Tenth Plan. Some of the areas to be assisted will be:

6.2.113 Urban Bus : In view of the technological superiority and other advantages, urban bus may be introduced in metropolitan cities replacing the standard bus currently in use. The Central Government should finance 50 per cent of the cost of 2,000 urban buses, as an initial investment towards more efficient public transport.

6.2.114 Dedicated Bus-ways: As a major part of the transport demand will continue to be met by the bus system in cities, it is important to facilitate their movement through provision of dedicated bus-ways. A pilot programme on this will be taken up during the Tenth Plan. Alternatives such as electric trolley buses and sky bus will be explored where appropriate.

Planning for Rail Based Urban Transport

6.2.115 In cities with a population of 3 million or more, there are several corridors of heavy – 20,000 or more – peak hour peak direction traffic. Provision of rail-based urban transport system on such corridors becomes inescapable, and institutional arrangements for introducing such systems in eligible cities are overdue. City-wise specific projects for rail-based urban transport systems together with funds required for them need to be identified. Certain other measures are also required, such as:

- A comprehensive legislation covering construction as well as O & M of metro railways in all Million Plus cities, needs to be enacted. The legislation will also have provisions for a regulatory authority for fixing fares, and safety inspection system. The Rules of Business should clarify the responsibility of each department of government involved such as the Ministry of Railways, Urban Development, etc., as well as the State Governments concerned.
- The Central Government should set up a National Urban Transport Development Fund with a 'seed money' allocation of Rs. 3,000 crore. In addition an equal amount should be raised through taxes/cesses taking the total amount available to Rs. 6,000 crore. The Fund would be the prime mover for making urban rail-based transport systems a reality.
- Metro systems are urgently needed in cities like Kolkata which presently has a limited metro rail system, Mumbai and Chennai which have a partial coverage of suburban rail service, and cities of Hyderabad and Bangalore which have virtually no commuter rail systems. Cities such as Ahmedabad, Pune, Kanpur, Nagpur, Lucknow, Surat and Jaipur can also aspire for rail-based urban transport systems. Central assistance on par with assistance given to the Delhi Metro project, is a commitment to be fulfilled as and when these projects get grounded.

Plan Outlay

6.2.116 The Ministry of Urban Development & Poverty Allivation will implement the policies & programmes mentioned in this chapter. The schemewise break up of the Tenth Plan outlay is given in the Appendix.

CHAPTER 7.1

INDUSTRY

7.1.1 In order to achieve a doubling of per capita income over the next decade, the Tenth Plan targets a gross domestic product (GDP) growth rate of 8 per cent per annum. The corresponding growth target for the industrial sector is 10 per cent. This represents a major step-up in view of the less than 7 per cent growth during the last decade. A task that would have been quite daunting even under normal conditions, becomes much more challenging due to structural deformities and changes that are likely to occur in the internal and external environment.

The Emerging External Environment

- WTO
 - Free Trade
 - Tariffs
 - QRs
 - FDI
- Market access
 - Standards
 - Accreditation
 - Certification
- Regional Trading Blocs
 - NAFTA
 - EU
 - SAARC
- Preferences for green products and processes
 - Environment
 - Health
 - Safety

7.1.2 A highly competitive environment is rapidly emerging, driven by rising economic and social aspirations on the one hand and external conditions predominantly World Trade Organisation (WTO) related market forces on the other. Other important factors emphasising the need for continuous improvements in productivity and efficiency in the allocation of resources are: consumer demand for enhanced value in terms of cost and quality; consumer tastes and preferences shifting perceptibly in favour of environment-friendly products; and regulatory pressures for sustainable industrial processes and practices based on life cycle analysis of the impact on the environment.

7.1.3 Global integration of markets is also challenging the conventional concept of

comparative advantage based on the narrow static interpretation of relative factor endowments of nations. Access, on a global basis, to modern technology, capital resources and markets is now a more critical determinant of international competitiveness.

7.1.4 Comparative advantage is today the aggregate sum total of technical, entrepreneurial and managerial capabilities of the constituent firms of a country. Improvements in transport and technology make it possible to split business processes and locate sub processes in different countries depending on the inherent cost advantage which they can derive from the investment climate and policy environment. Be that as it may, no country can isolate itself completely from the forces being unleashed by a rapidly globalising community of nations. A dynamic policy environment should not, however, be perceived as a looming threat since it also offers immense opportunities to capture much more affluent markets outside the country. It has been estimated that developing countries could realise over \$700 billion in the form of export earnings if industrialised countries end the protection of labour-intensive products. Potential export earnings of developing countries in textiles, clothing and other labour-intensive products alone are estimated to exceed \$500 billion if advanced industrial countries open up their markets (UNCTAD, 2002).

Box 7.1.1

Fortune 500 companies have started sourcing initiatives in India

- ABB
- FORD
- SHARP
- CUMMINS
- GE
- GM
- HP
- FIAT
- EMERSON ELECTRIC
- TOYOTA
- KODAK

Box 7.1.2
Manufacturing is moving to India
(multinational companies which have set up
base in India)

• TOYOTA	• GM
• MAKINO	• HYUNDAI
• FORD	• KODAK

7.1.5 India's inherent strength and comparative advantage lie in the presence of entrepreneurial acumen of the highest quality, an established scientific and industrial base, cheap, skilled English-speaking workforce and a large domestic market. The relocation, by large transnational companies, of their manufacturing base to India and sourcing of products from here by other Fortune 500 companies is evidence of the bright future of Indian industry.

7.1.6 Unless India is proactive in responding to the imperatives of the changing environment, there is a very serious danger that it would be left far behind in today's race for the 'survival of the fittest'. In short, Indian industry has to discard its inward-looking approach and become outward-oriented and learn to operate in an unprotected, internationally competitive environment. Our dream can be translated into reality only if we see apparent threats as genuine opportunities and exploit their potential. Industry and the Government have to work collectively and in tandem to this end. The Tenth Plan requires making a bold departure from the past.

OBJECTIVES OF INDUSTRY SECTOR

7.1.7 The contribution of industry to GDP is an important indicator of a nation's progress in the process of structural transformation from a rural agricultural society to a more urban industrialised one. Further, an increase in per capita income is associated with a rise in the share of industry along with a fall in the share of agriculture in national income. In the early stages of industrialisation, when per capita income is very low, the primary sector occupies a dominant position in the economic structure. As capital and skills accumulate, both productivity and per capita income rise. Industry, in its broad sense of secondary sector, is followed or accompanied by the services sector displacing the relative contribution of the primary sector.

7.1.8 It is significant to note that consumption of manufactured consumer goods is recognised as one of the most widely accepted measures of standard of living and of quality of life. Manufacturing industry provides the driving force for stimulating rapid economic growth. The growth rate of the manufacturing industry normally surpasses that of the agriculture and the service sectors. It is for this reason that industry is considered the backbone of an economy. It is in recognition of this special importance that raising industry's share in GDP is being ranked as the foremost objective for this sector in the Tenth Plan. The comparative cross-country position given in Table 7.1.3 amply justifies this objective. India's share in world industrial output and exports is not commensurate with its size and potential. Unless the pace of industrial growth is accelerated, India is likely to be left behind by the larger community of nations. It is perhaps pertinent to add that traditionally, the political stature of a country has been commensurate with the size and structure of its industry.

Table 7.1.3
Industry's share(%) in GDP

Country	Value added as % of GDP		GNI/cap (\$ in 2000)
	Industry	Services	
India	27	46	460
China	49	34	840
Malaysia	40	48	3380
Indonesia	47	36	570
Philippines	30	53	1040
Thailand	40	49	2010
World Development Report 2002			

GNI (Gross National income) = GDP + Net receipt of primary income from foreign sources

7.1.9 Participation in world trade is essential for India as it can yield multiple advantages. Rising exports can augment the availability of much-needed imports while also bridging the trade deficit. As a spin off, the concomitant requirements of productivity and quality of exportable manufactured goods would also raise our own standard of living through the improved availability of diverse high quality products. Globally, trade is emerging as a powerful engine of economic growth and

development. Manufactured products are generally traded goods. Their demand also shows price and income elasticity as a result of which the export industry, unlike agriculture, does not face major market constraints. Raising India's share in the world exports of manufactured products is, therefore, the second important objective for the industry sector in the Tenth Plan.

7.1.10 Free markets and competition are not a panacea for all the ills of the developing countries. Complex issues such as the elimination of regional imbalances in industrial development, which has defied all solution in earlier Plans, need innovative alternatives, particularly in the absence of direct intervention measures such as industrial licensing through which location of industry was sought to be influenced earlier. The increasing gap between developed industrialised States and others could have serious implications for the country. This is particularly true for the northeastern States, which have continued to lag behind the rest of the country on account of their poor connectivity, inadequate local infrastructure and small size of their markets. Bringing about a balanced industrial development in the country is, therefore, proposed to be the third objective for the sector.

7.1.11 Employment in India is skewed in favour of the agriculture sector which accounts for about 60 per cent of total employment. As a consequence, there is widespread unemployment and under-employment especially for skilled workers both in urban and rural areas. Demographic projections suggest that about 60 per cent of the population would soon be in the 15-59 year age group, leading to a substantial increase in the workforce. Unless jobs are created in the more productive manufacturing sector, the unemployment situation could become quite alarming. Hence, the fourth objective for the industry sector in the Tenth Plan is to create jobs for skilled workers through industrial growth.

STRATEGY FOR INDUSTRY SECTOR IN THE TENTH PLAN

7.1.12 The Tenth Plan envisages a comprehensive and coherent strategy for attaining these objectives. Deepening and widening of economic reforms to create a positive investment

climate conducive to a dominant private sector role, including setting up state-of-the-art infrastructure, capacity building in industry in order to make it internationally competitive, a level playing field with effective and transparent rules of fair play, augmentation of financial resources and efficiency-enhancing policy instruments are the important ingredients of such a strategy. These have to be viewed in a holistic manner as they are interdependent.

Creating a Positive Investment Climate

7.1.13 The industrial development strategy is being re-oriented towards enabling our vibrant private sector to reach its full entrepreneurial potential, to contribute towards production, employment and income generation. Unless the economic environment is conducive to high levels of private sector participation, there can be little progress in accelerating industrial development and growth. An inward-looking policy environment in the past promoted import substitution with artificial props such as high tariff protection, quota restrictions, entry barriers etc. In order to ensure that the transition from a closed to an outward-looking economy is smooth and non-disruptive, well-conceived government interventions to dismantle existing barriers to industrial growth and accelerating new initiatives to create an enabling environment at par with the rest of the world are needed.

7.1.14 Private initiative depends on a variety of market-related factors and overarching macro economic policies. A conducive investment climate requires a considerable widening and deepening of economic reforms cutting across the Centre and States and local bodies, including panchayati raj institutions (PRIs). These reforms must be aimed at ending rigidities in labour policies, reforming real estate laws, the security, transferability and enforceability of property rights, bankruptcy and foreclosure laws and easing restrictions on the inter-State movement of goods imposed by the Essential Commodities Act, 1955, octroi checkposts and other local levies/regulations. The agenda also covers positive conditions required for a competitive market economy like the establishment of an efficient world-class physical, financial and social infrastructure,

providing a level playing field and rules of fair play which require bold initiatives including removal of artificial compartmentalisation of different sub-sectors. The Government also needs to address the issue of restrictions on market access, dumping and predatory practices on the part of other players, especially the developed nations.

7.1.15 Tariff imposed by the industrialised countries are substantially loaded against manufactured imports from developing countries, making it more difficult for them to undertake downstream processing activities. The use of non-tariff measures, including anti-dumping cases, social safeguards, technical standards and subsidies, have restricted opportunities for developing countries. A re-balancing of the trading system to the mutual benefit of all countries would require, among other things, improved access to developed markets and transfer of technology to developing countries for modernisation leading to enhanced productivity and international competitiveness.

Capacity Building

7.1.16 While the inward-looking policy environment did play an important role in building up the country's diverse scientific, technological and industrial base, it has outlived its utility. Large sections of our industry are characterised by plants of sub-optimal sizes using outdated technologies. As a result, the productivity of capital and labour in Indian industry is comparatively low. Modernisation and technological upgradation is the foremost requirement for competitiveness. The Tenth Plan

plans to give an impetus to the induction of clean production technologies, processes and practices.

7.1.17 Raw materials and low technology products dominate India's export basket today, accounting for over 80 per cent of the total manufactured exports. Against this, the world average ranged between 43 per cent and 35 per cent during 1985 to 1996. India's high technology exports have performed rather poorly and their share has risen by only 1.4 points compared to 7.6 points for the world as a whole during the 1986 to 1996 period. The ratio of high technology products to total manufactured exports in the case of India is only one-fifth of that of China and one-tenth of South Korea and Taiwan. Modernisation and technological upgradation would, therefore, lead to value addition and diversity, lending resilience to our exports.

World Class Infrastructure

7.1.18 The state of the country's infrastructure is far from adequate. Public sector monopoly in the ownership, control and management of infrastructure needs to give way to private financing of infrastructure projects to leverage the private sector's resources and productive efficiency for the benefit of all stakeholders - the service user, the service provider and the Government. This has been demonstrated with success all over the world. Although efforts are being made to augment quality and coverage of all infrastructure, the policy framework to promote private initiative is not yet fully in place. However, the magnitude of the task is too huge for the public sector to handle on its



own. Without public-private partnership in this field, the desired rapid industrial growth would be jeopardised. Some States, notably Maharashtra and Andhra Pradesh, have adopted innovative models for providing state-of-the-art infrastructure. Not only do recent investor surveys accord higher ranks to the investment climate in these states, but the flow of investment, including foreign direct investment (FDI), is greater. While there is no one model that suits all situations, the swiftness with which other States, especially the industrially-backward states including those in the northeast, come up with similar initiatives will determine the pace of industrial growth. The Tenth Plan defines the policy paradigm for infrastructure development in terms of models that encourage efficiency and leverage resource generation.

Augmenting the Resource Base

7.1.19 A considerably higher measure of investible resources is required in order to achieve the industrial growth rate target of 10 per cent per annum. The augmentation of the resource base requires action on several fronts. To begin with, the bleeding of the resource base in the form of unproductive public sector undertakings (PSUs) needs to be checked. The closure of such PSUs needs to be expedited. A number of roadblocks to this process need to be removed.

7.1.20 Simultaneously, vast resources need to be released from areas of low productivity in the public sector. This requires disinvestment of PSUs so that our resources are released and transferred to more efficient management. Taking into account the slow pace of disinvestment, the issue of management of the public sector in the transition period assumes importance.

7.1.21 The subsidy burden also needs to be drastically reduced. The fertiliser sector and the public distribution system (PDS) together account for over Rs. 20,000 crore of subsidies. Powerful vested interests in favour of their perpetuation need to be tackled. Bold steps are required in order to bring about an efficient pricing policy.

7.1.22 In order to mobilise additional resources, it is necessary to evolve a healthy Indian capital and

financial market in order to tap the vast savings potential of the Indian household sector and transfer it to industry through efficient financial intermediaries. Restoration of investor confidence is an absolute necessity for augmenting the resource base. The recent financial sector scandals point to the need for utmost caution on the part of the regulatory institutions which have been set up. Corporate governance cannot be improved unless credible and transparent rules of behaviour are evolved and enforced by industry associations.

7.1.23 Serious attention must also be given to the issue of foreign investment (both portfolio investments and FDI). According to some estimates, a quadrupling of FDI is required in order to achieve a 10 per cent industrial growth rate. FDI is not only an additional source of funds but the technology it brings in and the market access it provides have vast implications for productivity and quality.

Efficiency Enhancing Initiatives

7.1.24 Efficiency enhancing policies call for allowing a free play of market forces during the Tenth Plan. Unless genuine strategic concerns require otherwise, all internationally traded goods would be priced on international parity. Prices of non-traded goods would reflect their true resource costs. Pricing based on the long-run marginal cost of production should be a dominating feature in sectors such as infrastructure services, power, municipal services etc. Market-based instruments and indirect policies would completely substitute direct intervention and the command-and-control approach.

7.1.25 As progress from a regulated economy to a fully competitive economy would be necessarily slow and time-consuming, market imperfections would require a greater role for the State as a watchdog and regulator at least in some important sectors such as drugs and pharmaceuticals.

REVIEW OF THE NINTH PLAN

Major Initiatives

7.1.26 During the Ninth Plan, the major structural changes and modifications in sectoral policies were: delicensing of coal, lignite and petroleum (other than

crude oil), amendment of Mines and Minerals (Regulation and Development) Act, 1957, special package for revival of export growth, repeal of the Urban Land (Ceiling and Regulation) Act, 1976, allowing buy-back of shares and liberalisation of technology imports.

7.1.27 Foreign equity up to 100 per cent was allowed under automatic route for major infrastructure sectors and the time frame for consideration of FDI proposals has been reduced from six weeks to 30 days. A Foreign Investment Implementation Authority has been set up in the Department of Industrial Policy and Promotion to provide a single-point interface between foreign investors and the Government. Prior approval of the Government is not required for increase in the amount of foreign equity within the approved percentage of foreign equity in cases in which the original project cost was up to Rs. 600 crore. The Government has taken steps for simplifying foreign investment procedures, allowed foreign investment in new activities such as Global Mobile Personal Communication Systems besides simplifying procedures for downstream investment to foreign-owned Indian holding companies. FDI up to 26 per cent under the automatic route has been allowed in the insurance sector subject to a licence from the Insurance Regulatory and Development Authority. Progressive liberalisation in the provisions relating to investment are : foreign institutional investors (FIIs) can invest in a company under the portfolio up to 24 per cent of the paid-up capital of the company; and up to 100 per cent FDI is allowed in non-banking financial companies (NBFCs) on a case-to-case basis with the condition that a minimum of 25 per cent of their holding is divested in the domestic market.

7.1.28 The Government's approach to PSUs had a three-fold objective: revival of potentially viable enterprises; closing down of those that cannot be revived; and reducing its equity in non-strategic PSUs to 26 per cent or below. Interests of workers will be fully protected through attractive VRS and other measures. This programme has already achieved some initial successes. The Government is also proposing to set up a National

Company Law Tribunal (NCLT) for sick companies. At present the process of rehabilitation/winding up of PSUs is done through the mechanism of BIFR.

7.1.29 The Department of Heavy Industry has undertaken restructuring of PSUs in line with the Government policy for reform of the public sector. Cases of 20 PSUs have been referred to the Ministry of Disinvestment for disinvestment/formation of joint ventures. Out of 49 PSUs under the Department of Heavy Industry, 26 have been referred to the BIFR. Revival plans for 12 have been sanctioned by BIFR and are under implementation. The BIFR has favoured winding up in the case of another seven, while the cases of the remaining seven are still being considered by the BIFR.

7.1.30 Manpower rationalisation has been adopted extensively to shed surplus manpower. Around 3,69,277 employees have opted for VRS since introduction of this scheme in October, 1988 to November, 2001, the benefits of the VRS for which the Government has provided financial support of about Rs. 1,100 crore over the last nine years. The statutory dues of the employees, which have been pending for long, have also been cleared along with VRS benefits under the separation scheme. The Government has also provided additional support of about Rs. 500 crore for VSS for around 10,000 employees.

7.1.31 Considering the market sentiments and recent developments in the United States and other countries relating to employees stock options etc., it was decided to liberalise certain provisions of the Companies Act, 1956. The Companies (Amendment) Ordinance, 2001 was promulgated in October 2001 and has been replaced with Companies (Amendment) Act, 2001.

7.1.32 The Export Promotion Industrial Park (EPIP), is a centrally sponsored scheme for providing financial assistance to State Governments for setting up and maintaining industrial parks with appropriate infrastructure for housing industrial units with export commitment. An expenditure of Rs. 250 crore was approved by the Cabinet for setting up 25 EPIPs in 25 States. The Central Government's

grant for EPIP would be 75 per cent of the capital expenditure, up to a limit of Rs. 10 crore in each case. So far the Government has approved 20 proposals for setting up EIPs in Punjab, Haryana, Himachal Pradesh, Rajasthan, Karnataka, Kerala, Maharashtra, Tamil Nadu, Andhra Pradesh, Uttar Pradesh, Gujarat, Bihar, Jammu and Kashmir, Assam, Madhya Pradesh, West Bengal, Orissa, Meghalaya, Manipur and Nagaland. Nine EIPs have been completed so far, and other parks are in various stages of implementation. Proposals from the other States are awaited.

7.1.33 The Critical Infrastructure Balance Scheme (CIBS) scheme envisages investment in areas of critical deficiency in the interest of export promotion. The balancing investment may inter-alia relate to infrastructure in export intensive areas including export processing zones (EPZs), seaports and airports, improvement of feeder roads and effluent treatment units etc. Since its inception, 44 projects have been sanctioned in 16 States. Specific projects assisted include construction of common facilities in the apparel export park at Gundapochampally, power supply to software unit in Export Promotion Industrial Park at Bhubaneswar, infrastructure development at Saharanpur, computerisation in EPZs at Kochi, Vishakhapatnam, Mumbai, Chennai, Falta, Kandla and Noida.

7.1.34 SEZs were set up with a view to enabling hassle-free manufacturing and trading activities for the purpose of exports. The units in these zones will not be subjected to any pre-determined value-addition or export obligation. They shall be treated as being outside the customs territory of the country. Sale in the domestic tariff area by the units in these zones can only be done after payment of full Customs duty. A private sector SEZ covering an area of about 3,500 hectares has been sanctioned at Pipavav in Gujarat. Another private sector SEZ has been sanctioned at Tuticorin in Tamil Nadu. Besides, the existing EPZs in Mumbai, Vizag, Kandla and Kochi are also being converted into SEZs.

7.1.35 For involving State Governments in the export effort, a new scheme - Assistance to States for Infrastructure Development for Export and Allied Activities (ASIDE) - has been evolved for granting assistance to the States for development of export-

related infrastructure on the basis of their export performance. The difference in the proposed scheme and the existing infrastructure-oriented schemes (e.g. CIBS, EPIP, EPZ, Export Development Fund-North East Region (EDF-NER)) is that these schemes do not involve State Governments in decision-making. The proposed scheme is area-specific and not product-specific. States would use the money for complementary export-related infrastructure, such as roads connecting the production centres with ports, research and development (R&D) in State-specific products, development of cold chains for agro exports, development of minor ports, creation of new export promotion industrial parks, human resource development and developing marketing infrastructure.

7.1.36 Many export incentives are not compliant with the WTO framework and are being phased out. Thus the instruments which were available to neutralise the negative impacts of various handicaps in the form of higher capital costs, higher tariffs, transactions costs and unrebated duties will no longer be available. Aggressive efforts and systematic export marketing schemes like the Market Access Initiative (MAI), Agri Economic Zone (AEZs), SEZs have, therefore, been worked out. The MAI has been devised to put in place an instrument which is not only WTO compatible but would also mitigate the negative effects of various handicaps faced by the exporters vis-à-vis their counterparts in the competing countries. The strategy would aim at achieving a double-digit growth rate in our exports (in dollar terms) on a sustained basis.

7.1.37 In October 2001, the Government increased the duty drawback rate for 300 product groups covering the textiles, leather and engineering goods sectors and removed the Duty Entitlement Pass Book (DEPB) value cap on 4,000 items, which will also benefit the chemicals and plastic goods' industries. The step was undertaken as a one-time measure for promoting exports and the policy will be reviewed. A Directorate General of Anti-Dumping and Allied Duties was constituted in 1998 to investigate complaints of dumping and recommend the amount of anti-dumping duties. A Task Force

was set up to prepare a common nomenclature at 8-digit level for trade data on Customs and Excise. The collection, compilation, and dissemination of trade statistics is now taking place with reduced time lag. Electronic filing and on-line processing of license applications, on-line payment of duty drawback, and abolition of special import license (SIL), removal of quantitative restrictions etc. have been effected.

7.1.38 Besides, the continuation of Growth Centre and Transport Subsidy scheme, a major policy initiative by the Department of Industrial Policy and Promotion was the Northeast Industrial Policy (NEIP). A new industrial policy was announced for the development of industrial infrastructure in the northeastern region. The Transport Subsidy Scheme was extended for a period of another seven years, up to 31 March 2007.

7.1.39 In the textile sector, several long-term and short-term measures were taken to minimise the adverse effects of the external conditions on exports. These included concessions under the quota policy to reduce transaction costs for exports, resolving of the issue of DEPB rates for blended textiles and wool tops, revision in Duty-drawback rates, etc. Two new Plan schemes for promoting textile exports were also formulated – Apparel Parks for exports for giving a thrust to setting up of apparel units of international standards and Textile Centre Infrastructure Development Scheme for providing financial assistance for infrastructural facilities at established textile growth centres.

7.1.40 The Technology Upgradation Fund Scheme (TUFS) was introduced to modernise the textile sector. All the sub-sectors of the textiles like spinning, weaving, knitting, processing, garment making, cotton ginning and pressing and jute sector are covered under the scheme. The Technology Mission on Cotton (TMC) was established to improve the productivity and quality of cotton so as to increase the income of farmers and making quality cotton available to the textiles industry at competitive prices. The ginning and pressing units, which operate with obsolete technology, poor quality of cotton and increased wastage are proposed to be modernised either by capital subsidy under TMC

Scheme or by 5 per cent interest subsidy under the TUFS. The implementation of the National Textiles Policy (NTxP), 2000 was also announced during the Plan period. It recommended, among other things, duty relief, concessions and special measure for programmes aimed at accelerating modernisation and growth of textile industries. It lays special emphasis on modernisation of the weaving sector by launching a programme for the induction of 50,000 shuttle-less looms and 250,000 semi-automatic and automatic looms in the decentralised powerloom sector.

7.1.41 The Competition Bill, 2001 seeks to ensure fair competition in India by prohibiting trade practices which cause appreciable adverse effect on competition in markets within India and, for this purpose, provides for the establishment of a quasi-judicial body to be called the Competition Commission of India which shall also undertake competition advocacy for creating awareness and imparting training on competition issues.

REVIEW OF NINTH PLAN POLICY REFORMS

7.1.42 While formulating the Ninth Plan, several areas were identified for urgent Government action to realise a target of 8.2 per cent annual growth rate of industry. These were: disinvestment; closure of non-viable sick PSUs; removal of regional imbalances in industrial development; review and revamping of the BIFR mechanism; policy and procedural reforms in the States; feedstock and pricing policy for fertilisers; review of the sugar policy, pharmaceutical pricing policy and small-scale industry (SSI) reservation (particularly for critical export-oriented industries such as toys, garments and leather goods) and review and modifications of food laws; and policy and fiscal measures for developing the packaging industry for increasing export of processed foods.

Foreign Direct Investment

7.1.43 Liberalised trade and an open door foreign investment policy ensure efficient allocation of resources. India is an eminently attractive destination for FDI in view of the stability of its democratic polity, rule of law, steadily growing economy, low inflation rate, sizeable domestic

market, reservoir of skilled English speaking manpower, well-developed social and economic infrastructure, diversified industrial base and evolved financial/capital market. According to the Global Competitiveness Report, (World Economic Forum) India's current competitiveness ranking has moved up 6 notches from 42nd position in 1999 to 36th position in 2001. The Report highlights licensing of technology, availability of suppliers the median corporate tax rates, export promotion and quality of business environment as some of India's positive features. The share of emerging markets in inward FDI has declined from 28 per cent in 1998 to the present 26.5 per cent, even though global FDI levels have increased by 25 per cent in 1999 to reach \$ 1 trillion in 2000. India's share in total FDI flow to development countries has been reported by the UN to be 1 per cent. While China gets FDI of roughly \$ 40 billion a year, the flow to India remains \$ 2 billion. FDI is driven more by economic environment comprising cost conditions, wage levels and industrial capability, market size and infrastructure of export processing zones, than by direct incentives or performance obligations.

7.1.44 Although a number of steps have been taken to ensure a liberal FDI policy, there is scope for substantial improvement in terms of bringing FDI under the automatic route and expediting approvals.

Disinvestment of Central Public Enterprises

7.1.45 In 1998-99, the Government decided to bring down its shareholding in PSUs to 26 per cent (thus facilitating ownership changes, as was recommended by the Disinvestment Commission) in a majority of cases. The Government classified the PSUs as strategic and non-strategic and decided to retain majority holding in strategic PSUs. It was also decided that the interests of the workers would be protected in all cases.

7.1.46 During the Ninth Plan, there had been steady progress in the disinvestment of non-core PSUs. However, this has been linked with an assurance of job security for the employees or providing opportunities for retraining and redeployment. The Disinvestment Commission set up in 1996 had earlier examined each of 58 PSUs referred to it and advised the Government on the

extent of disinvestment feasible as well as the mode of disinvestment and the steps to be initiated. The Disinvestment Commission had made recommendations under five broad categories. These were: (a) strategic sale involving change in ownership/management in 29 PSUs and trade sale of eight; (b) offer of sale of shares involving no change in ownership/management in five PSUs; (c) deferment of disinvestments in eight PSUs and no disinvestments in one; (d) closure/sale of assets in four PSUs; and (e) employee buy-out/strategic sale in two. After the reconstitution of Disinvestment Commission in July 2001, it has been decided that all 'non-strategic' PSUs, including subsidiaries (but excluding Indian Oil Corporation (IOC), Oil and Natural Gas Commission (ONGC) and Gas Authority of India Ltd or GAIL) will be referred to the Commission for independent advice.

7.1.47 Since 2000-01, the Government pursued the policy of reducing its stake to below 26 per cent in some non-strategic PSUs. There was increasing emphasis on strategic sales of and the entire proceeds from disinvestment/privatisation was intended to be deployed in social sector, restructuring of PSUs and retirement of public debt. The salient features of the disinvestment policy in 2000-01 are: to restructure and revive potentially viable PSUs; to close down those which cannot be revived; bringing down Government equity in all non-strategic PSUs to 26 per cent or below, if necessary; to fully protect the interests of workers; to put in place mechanisms to raise resources from the market against the security of PSU assets for providing an adequate safety net to workers and employees; to establish a systematic policy approach to disinvestment and privatisation and to give a fresh impetus to this programme by setting up a new Department of Disinvestment.

7.1.48 Accordingly the Government has decided to disinvest a substantial part of its equity in enterprises such as Indian Airlines, Air India, India Tourism Development Corporation (ITDC), Indian Petrochemicals Ltd. (IPCL), Videsh Sanchar Nigam Ltd. (VSNL), CMC, Bharat Aluminium Company Ltd (BALCO), Hindustan Zinc Ltd and Maruti Udyog Ltd. Where necessary, strategic partners would be selected through a transparent process.

7.1.49 The successfully privatised/disinvested PSUs are: Lagan Jute Machinery Company Limited (LJMC), Modern Food Industries Limited (MFIL), BALCO, ; CMC, Hindustan Teleprinters Ltd. (HTL); IBP Ltd., VSNL, nine hotels of ITDC, three hotels of the Hotel Corporation of India (HCI), Paradeep Phosphates Limited, Jessop and Co. Ltd. (subject to BIFR approval) and Hindustan Zinc Ltd.

7.1.50 Forty-seven PSUs (including a few subsidiaries) have been taken up for the disinvestment between 1990-91 and 2001-02. The proceeds realised amount to Rs. 26,738 crore against the target of Rs. 66,000 crore.

7.1.51 Out of these 47, strategic sales were done in the case of only 12 companies. The total face value of equity sold so far through strategic sale is Rs. 744.34 crore and the realisation of the order of Rs. 7,165 crore. The yearly benefit that accrues to the public from these sales exceeds Rs. 824 crore. Considering the total equity in Central PSUs or CPSUs (held by the Central Government and the holding companies) as on 31 March 2000 is of the order of Rs. 78,484 crore, equity sold through strategic sale so far is less than 1 per cent. If Rs. 7,165 crore could be realised by just selling 1 per cent of the total equity, the potential realisation by selling the total equity in all non-strategic CPSUs can be estimated at several lakh crores of rupees.

7.1.52 The emphasis on strategic sale, from 1999-2000 onwards has started yielding excellent results. The Price/Earning ratios obtained between 1991 - and 1999, from sale of shares of highly profitable CPSUs ranged between 4.4 and 6.0 whereas the P/E ratios obtained through strategic sales have been much higher, reaching up to 63 in case of the IBP disinvestment.

Closure of Non-revivable Sick Public Enterprises

7.1.53 At present the process of rehabilitation/winding up of an PSEs is through the mechanism of BIFR under SICA. BIFR examines various possibilities and approves revival plan for the sick PSUs or recommend closure. The Companies (Amendment)

Bill, 2001, which will seek the establishment of the NCLT to address of sickness and bankruptcy has been introduced in Parliament. The abolition of SICA bill was introduced in Lok Sabha in August, 2001. As these Bills get enacted the process of industrial restructuring should become easier and faster.

Removal of Regional Imbalances in Industrial Development

7.1.54 The Growth Centres Scheme and Transport Subsidy Scheme were initiated as Centrally sponsored schemes to promote industrialisation of backward areas and promote industries in hilly, remote and inaccessible regions. The funding pattern of Growth Centres envisaged an equity contribution of Rs. 10 crore by the Centre, Rs. 5 crore by the concerned State, Rs. 4 crore (including Rs. 2 crore as equity) from financial institutions, Rs. 1 crore from nationalised banks and Rs. 10 crore as market borrowings. This adds up to Rs. 30 crore per Growth Centre. Of the 71 identified Growth Centres, 68 have been approved and of these 38 are functional and plot allotment has commenced in 56. Two Growth Centres have been sanctioned for the Jammu and Kashmir and three in the newly created States of Uttaranchal, Jharkhand and Chattisgarh. The respective State Governments have been asked to expedite progress on the remaining 16 Growth Centres. The non-performing Growth Centres are in Orissa, Bihar, Andhra Pradesh and Pondicherry.

7.1.55 The implementation of the scheme has been rather unsatisfactory. Too many Growth Centres have been taken up at the same time, resulting in thin spread of resources. Besides, it has not been possible to mobilise market borrowings as envisaged in the original scheme. More importantly, industrially advanced States have been able to mobilise financial and managerial resources and make good progress, whereas there has been not much progress in industrially backward States/most backward regions. Thus, instead of reducing regional imbalances in industrial development, the scheme has only aggravated them.

7.1.56 Further, because of funds constraints, State Governments did not release funds to the implementing agencies. After some mid-course

corrections, there has been an improvement in the implementation of the scheme during the past two years. In order to overcome the difficulties faced in the implementation of the scheme, it is proposed to modify the Growth Centres Scheme by bringing changes and allowing split location up to a maximum of three locations for hilly States and two for the other States. There is a proposal to transfer the scheme to the States along with funds.

The number of functional Growth Centres, during the last two years has increased from 26 to 38 and the amount of Central assistance has increased from Rs. 291 crore to Rs. 371 crore. The contribution of the State Government and their implementing agencies increased from Rs. 405 crore to Rs. 689 crore in the same period. The number of industrial units has also increased from 656 to 833, attracting capital investment of Rs. 8,531 crore and creating direct employment for 28,233 persons, as on 31 March 2002.

7.1.57 The Transport Subsidy Scheme was introduced in July 1971 to promote industries in hilly, remote and inaccessible areas of Jammu and Kashmir, Himachal Pradesh, Sikkim, Andaman and Nicobar Islands and Lakshadweep, the Darjeeling district of West Bengal, eight hill districts of Uttar Pradesh and the northeastern States. Under the scheme, subsidy at rates ranging from 50 per cent to 90 per cent on the transport cost incurred on movement of raw materials and finished goods from/to designated rail heads/ports is provided to all industrial units except plantations, refineries and power generation units. The scheme works on reimbursement basis i.e. subsidy to eligible units is first disbursed by the States/ Union territories concerned and the disbursement is claimed from the Centre.

7.1.58 The scheme has been extended up to 31 March 2007 for the northeastern States and Sikkim. It was valid up to 31 March 2000 for other States. A proposal to transfer the Transport Subsidy Scheme to States along with funds is under consideration of the Government.

7.1.59 Total disbursement under the scheme from 1 April 1976 to 31 March 2002 is Rs. 706.77 crore. The major beneficiaries have been Himachal

Pradesh (Rs. 209 crore), Assam (Rs. 200.34 crore up to 31 March 2001), Jammu and Kashmir (Rs. 29.34 crore) and the hill districts of Uttar Pradesh (Rs. 15.83 crore) besides the northeastern region including Assam which received Rs. 403.36 crore.

7.1.60 The National Productivity Council (NPC) was asked to examine the impact of the scheme on the industrialisation process in the beneficiary States, including nature and pattern of industrialisation, size of unit, employment generation and ancillarisation. The study covered Assam, Himachal Pradesh, the hills districts of Uttar Pradesh, Jammu and Kashmir, Meghalaya, Mizoram, Nagaland for the 1989-90 to 1997-98 period. The NPC study concluded that though there has been industrial growth, it has been uneven. In Himachal Pradesh, the number of factories grew at an annual rate of 10.5 per cent, while Assam had a moderate growth of 1.59 per cent in number of factories, output (2.21 per cent) and employment (3.05 per cent). The employment generated by beneficiary units in these remote, hilly and inaccessible areas is approximately for 25,600 people. There has been expansion and diversification in the units though ancillary units did not develop significantly. There have been indirect benefits also like infrastructure development and generation of income for the State Governments through other levies. The study also indicated the areas which require strengthening, in order to improve implementation and reduce delays.

Review and Revamping of BIFR Mechanism

7.1.61 The present legal framework - the SICA under which sick companies are referred to BIFR was originally designed to provide sick companies with assistance to allow them to restructure and to be rehabilitated, thus forestalling closure and loss of employment. It has proved to be almost completely ineffective. It has provided unscrupulous managements with an extended period during which all recovery action is stayed and the time gained in the process is often used to siphon funds out of sick companies making them un-revivable. This ensures that companies that run into difficulties are invariably driven into terminal sickness. At times, promoters may even perceive a benefit in pushing a company into sickness. Unfortunately, the Indian

financial and legal system lacks an effective system for enforcing recovery of debts through speedy bankruptcy procedures with mechanism that would allow inefficient firms failing to service loans to be speedily liquidated or taken over by a new management. In order to solve the problem, the Companies (Amendment) Bill 2001 was introduced in Parliament in August 2001 along with the Abolition of Sick Industrial Companies (Amendment) Bill, 2001.

Policy and Procedural Reforms in States

7.1.62 The process of liberalisation in the industrial sector has advanced considerably at the Centre. Industrial licensing has been eliminated for all but six industries and the number of industries reserved for the public sector has been reduced to three. The remaining controls at the Central Government level need to be reviewed for further liberalisation. Indian industry still suffers from a plethora of controls and regulations relating to matters in the purview of State and these controls cumulatively impose a heavy burden of delay and even harassment of entrepreneurs. A through revamping of these controls and procedures at the States Government level would help create a climate conducive to Indian industry to flourish.

Feedstock and Pricing Policy for Fertilisers

7.1.63 With the introduction of Retention Price cum Subsidy scheme (RPS), the country achieved self-sufficiency by the end of Ninth Plan to the extent of nearly 100 percent of urea and 85 percent in case of DAP. This price arrangement however has encouraged the urea manufacturers to focus more on claiming costs rather than controlling costs by enhancing production efficiency. The urea pricing policy parameter for VII and VIII pricing periods have been recommended by the Group of Ministers (GOM) headed by Deputy Chairman, Planning Commission. Corresponding retention prices have been notified for most of the units. The Expenditure Reforms Commission (ERC) recommendation on rationalisation of fertiliser subsidy by introducing group based urea pricing is under examination along with other alternatives on a new urea pricing policy. In response to the import parity pricing of feedstock, a new pricing mechanism for hydrocarbons was implemented and oil companies started following

this from 9 July 2001. The NPK ratio which had got distorted to 10.0:2.9:1 during 1996-97 has since improved to 6.9:2.9:1 in 1999-2000. It needs to be kept in mind that bio-fertilisers, micronutrients and organic compost should remain an integral part of balanced fertiliser application and integrated nutrient management. Use of these supplements needs to be promoted by research, better marketing and competitive pricing.

Sugar Policy

7.1.64 The Government has taken a number of important policy decisions as part of the reform process in the sugar sector. The sugar industry was subjected to compulsory licensing at the commencement of the Ninth Plan and was delicensed in September 1998. Some of these decisions are:

- Reduction of levy obligation of domestic sugar producers from 40 per cent to 30 per cent with effect from 1 April 2000, from 30 per cent to 15 per cent from 1 February 2001 and from 15 per cent to 10 per cent from 1 March 2002.
- Restructuring Sugar Development Fund Rules, 1982 for providing loans at concessional rates for the rehabilitation of potentially viable sick sugar mills.
- The Government has also approved a proposal for legislation to amend the Sugar Development Fund (SDF) Act, 1982 for loans for bagasse-based co-generation power projects, by-product utilisation and defraying expenditure on internal transport and freight charges on export shipments of sugar. This was being done to improve the viability of the sugar factories as also to augment the power generation in the country.
- Relaxation in controls on the sale of non-levy free sale sugar and substituting the monthly regulatory release by quarterly regulatory release and allowing the sugar factories to sell up to 10 per cent of the quarterly quota as additional quota. This has become effective from January 2002.
- Withdrawal of stockholding limits on wholesale dealers of sugar was done with effect from 7 July 2000.

- Turnover limits on wholesale dealers were abolished with effect from 20 August 2001.
- A notification under the Forward Contracts (Regulation) Act, 1952, allowing futures/forward trading in sugar was issued on 14 May 2001.

Pharmaceutical Pricing Policy

7.1.65 The Pharmaceutical Policy, 2002, aims to ensure abundant and good quality essential pharmaceuticals at reasonable prices, strengthen indigenous capability for cost effective quality production, reduce trade barriers and encourage R&D. Items appearing in the list of essential drugs issued by the Ministry of Health and Family Welfare and other items considered important on account of their use in various health programmes, in emergency care etc. have been kept under the Drug Price Control Order (DPCO) and will form the total basket from which selection of bulk drugs will be made for price control. However, items like sera and vaccines and blood products have been excluded from DPCO. As per the new criteria, molecules with a turnover of less than Rs. 10 crore for the fiscal ended March 2001 will not fall under DPCO, but a drug having a turnover between Rs. 10-25 crore and a single formulator having a market share of over 90 per cent will be covered by the price control order. Further, a drug with a turnover of over Rs. 25 crore and a single formulator and having a market share of over 50 per cent will be under price control. New drugs coming out of research from within the country would be off price control for the life of the patent. It has been decided to permit up to 100 per cent foreign equity under the automatic route so as to promote FDI. India, as a signatory to WTO, is committed to the introduction of a product patent regime in 2005. This will be a major change that will impact the Indian pharmaceutical industry. There may be a need for a review of the newly announced Pharmaceutical Policy 2002 to deal with the changed scenario.

Review and Modification of Food Laws and Drug and Cosmetics Act

7.1.66 During the Ninth Plan, many provisions of the food laws and their implementation strategy have created hurdles in the way of growth and

development. The Prevention of Food Adulteration Act, (1954) and Rules (1955) has been a source of considerable harassment. The standards are unrealistic and there is more emphasis on policing than on prevention of adulteration. It has been recommended that the various food laws would need to be reviewed and suitably modified at an early date. However, there has been no appreciable progress in the modification of food laws. The Drugs and Cosmetics Act, 1940 was reviewed so as to incorporate the provisions of World Health Organisation-Good Manufacturing Practices (WHO-GMP).

Policy And Fiscal Measures For The Packaging Industry

7.1.67 The packaging industry for processed foods, it has been observed, is yet to develop and there is a wide gap between the indigenous and contemporary packaging practices of food products. The cost of packaging is also very high. The Ninth Plan has recommended that appropriate policy and fiscal measures be taken to encourage scientific development of packaging industry. However, there appears to be little progress towards this.

PERFORMANCE OF THE INDUSTRIAL SECTOR

7.1.68 The post-liberalisation period is characterised by three distinct phases of industrial activity. The first is the period after the announcement of liberalisation of industrial and trade policy in July 1991 till the start of rapid growth in 1993-94. The second phase recorded a high growth rate during 1993-94 to 1995-96. The third phase is one when industrial activity slowed down since 1996-97.

Growth Of Industry

7.1.69 The Ninth Plan proposed a target growth rate of 8.2 per cent (value added) for the industry sector. As against this, the actual growth rate (value added actual at factor cost) was 4.5 per cent. The actual growth rates of various sub-sectors vis-à-vis targets at the start of the Ninth Plan as well as revised targets after the Mid-Term

Appraisal are indicated in Table 7.1.5. The year-wise growth rates are shown in the Graph 7.1.6.

7.1.70 During the Ninth Plan period, a Compound Annual Growth Rate (CAGR) of 5 per cent in

industrial production was recorded compared to 7.3 per cent during the Eighth Plan (Table-7.1.7). The CAGR in manufacturing, mining and electricity generation during Ninth Plan were 5.3 per cent, 2.5 per cent and 5.5 per cent respectively.

Table 7.1.5 : Value added growth rate in sub sectors of Industry in the Ninth Plan

	Share of sub sectors in 1999-2000(provisional) at 1993-94 prices	Growth rate (value added) -target	Revised targets after Mid Term Appraisal (5 years)	Growth rate actual (value added)
Manufacturing	16.75	8.2	7.1	3.7
Electricity, Gas and Water	2.49	9.3	8.4	6.5
Mining	2.34	7.2	5.1	3.9
Construction	5.12	4.9	6.8	6.8

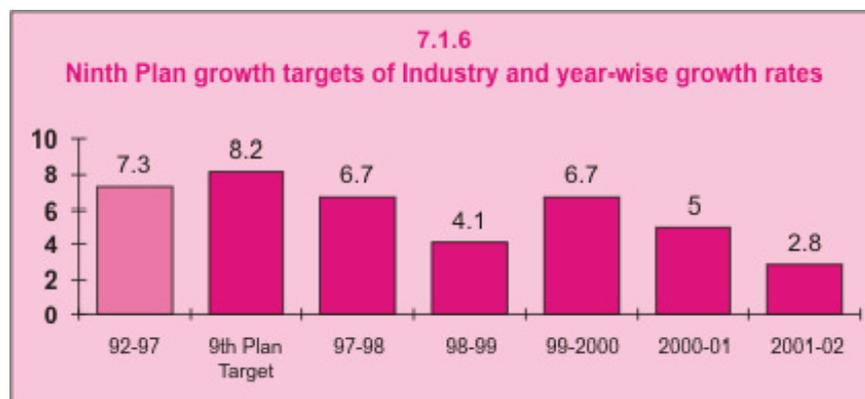


Table 7.1.7 : Annual growth rates of industrial production in major sectors of industry

(Base: 1993-94 = 100) (per cent)

Period	Mining	Manufacturing	Electricity	General
(Weight)	(10.4)	(79.4)	(10.2)	(100.0)
	(11.5)*	(77.1)*	(11.4)*	(100.0)*
1992-93	0.5	2.2	5.0	2.3
1993-94	3.5	6.1	7.4	6.0
1994-95	9.8	9.1	8.5	9.1
1995-96	9.7	14.1	8.1	13.0
1996-97	-1.9	7.3	4.0	6.1
1997-98	6.9	6.7	6.6	6.7
1998-99	-0.8	4.4	6.5	4.1
1999-2000	1.0	7.1	7.3	6.7
2000-01	3.7	5.3	4.0	5.0
2001-02	1.8	2.9	3.1	2.8
Compound Annual Growth Rate (CAGR) 1997-2002	2.5	5.3	5.5	5.0

Growth rates from 1994-95 onwards are based on IIP; Base : 1993-94=100 and those for earlier years are based on IIP; Base : 1980-81=100.

*Relates to weights for IIP Base:1980-81=100

7.1.71 Table 7.1.8 shows the annual average rate of growth recorded in industry groups on use-based classification.

7.1.72 Industrial production, measured by the index of industrial production (IIP), registered a growth rate of 6.7 per cent in 1997-98. This higher growth rate compared to previous year was on account of improved performance of the mining and electricity sectors. In 1998-99, the industrial growth rate was merely 4.1 per cent because of poor performance by the mining and manufacturing sectors. Use-based growth rate indicates that growth in basic goods, intermediate goods and consumer goods in 1998-99 declined to 1.6 per cent and 6.1 per cent and 2.2 per cent respectively. Industrial production had shown a distinct improvement (6.7 per cent growth) in 1999-2000. The improvement was particularly noticeable in manufacturing and electricity generation.

7.1.73 The IIP registered a significantly lower growth rate of 5 per cent in 2000-01 compared to a growth rate of 6.7 per cent in 1999-2000. Growth rates also fell in both the manufacturing and electricity sectors from 7.1 per cent and 7.3 per cent in 1999-2000 to 5.3 per cent and 4 per cent respectively in 2000-01. However, the mining sector recorded a higher growth rate of 3.7 per cent in 2000-01 compared to 1 per cent in 1999-2000. Trends in 2001-02 in overall industrial growth and by sectors suggest an all round slowdown in industrial activity. A growth rate of 2.9 per cent in the manufacturing sector in 2001-02 was recorded. Similarly, the electricity generation growth rate of 3.1 per cent was also significantly lower than 4 per cent growth recorded during the last year. The mining sector growth of 1.8 per cent was also significantly lower than the 3.7 per cent recorded during the last year.

Table 7.1.8
Growth Rates Of Industrial Production By Use-based Classification

(Base : 1993-94=100) (per cent)

Sectors	(Weight)	1995-96	1996-97	1997-98	1998-99	1999-2000	2000-01	2001-02
Basic Goods	35.5	10.8	3.0	6.9	1.6	5.5	3.9	2.8
Capital Goods	9.3	5.3	11.5	5.8	12.6	6.9	1.8	-3.9
Intermediate Goods	26.5	19.4	8.1	8.0	6.1	8.8	4.7	1.6
Consumer Goods	28.7	12.8	6.2	5.5	2.2	5.7	8.0	6.0
of which (Consumer Durables)	(5.4)	(25.8)	(4.6)	(7.8)	(5.6)	(14.1)	(14.5)	11.5
(Consumer Non-Durables)	(23.3)	(9.8)	(6.6)	(4.8)	(1.2)	(3.2)	(5.8)	4.0
IIP (Index of Industrial Production)	100.0	13.0	6.1	6.7	4.1	6.7	5.0	2.8

Note : The indices are based on revised item wise weights.

Table 7.1.9
Trends in The Performance of Industrial Sub-Sectors
Annual Growth Rate (Per Cent)

Industry Code	Industry Name	Weight in IIP	1997-98	1998-99	1999-2000	2000-01	2001-02	CAGR 1997-2002	Average growth VIII Plan
20-21	Food Products	9.08	-0.40	0.70	4.20	10.12	-1.68	2.49	3
22	Beverages & Tobacco	2.38	19.40	12.90	7.60	4.32	12.18	11.17	11
23	Cotton Textiles	5.52	2.40	-7.70	6.70	2.91	-2.20	0.29	4
24	Wool, Silk & Man-made Fibre Textiles (Except Cotton)	2.26	18.50	2.80	11.90	5.81	4.40	8.53	0
25	Jute Textiles	0.59	16.90	-7.30	-0.90	0.76	-5.86	0.37	0
26	Textiles Products	2.54	8.50	-3.50	2.00	4.04	2.40	2.60	0
27	Wood & Wood Products	2.70	-2.60	-5.80	-16.20	2.86	-11.03	-6.79	4
28	Paper & Paper Products	2.65	6.90	16.00	6.30	-9.14	2.99	4.29	9
29	Leather & Fur Products	1.14	2.20	8.10	13.80	10.70	5.93	8.07	5
30	Chem. & Chem. Products	14.00	14.40	6.60	10.00	7.29	4.76	8.56	7
31	Rubber, Plastic, Petroleum	5.73	5.20	11.30	-1.10	11.81	11.08	7.55	3
32	Non-metallic Mineral Products	4.39	13.40	8.30	24.40	-1.18	1.37	8.89	6
33	Basic Metals & Alloys	7.45	2.60	-2.50	5.00	1.84	4.01	2.16	10
34	Metal Products & Parts	2.81	7.90	17.00	-1.20	15.02	-9.59	5.34	5
35-36	Machinery & equipment	9.57	5.80	1.50	17.70	7.29	1.02	6.51	6-8
37	Transport equipment	3.98	2.50	20.10	5.70	-1.96	6.83	6.40	13
38	Other Manufacturing Industries	2.56	-1.30	1.00	-16.00	11.65	8.86	0.35	1

Source : Central Statistical Organisation.

Note : The indices from April 1998 onwards are based on revised weights.

7.1.74 Table 7.1.9 shows the annual average rate of growth recorded in industry groups at the two digit level during the Eighth Plan and Ninth Plan periods.

7.1.75 The group-wise industrial growth rate (Table 7.1.9) indicate that five out of 17 industry groups, accounting for 24.17 per cent share in IIP, recorded a CAGR of more than 8 per cent during 1997-2002. Three groups, accounting for 19.28 per cent share in IIP, recorded 6 to 8 per cent CAGR during 1997-2002. Ten industry groups, accounting for 35.9 per cent share in IIP, recorded less than 6 per cent growth rate.

7.1.76 Basic metal and alloys, cotton textiles, wood and wood products, paper and paper products and transport equipment experienced lower growth

rates in Ninth Plan compared to Eighth Plan period. Sectors like non-metallic mineral products, man-made fibre textile (except cotton), leather products, rubber, plastics and petroleum products, chemical and chemical products achieved higher growth rates in the Ninth Plan compared to Eighth Plan period.

Internal and External Factors for the Slowdown

7.1.77 The industrial slowdown is widespread, covering all broad sectors e.g. manufacturing, electricity and mining and all end use based groups such as capital goods, intermediate goods and consumer goods (both durable and non-durables). The slowdown in domestic and global demand appeared to be a major factor constraining industrial growth. Another major reason has been the decline in investment, noticeably by private sector.

7.1.78 The industrial deceleration was due to a number of structural and cyclical factors such as normal business and investment cycles, a lack of both domestic and external demand, continuing high real interest rates, infrastructure bottlenecks in power and transport, lack of reforms in land and labour markets, inherent adjustment lags resulting from industrial restructuring through merger and acquisitions, and delays in establishing appropriate institutional and regulatory frameworks in some key sectors.

7.1.79 The difficulties caused by internal constraints were exacerbated by the slow growth in the world economy, which contributed to a substantial slowdown in manufactured exports. Further, the 11 September 2001 terrorist attacks and related events slowed down the recovery through lack of external demand and adverse impact on air transport, communications and tourism.

Gross Capital Formation and Sanctions by All Financial Institutions

7.1.80 The CAGR of gross capital formation (GCF) at constant prices (1993-94 prices) during the first four years of the Ninth Plan was 7.92 per cent compared to 7.38 per cent during 1993-97. The CAGR of GCF for the public sector at constant prices during the first four years of the Ninth Plan increased to 6.22 per cent compared to 1.04 per cent during 1994-97. In the private corporate sector, the CAGR of GCF during the first four years of the Ninth Plan has been negative at (-) 1.24 per cent compared to impressive 18.91 per cent during 1993-97.

7.1.81 The fall in interest rates has been lower than fall in inflation in recent years. As a result, real interest rates continue to remain high. Compared with a real prime lending rate of 2.4 per cent in 1994-95, it was around 7.3 per cent in 2001. The CAGR of sanctions by All Financial Institutions (AFIs) during the first four years of the Ninth Plan was 21.21 per cent compared to 19.53 per cent in the Eighth Plan. The CAGR of disbursement in the corresponding periods were 14.30 per cent and 21.28 per cent respectively.

Investment Intentions and Foreign Direct Investment

7.1.82 A total of 14,969 Industrial Entrepreneurs Memoranda (IEM) and 911 Letter of Intents (LOI) were filed between 1997 and October 2001. Investment intentions in terms of number under IEM reduced from a cumulative level of 25,307 during the Eighth Plan period to 14,969 during the Ninth Plan. These 14,969 IEMs correspond to investment of Rs. 3,91,292 crore and employment generation of 26.42 lakh. The reported implementation of IEM (out of 14,969) is however, only 1,931 numbers involving investment of Rs. 79,905 crore indicating implementation of only 12.9 per cent in terms of number and 20 per cent in terms of investment. The 911 LOIs proposed an investment of Rs. 15,906 crore and employment of 1.84 lakh.

7.1.83 Table 7.1.10 shows the foreign collaboration approvals and foreign direct investment inflow (FDI/NRI) received during the Eighth and the Ninth Plan periods. The total number of foreign collaborations approved between 1997 and 2001 were 8,290 proposing FDI (including

Table 7.1.10
Foreign Collaboration Approvals and
Foreign Direct Investment Inflow (FDI/NRI) received

1	Foreign Collaborations Nos. (FC)- Approved	Proposed Investment (Rs. crore) - Approved	Inflow (Rs. Crore)	% (percentage) inflow	Foreign Collaborations (Technical) Nos. (FT) - Approved	Total Approved Foreign Collaborations (FC & FT)
	2	3	4	5 = 4*100/3	6	7 = 2+6
1992 to 1996	5,453	89,153	22,960	25.75	4,037	9,490
1997 to 2001	8,290	1,77,972	85,240	47.90	2,459	10,749

ADRs /GDRs/FCCBs) of Rs. 1,77,972 crore. The actual inflow of FDI (including ADRs/GDRs/FCCBs) during the period was Rs. 85,240 crore as against approval for Rs.1,77,972 crore representing an overall inflow of 47.9 per cent. A major change in quantum of foreign technology transfer proposals (i.e. not involving FDI) during the Ninth Plan compared to Eighth Plan is observed. Between 1997 and 2001, only 2,459 technology transfer proposals were approved compared to 4,037 numbers from 1992 to 1996. This may be partly because of lack of willingness to transfer technology without ownership control and costly technology imports may also not be offering the benefits which were available in restrictive environment.

Export

7.1.84 The CAGR of exports during the first four years of the Ninth Plan was 7.42 per cent compared to 13.38 per cent during the Eighth Plan. The share of manufactured goods in overall exports was 78 per cent during the Ninth Plan vis-à-vis 75 per cent during the Eighth Plan. Engineering goods constitute 19 per cent within the manufactured goods. The growth of manufactured goods however, has been slower in the Ninth Plan compared to the Eighth Plan. A medium term export strategy, unveiled in January 2002 to provide a quantum jump to exports in the next five years, provides a mix of macro policies and sector-specific policies indicating attainable goals. The CAGR of imports during first four years of the Ninth Plan was 6.6 per cent compared to 15.05 per cent during the Eighth Plan. The import of capital goods, which was 16.66 per cent in 1997-98, declined to a level of 15.9 per cent

in 2000-01. The CAGR of capital goods import during the first four years of the Ninth Plan period was (-) 3 per cent compared to 18.58 per cent during the Eighth Plan. A positive development during 2001-02 has been the reversal of the trend in import of capital goods which have increased by 6.6 per cent during April-October 2001. The share of import related to export items has been steady in the range of 15-16 per cent over the Ninth Plan period.

Employment Situation In The Manufacturing Sector

7.1.85 Table 7.1.11 shows the employment situation in organised manufacturing in the private and public sectors. The organised manufacturing sector employs approximately 23-24 per cent of total manpower. The role of the public sector as a provider of employment has sharply reduced during the Ninth Plan period. At the same time, there was no appreciable growth in employment in the private sector manufacturing. In terms of total numbers, the employment has been stagnant in manufacturing sector from 1996 to 2000.

SECTORAL PROFILE OF THE TENTH PLAN

Iron and Steel Sector

7.1.86 The PSUs of the Ministry of Steel are: Steel Authority of India Ltd. (SAIL), Rashtriya Ispat Nigam Ltd. (RINL), Sponge Iron India Ltd. (SIIL), Hindustan Steelworks Construction Ltd. (HSCL), MECON Ltd., Bharat Refractory Ltd. (BRL), MSTC Ltd., and Ferro Scrap Nigam Ltd. (FSNL).

Table 7.1.11
Employment situation in Organized manufacturing

(in lakh)

	Manuf. (Private sector)	Manuf. (Public Sector)	Total Employment in manufacturing	Employment (in public Sector)	Employment (in private Sector)	Total Employment in organised Sector	% (percentage) Employment in organised manufacturing
1991	44.81	18.52	63.33	190.57	76.77	267.34	23.69
1996	50.49	17.38	67.87	194.29	85.12	279.41	24.29
2000	50.85	15.31	66.16	193.14	86.46	279.60	23.66

Source : Economic Survey, 2001-02 Ministry of Finance

7.1.87 Some of the PSUs have had the advantage of capital restructuring in the Ninth Plan. The profit margins of the private and public sector steel-making units were hit by the general economic slowdown resulting in depressed domestic demand and stagnant market conditions, protectionist measures in the developed countries, liberalisation of trade, removal of entry barriers, reduction in Customs duty on imports of steel items etc. While RINL and SAIL have shown a relatively better performance, SAIL continues to make losses. Therefore, priority needs to be given to strategies which would ensure long-term as well as short-term profitability of the PSUs. The removal of entry barriers has attracted relatively large private investment in the private sector. This could be attributed to liberalisation and policy reforms. There was a sudden spurt in investment during the first half of the Ninth Plan. However, due to recession during the latter half of the 1990s, the investment already made as well as committed is not yielding the desired results.

7.1.88 The strategies relied upon during the Ninth Plan included cost reduction, rightsizing of manpower, stabilisation of production, sale of idle assets, sale of non-core assets, identification and closure of uneconomic units, focus on core competence, reduction in input-cost, ensuring maximisation of output per unit, improvement in operational efficiency, enhancement in productivity per man hour and achieving the optimum product mix.

7.1.89 Research and Development (R&D) in the iron and steel sector is carried out mainly by the steel plants, national research laboratories and academic institutions. Around Rs. 80 crore is spent annually on R&D, which is only about 0.2 per cent of the total turnover of the steel Industry in the country as against approximately 3 per cent in advanced countries. To encourage R&D activity in the country, the Government has decided to spend up to Rs. 150 crore per year from the Steel Development Fund (SDF) on R&D.

7.1.90 As the Indian economy is going through a recession, its adverse impact would be felt on the iron and steel sector. The growth of domestic demand for finished steel during the Tenth Plan

could be at the modest rate of about 6.25 per cent. The apparent consumption of finished steel during 2001-02 was estimated to be around 27 million metric tonnes (mmt). This is expected to rise to 38 mmt by the terminal year of the Tenth Plan (2006-07). While imports would be confined to two million tonnes (mt), the scope for exports depends upon the competitiveness of Indian steel in the international market. The threat of dumping of steel in the domestic market could continue because of falling prices in the international market.

7.1.91 Due to general slowdown in the major steel consuming sectors and restrictions imposed by major steel importing countries, there is excess capacity in the domestic steel manufacturing sector. Therefore, no additional capacity is likely to be created in the Tenth Plan, particularly in the hot rolled products.

Capital goods and Engineering Industry

7.1.92 The engineering industry comprises of industries manufacturing engineering goods such as metal products, office machinery, electronic goods etc., in addition to capital goods manufacturing industry. The capital goods industry as covered in the IIP comprises 53 industry sectors. The main sectors are machine-tools, industrial machinery, electrical machinery, shipbuilding, diesel engines and commercial vehicles etc.

7.1.93 None of the industry sectors under capital goods attract any industrial licensing provisions and 100 per cent FDI is allowed under the automatic route.

7.1.94 During the first four years of Ninth Plan, the capital goods sector registered a CAGR of 6.71 per cent. The sector grew at an impressive growth rate of 12.6 per cent in 1998-99. However, with the slackening of demand in different sectors of economy, the growth rate reduced to merely 1.8 per cent in 2000-01. The sector registered a negative growth rate of (-) 3.9 per cent during 2001-02.

7.1.95 With the abolition of quantitative restrictions on import of capital goods since 1991, and emphasis on modernisation in different

manufacturing sectors, the share of imported capital goods in gross fixed assets (GFA) increased from 12.2 per cent in 1993-94 and touched a peak of 20.8 per cent in 1995-96. This trend has, however, reversed since 1996-97. The share of imported capital goods in GFA decreased to 17.6 per cent in 1999-2000 within the overall manufacturing sector. The propensity to import in certain segment of industries like textiles, electrical machinery, automobile, auto-ancillary and leather products, however, have been very high. The share of imported capital goods in these segment of industries varies in the range of 20-50 per cent.

7.1.96 The intensity of uses of imported equipment is on the lower side in chemicals manufacturing barring a few sectors like alkalies, plastic products and fertilisers. Indian industrial machinery manufacturers have the capability to manufacture a variety of unit equipments of stringent specifications required for the chemical industry. Similarly, ferrous and non-ferrous metal manufacturing industries largely depend on indigenous equipment except for some tailor-made equipment.

7.1.97 Industry sector-wise FDI inflow (excluding inflows under non-resident Indian (NRI) direct investment and inflows due to acquisition of shares under Section 5 of the Foreign Exchange Management Act (FEMA), 1999 indicate that inflows to engineering sector between 1997-98 and 2000-01 has been to the tune of \$ 1,607 million representing 19.02 per cent of FDI inflows. The FDI inflows in the electronics and electrical equipment sector during first four years of the Ninth Plan has been \$ 1,258 million representing 14.89 per cent of total inflows. However, the increase in GFA in the capital goods sector has not kept pace with the manufacturing sector.

7.1.98 The industry has undergone restructuring by phasing out certain lines of production and closure of some unviable units. The machine tools sector has focused on certain specific areas and there is increasing trend of segmentation in it.

7.1.99 Barring a few exceptions, PSUs manufacturing capital goods have been facing serious competitive pressure and many of them

were referred to the BIFR. The process of disinvestment in many of these PSUs is under way. Bharat Heavy Electricals Ltd. (BHEL) has however, operated profitably despite stiff competition in the power equipment manufacturing sector. They have initiated to package their equipments with limited financial participation also in line with global trends. The share of Hindustan Machine Tools (HMT) in the machine tools sector reduced to 35 per cent in 2000-01. The company is on the revival path and is in the process of being disinvested after financial restructuring in 1997. The three issues concerning the capital goods industry are: (i) high cost structure of industry because of low level of production, lack of specialisation etc., something the industry would need to address; (ii) need to encourage modernisation and R&D to withstand competition; and (iii) unfavourable duty structure particularly zero customs duty on import of items for certain sectors.

Ship-building and Ship-repair Sector

7.1.100 There are 28 shipyards in the country, 19 of them in the private sector. Four public sector shipyards two under the Ministry of Shipping and two under the Ministry of Defence are capable of building large ocean-going vessels. The annual turnover of the shipbuilding and ship repair industry is approximately Rs. 2,000 crore and it employs around 31,000 persons.

7.1.101 The two public sector shipyards under the Ministry of Shipping – Hindustan Shipyard Ltd. (HSL) and Cochin Shipyard Ltd. (CSL) – constitute 25 per cent of the industry turnover, i.e. an annual turnover of approximately Rs. 450 crore. The employee strength in CSL, HSL and Hooghly Dock and Port Engineers Ltd. (HDPE) is approximately 7,800. The three shipyards under the Ministry of Defence – Mazgaon Dock Ltd. (MDL), Garden Reach Shipbuilders & Engineers Ltd (GRSE) and Goa Shipyard Ltd.(GSL) – build a variety of ships and vessels primarily for Indian Navy and Coast Guard.

7.1.102 The assessed production capacity of four large PSUs constitute 95 per cent of the industry turnover. The present annual shipbuilding capacity in India is 0.15 million compensated gross tonnage

(CGT), vis-à-vis 20 million CGT globally. As such, the Indian shipbuilding capacity is less than one per cent of the global capacity. The global shipping and shipbuilding industry have advanced considerably in the last 10 years, while the Indian industry has been stagnant. The trend is towards high capacity containerships, cargo ships, tankers so as to achieve competitiveness in tariff. These trends have necessitated modernisation in ports as well as shipbuilding/repairing facilities. Despite providing a competitive policy environment in India (i.e. status of 100 per cent export-oriented units (EOU) to the ship repair industry), the industry could not grow to the expected levels. The main constraints seem to be lack of infrastructural and managerial capacity.

7.1.103 The overall performance of the shipbuilding and ship repair industry during the Ninth Plan has improved. As a matter of policy, emphasis was given to ship-repair activity by the yards to improve their financial performance. CSL has been a profit-making yard during the Ninth Plan period. The Hindustan Shipyard Ltd., however, could not improve the performance even after financial restructuring. The Committee of Secretaries has recommended the closure of the HDPE. Indian shipyards however, find it difficult to cope with competition from abroad, the main reasons being lack of design-base, very high cost of production and long delivery periods. Further, the shipbuilding industry is cyclical in nature and, therefore, the ship builders usually undertake ship repair activities during the downward trend in shipbuilding.

7.1.104 The main policy issues concerning the shipbuilding and ship repair sector are continuation of the Shipbuilding Subsidy Scheme and budgetary support for the R&D Scheme. The Shipbuilding Subsidy Scheme is meant for PSUs manufacturing ocean-going vessels but is not directly linked to any specific objectives to be attained by the shipyards. The desirability of continuation of this Subsidy Scheme would need to be looked into.

7.1.105 Classification societies are involved from the initial stage of ship design and shipbuilding as a third party certification agency. With the changing technological environment, increasing application of information technology and changes in safety

norms, it is imperative for shipyards to keep pace with such developments to meet emerging classification standards. The National Ship Design and Research Centre (NSDRC), Vishakapatnam, which was set up as a registered society became fully operational in May 1993. NSDRC is presently involved in a diversified range of activities in the shipbuilding and marine industry. In the above context, the society may primarily focus on the shipbuilding sector. The R&D Scheme in the shipbuilding sector may cover projects for industry-wide improvement in knowledge base, standardisation and skill development.

7.1.106 During the Tenth Plan, emphasis would be given on productivity improvement in the shipbuilding sector and to have a more balanced approach to the development of shipbuilding capabilities in addition to business focus in ship repair capabilities. There is a case for the privatisation/disinvestment of public sector shipyards to achieve these objectives.

7.1.107 To ensure long-term strategic/critical needs in shipping, investment in facilities creation in shipbuilding/ship repairs sector is desirable as the present capacities are at very low level. The working group on Shipbuilding and Ship-repair Sector for the Tenth Plan has envisaged an investment of Rs. 2,200 crore (excluding investment in defence PSUs).

Automobile Sector

7.1.108 International majors in the automobile sector, who started operations in India immediately after liberalisation, consolidated their operations during the Plan period. The industry witnessed strengthening of segmentations and a very large number of new models were introduced. The established manufacturers phased out some old models and introduced new models. The sector witnessed changes in terms of design and state-of-the-art technology, giving confidence to manufacturers to face international competition on the home turf as well as to make their presence felt internationally. Competition in the market as well as increasing regulations relating to emissions and safety norms have led to improvement in standards in this sector

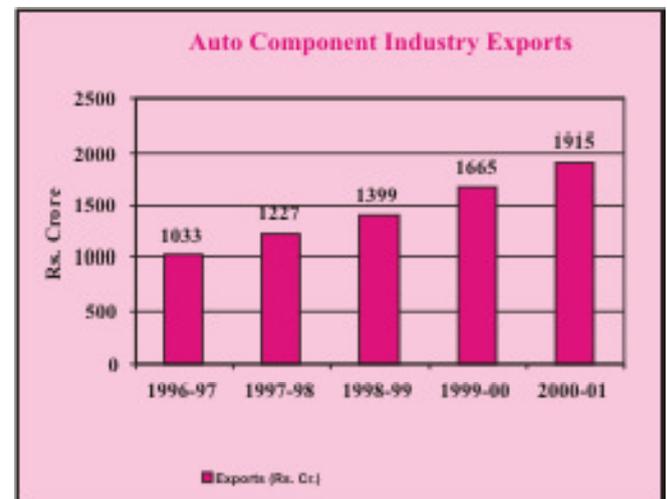
7.1.109 The automobile industry which consists primarily of cars, multi-utility vehicles, medium and heavy commercial vehicles (HCVs), light commercial vehicles (LCVs), two-wheelers and three-wheelers registered an impressive growth rate. The auto industry has achieved a CAGR of 22 per cent between 1992 and 1997 (or 13-14 per cent in real terms). Its contribution in industrial output increased from 4.3 per cent in 1992-93 to 5.4 per cent in 1996-97. In the same period, the auto component industry registered a CAGR of 28 per cent. With this, the contribution of the automobile industry to GDP has risen from 2.7 per cent in 1992-93 to 4.5 per cent by 1996-97.

7.1.110 However, with the worldwide economic slowdown, the auto industry's growth pattern has shown a downward trend in the last two years. The capacity utilisation in commercial vehicles, cars and multi-utility vehicles and two and three-wheelers has been 37 per cent, 55 per cent and 70 per cent respectively. Annual production of cars and multi-utility vehicles peaked at 700,000 in 1999-2000.

7.1.111 International trade in the automobile sector increased by 154 per cent between 1990 and 1995, though the share of Indian industry in global trade fell from 0.2 per cent in 1995 to 0.1 per cent in 1998 and the export volumes were almost stagnant. In absolute terms, however, Indian industry increased its export from \$ 344 million in 1991 to \$ 874 million in 1995. The growth of international trade in this sector has witnessed a decline since 1997-98. Table 7.1.12 indicates

export performance segment-wise during the first four years of the Ninth Plan.

7.1.112 The domestic auto component industry has also made rapid strides and its turnover has almost doubled in last five years. The industry is now quite advanced technologically due to its alignment with major vehicle manufacturers in the country and abroad and has a high export potential. During the late 1990s, exports of auto components grew at a CAGR of about 20 per cent. Currently, exports account for 10 per cent of the total production of auto-components. During 2000-01, the export of auto component was of the order of Rs. 1,915 crore.



7.1.113 A sector-specific Automobile Policy aiming to promote integrated, phased and self-sustained growth of auto industry has been announced by the Government.

Table 7.1.12
Export of Vehicles

(in Numbers)

	1996-97	1997-98	1998-99	1999-2000	2000-01
Cars	37,161	29,705	25,468	23,271	22,913
M.U.V.s	2,484	3,288	2,654	5,148	4,122
Medium & HCVs.	6,606	5,872	4,544	5,089	5,517
LCVs	7,230	8,212	5,564	4,823	8,262
Two Wheelers	1,24,728	1,25,504	1,00,002	83,237	111,138
Three Wheelers	21,973	18,595	21,138	17,725	16,263
Total	2,00,182	1,91,176	1,59,370	1,39,293	1,68,215

7.1.114 The role of auto component manufacturers who have simultaneously upgraded their facilities to meet the requirements would be changing significantly as the industry structure shifts from component level to sub-assembly level. This sector is developing independently as well as it is getting integrated into supply chain of some international vehicle manufacturers. However, the overall development would be largely linked to the fortunes of domestic vehicle manufacturers.

7.1.115 India's exports are still dominated by raw materials and low technology items. Automobile sector exports is one worthwhile area representing medium technology products.

7.1.116 Considering the prevailing technology and competitiveness of the sector, it would be desirable if a focused strategy promoting exports is formulated on a priority basis. The estimated incremental investment requirement in the auto sector and auto component sector during 2002-07 would be approximately Rs. 1,539 crore and Rs. 6,592 crore respectively on the basis of a GDP growth of 6.5 per cent. If GDP grows at 8 per cent, the investment requirement in auto sector and auto component sector during 2002-07 would be Rs. 1,654 crore and Rs. 10,136 crore respectively.

7.1.117 To keep pace on the regulation front in the automobile sector, the Government has to simultaneously modernise the existing regulatory systems at the State level as well as amend the Motor Vehicles Act to introduce new provisions to deal with the dynamic conditions. The road transport authorities would also require skill upgradation to understand and implement the new regulations.

7.1.118 The upgradation of existing testing facilities may be taken up on a priority basis. The Department of Heavy Industry may explore the possibility of increasing funding by the industry and if that does not materialise, the Government may consider restricting its role to funding only and let the management of these facilities be the responsibility of the industry. The creation of new facilities in phases with suitable scope, financial and management structure may be finalised in consultation with stakeholders.

7.1.119 Complex regulations for safety and environmental norms have been applicable in advanced countries since the 1980s. Automotive Research Association of India (ARAI) is working to introduce safety and environmental norms at par with norms in European countries. With liberalisation and the entry of international players, it becomes all the more essential that our national regulations should be updated in line with the latest developments in technology. Out of the total of 114 ECE regulations, about 35 Indian standards have been either partially or fully aligned, 36 are in the process of alignment and about 43 standards are yet to be taken up.

7.1.120 A projection of Rs. 350 crore of Plan resources was made for setting up two new facilities and upgradation of existing testing facilities during the Tenth Plan. The Working Group on the Automobile Sector also suggested the setting up of new facilities with participation from industry.

Fertilisers

7.1.121 Fertiliser is a critical input for maintaining or increasing agricultural production and its importance rests with the importance of agriculture in the Indian economy. Of the four major nutrients Nitrogen (N), Phosphorous (P), Potash (K) and Sulphur (S) are lost through crops. Indian industry caters to the requirement of the three: N, P and S. There is no conversion activity involved in case of K except trading or mixing in the final stage of fertiliser production. About 58 percent of the domestic urea capacity is based on Natural gas as feed stock whereas naphtha accounts for 29 percent and Fuel Oil (FO)/Low Sulphur Heavy Stock (LSHS), 13 percent. On the pricing for the fertiliser units, only urea is, at the moment, under retention pricing scheme whereas phosphatic and potassic fertilizers are covered under a concession scheme. Government notifies the maximum retail price (MRP) of urea under the concession scheme, the indicative MRP for decontrolled fertilisers, namely Diammonium Phosphate (DAP), Muriate of Potash (MOP), and complexes. The MRP of single super phosphate (SSP) is left to be notified by the states.

7.1.122 The development of the Indian fertiliser industry, even while remaining under the regime of

industrial licensing till 1991, has been phenomenal and largely due to the favourable price environment in which industry was able to meet its increasing cost of production with reasonable assured return on investment through a controlled price mechanism. The farm gate price of fertilisers was kept low through fertiliser control order and industry was insulated from the external competition. A balance was struck between the interest of the industry and that of the farmers by the Central budget absorbing the subsidy burden.

7.1.123 The move by the government to decontrol phosphatic and potassic fertiliser in 1992 did not succeed as it was a partial decontrol and resulted in over-dose of controlled nitrogen nutrient (low priced) against lower dose of market priced (high) phosphatic and potassic nutrients. The long term adverse effect on the soil made it essential to provide incentive to the farmers by way of subsidy on P & K again. So it is imperative that suitable instruments are devised to encourage the desired application ratio of N, P and K into the soil.

7.1.124 R&D effort in the sector remains poor, being less than 0.2 percent of the turnover. The main consulting organisation of the sector, the public sector Project & Development India Limited (PDIL), also a PSU is facing difficulty in maintaining profits. It is not able to maintain its R&D activities without grant from the government. The company is also not able to earn profit on its activity of catalyst production, though possibility of its profitability exists.

7.1.125 It would not be rational for fertiliser nutrients to be subjected to taxation by various State Governments when Centre is providing subsidy to it. It amounts to transfer of centre's resources to States through this channel and goes against the very purpose of keeping the fertiliser prices minimum to boost its consumption. So efforts should be directed to ensure that the States desist from taxing chemical fertilisers.

7.1.126 While the industry has its main interest in increasing sales of chemical fertilisers and maximizing profits, nevertheless it holds a certain responsibility towards educating the farmers on integrated plant nutrient management system which

is very essential to avoid deterioration of soil health beyond recovery. Industry should also work out ways to provide farmers with better products that increase their use efficiency like slow release fertilisers. A decontrol of prices would accelerate such efforts.

7.1.127 There is need to increase production and marketing of quality bio-fertilisers to farmers as a cost effective way to reduce the requirement of costly chemical fertilisers. The Department has achieved some measure of success through making public sector units to undertake the task. Some incentive may be required to involve private sector units in the mission.

Drugs and Pharmaceuticals

7.1.128 The Indian drugs and pharmaceuticals industry ranks fourth in world wide accounting for 8 per cent of world production by volume and 1.5 per cent by value. From Rs. 730 crore in 1990-91, the production of bulk drugs touched Rs. 4,533 crore in 2000-01. The production of dosage forms rose from Rs. 3,840 crore in 1990-91 to over Rs. 15,000 crore in 2000-01. This contribution is from the 250-odd large-scale units and about 8,000 small-scale units.

7.1.129 The Indian pharmaceutical industry has been able to achieve global recognition as a low cost producer. Pharma exports touched Rs. 8,730 crore in 2000-01, according to the Directorate General of Commercial Intelligence and Statistics (DGCIS). India ranks 17th in terms of export value of bulk actives and doses drugs. It exports drugs to nearly 200 countries including the highly regulated markets of Europe, United States, Japan and Australia. However, there has been an increase in the imports of bulk drug indicating a weakness in this area. The export-import policy and fiscal policy cannot protect domestic industry because import controls relaxation is inevitable under WTO rules. Losing ground on the bulk drug may also lead to problem for formulators.

7.1.130 One of the problems of the industry is the high rate of obsolescence due to rapid technological developments resulting in the invention/discovery of new organic molecules in the field of synthetic

drugs. The technological advancement also helped in identifying the deficiencies/side effects of the earlier drugs. With the quick phasing out of drugs and introduction of product patenting, the industry is on the verge of losing all its advantages. The challenge for the industry today is a change in its attitude towards innovative R&D. However, past experience reveals that joint projects/collaborations between the private sector and government organisations/laboratories did not yield encouraging results, perhaps due to lack of interest from either side.

7.1.131 International trade in drugs and pharmaceuticals will require stringent control on quality and external markets may not be satisfied with the quality required by the Drugs Control Organisation (DCO). There are several standards which exporting companies have to comply with like Food and Drug Administration (United States), Medicinal Control Agency (United Kingdom), Medicinal Control Council (South Africa), TGA (Australia). Indian products will at least have to conform to a minimum of WHO certification on good manufacturing practices. There is also a need to reduce the duplication of testing for new drugs as being made through Common Technological Document of the International Committee on Harmonisation (ICH) of technical requirements for Registration of Pharmaceuticals for Human Use.

7.1.132 India is one of the signatories to the WHO Certification Scheme on the quality of pharmaceutical products and good manufacturing practices (GMP). The provisions about the compliance with GMP are stipulated in Schedule M of the Drugs and Pharmaceuticals Rules, 1945. The Central Drug Standards Control Organisation (CDSCO) guarantees various activities through their zonal offices and monitors drug quality through nearly 35,000 samples per year. While these are covered under Schedule M of the Rules, domestic companies have to upgrade manufacturing facilities to match the WHO requirements. An order has been issued that upgradation should be completed by December 2003. While the large and medium scale undertakings have the resources to do this, nearly 20,000 small-scale formulators may not have the required capability. It may, therefore, be necessary to provide them with soft loans or some grant.

7.1.133 Apart from the point of view of exports, the question of quality is no less important for domestic consumption. The provisions of the Acts and Rules are implemented jointly by the Centre and the States. However, it has been found that drugs which are not permitted in one State get approved in another State. While steps have been taken for upgrading Schedule M requirements at par with international standards, standards vary from State to State, putting companies upgrading the schedule at a disadvantage as far as cost of manufacturing of drugs is concerned. This calls for a centralised recommendation, a task that can be undertaken by the CDSCO, as a central drug regulatory authority.

7.1.134 It has been found that there is a wide gap between regulation and implementation regarding the quality of drugs. There is a need to strengthen the State licensing authority through setting up an intelligence cell for campaigning against spurious drugs. The establishment of an independent regulatory authority that would deal with major issues like drug pricing, quality control and licensing of drugs could be explored.

7.1.135 India's excellent expertise in developing new and innovative processes for known molecules needs to be exploited in a greater measure. In view of the high obsolescence of drugs, priority needs to be given for the initiation of new drug development for diseases of relevance to the Indian population. Also, it is high time that Indian companies venture into the global market, taking the advantage of low cost R&D and production by introducing globally competitive products based on new molecules, new delivery systems, etc. Investment in R&D by industry as a whole in India has been low, only around 0.6 per cent of the turnover. This is because of the low levels of profitability and comparatively small size of the companies. Investment in R&D by the companies, therefore, needs to be encouraged. Certain incentives for conducting R&D activities and operation of R&D fund under drug development promotion would be in order. The 1999-2000 budget speech of the Finance Minister had an announcement of a corpus of Rs. 150 crore for the Pharmaceutical Research and Development Support Fund.

7.1.136 Prices of essential drugs have been controlled since a large segment of the population is poor and health coverage by the State is inadequate. In view of this, regulation of drug prices needs to continue for some more years. This has to be weighed against the long-term perspective for the pharmaceutical industry. One alternative would be to encourage an increase in health insurance coverage. Simultaneously, the number of drugs under price control needs to be reviewed periodically and some removed from the list.

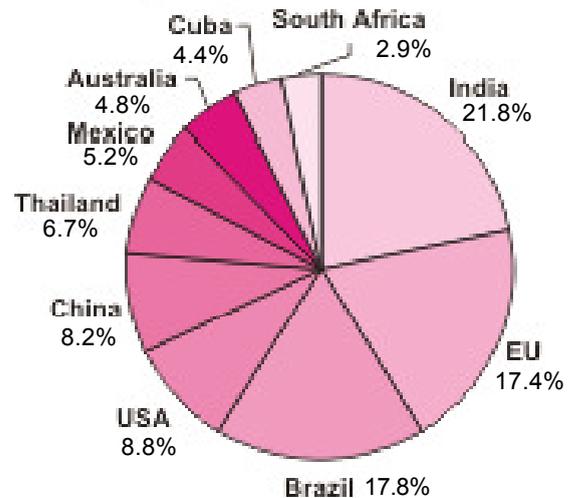
7.1.137 Public sector pharmaceutical units have provided considerable support in the growth of the industry by putting up modern plants for the manufacture of bulk drugs at a reasonable cost. However, all the units have become sick, partly due to the government policy of allowing small formulators to take on a large part of production, late revision of prices, and partly due to the infrastructure and managerial problems. Some of the units were earlier in the private sector and were taken over by the Government after they became sick. The revival package in case of Indian Drugs and Pharmaceuticals Ltd. has failed twice and this indicates that such packages are not based on correct assumptions. The drug sector is not considered a strategic sector because of ample competition. Still, in the absence of any direct price control, PSUs can serve as an indirect way of price stabilisation when prices are fully decontrolled.

Sugar

7.1.138 Sugar industry is the second largest agro-based industry in the country. About 45 million sugarcane farmers, their dependents and a large agricultural labour force, constituting 7.5 per cent of the rural population, are involved in sugarcane cultivation, harvesting and ancillary activities. Besides, about 0.5 million skilled and semi-skilled workers, mostly from the rural areas, are engaged in the sugar industry. The sugar industry in India has been a focal point for socio-economic development in the rural areas by mobilising rural resources, generating employment and higher income, transport and communication facilities.

7.1.139 India has emerged as the largest sugar producing country in the world, with a 15 per cent

Ten Major Sugar Producers in the World



share of the world's sugar production. However, the share in international trade of sugar is only 0.05 per cent. The sugar production in 2000-2001 was 18.34 mmt as against a target of 18.0 mmt. However, there is likely to be a marginal shortfall of production during 2001-02 as against the Plan target. India has broken the conventional sugar cycle characterised by two years of high production followed by two years of low production.

7.1.140 The area under sugarcane crop in India was 1.71 million hectares (m. ha) in 1950-51 and has increased to 4.32 m. ha in the 2000-01 season. Production of sugarcane increased from 57.05 mmt in 1950-51 to 299.20 mmt in 2000-01. The yield of sugarcane rose from 33,422 kg per hectare in 1950-51 to 69,550 kg in 2000-01.

7.1.141 As on 30 September 2001, there were 506 sugar mills in the country, of which 70 were not in operation. The capacity in terms of annual sugar production of all the 506 mills was 16.82 mmt against the target of 19.8 mmt for 2001-02 (the installed capacity of the 70 non-operational sugar mills until 30 September 2001 was 1.107 mmt). Seventy sick public and private sector mills had been referred to the BIFR.

7.1.142 The average annual installed capacity of sugar factory in the country is 2,355 tonnes crushed per day (TCD), as compared to 10,307 TCD in Thailand, 9,216 TCD in Australia, 9,168 TCD in Brazil and 6,877 TCD in South Africa. Considering

the need for achieving economies of scale and reduction in the cost of production, there is a need for consolidation of capacity and vertical expansion of capacity.

7.1.143 Sugar production in India has been generally higher than the rate of growth of sugar consumption. Consequently, there are huge inventories. The projection for internal consumption of sugar during the Tenth Plan period (taking the base internal consumption figure of 15.5 mmt for the 1999-2000 sugar season) has been calculated at 21.3 mmt in 2006-07. This assumes a 6.5 per cent GDP growth and a compound growth rate of 4.9 per cent. The internal consumption has been projected at 23.8 mmt in 2006-07, when an 8 per cent GDP and compound growth rate of 6.14 per cent is assumed. The carry forward of stocks is estimated at 2.65 mmt in 2006-07. The likely scenario of sugar production is projected as 21.3 mmt during 2006-07 and it is estimated that 1.5 mmt of sugar could be exported every year during the Tenth Plan period.

7.1.144 Emphasis needs to be placed on improvement in sugarcane productivity that varies from 134 tonne/hectare in the sub-tropical region to 188 tonne/hectare in the tropical region, rather than merely on increasing the area under sugarcane cultivation. The sugar industry should take necessary steps to strengthen itself by focusing on modernisation, technology upgradation, improvement of sugar quality, economies of scale and by-product utilisation. R&D activities need to be strengthened in the areas of clarification of cane use, quick estimation of cane quality, production of edible grade invert sugar syrup, and developing biogas gasification technology etc. The manpower employed varies from one man/day to ten man/day for per tonne of sugar produced. Rationalisation of manpower should be done to reduce production costs. A study also needs to be undertaken to find out the reasons for a large number of sugar factories not going in for modernisation-cum-expansion of capacity.

7.1.145 Adequate funds are available in the Sugar Development Fund (SDF) to give loans to sugar factories at concessional rates of interest for undertaking modernisation-cum-expansion of

capacity and for rehabilitation of plant and machinery including refining for producing refined sugar for the international market. In spite of this, a large number of sugar factories are operating at sub-optimal and unviable capacities. The main reasons of sickness in the sugar industry appear to be the practice of State Advised Prices (SAPs) for sugarcane, low realisation from the sale of molasses, fluctuations in sugar production, non-availability of adequate cane and the uneconomic size of the mills and their outdated machinery and mismanagement. Adequate relief and concessions would be required from State Governments, banks and financial institutions for the revival of potentially viable sick mills. Assuming that the average cost of upgradation and optimisation is about Rs. 20 crore to Rs. 25 crore, the total estimated investment will be approximately Rs. 1,300 crore, of which Rs. 650 crore could be from the SDF.

7.1.146 To improve the overall viability of the sugar industry, suitable value addition to its by-products will be necessary. Out of the three main by-products of the sugar industry, the utilisation of bagasse and molasses need immediate attention in terms of value-addition. Bagasse-based cogeneration require relatively low capital investment, shorter gestation period, and relatively lower cost of generation as compared to conventional power projects. Some State Governments have already framed policies to encourage bagasse-based power generation.

7.1.147 Molasses is obtained in the process of sugar manufacture involving repeated crystallisation and centrifugation. Between 4.2 per cent and 4.5 per cent molasses is produced from cane and it is presently being used for the manufacture of alcohol and a host of alcohol-based downstream chemicals. Anhydrous alcohol/ethanol, being an environment friendly auto fuel, can be blended with gasoline and used as an auto fuel.

7.1.148 The utilisation of molasses for the production of ethanol would not only give value-addition to the by-product of the sugar industry, but it may also ensure better price stability and price realisation of molasses for sugar mills. This will improve the viability of the sugar mills, which, in turn, will benefit the sugarcane grower, and

the economy, particularly the rural economy. However, considering the environmental-friendly characteristics of ethanol-blended gasoline as an auto fuel, the pricing of ethanol needs to be viewed not only in terms of financial cost-benefit analysis but also of economic cost-benefit analysis.

Leather and Leather Goods

7.1.149 India ranks first among major livestock holding countries, with 19 per cent of bovine, 20 per cent of goat and 4 per cent of sheep/lamb population and accounts for about 10 per cent of global supplies of raw skins and hides. The annual availability of 230 million pieces of hides and skins is the main strength of India's leather industry, a large part of which is in the unorganised sector. About 60-65 per cent of total production of leather and leather products and substantial portion of exports is accounted for by artisans, micro-enterprises and small-scale industries. The sector is highly export-sensitive and faces threats from ecological ban criteria in the main markets.

7.1.150 The leather industry has been identified as one of the thrust areas for exports and the export performance of the leather sector has improved considerably. Exports by the leather sector increased from Rs. 3,036 crore in 1991-92 to Rs. 6,968 crore in 1999-2000 and further to Rs. 9,004 crore in 2000-01.

7.1.151 An analysis of the trends of export realisation between 1984 and 2001 indicates annual growth rates of 6.5 per cent for finished leather, 5.9 per cent for footwear upper

components, 11.6 per cent for closed footwear, 15 per cent for leather garments and 19 per cent for leather goods. Growth rates in the case of finished leather and footwear and components are not significantly high.

7.1.152 The export of the leather goods sector registered an increase of over 25 per cent per annum during the 1997-2000 period. Global share in leather goods has registered a general increase to 7.7 per cent. India is one of the top three players in global trade in leather goods.

7.1.153 Eleven items in the leather sector have been de-reserved. These include semi-finished leather, leather shoes and shoe components. No industrial licence will be required for setting up units to manufacture these items. For leather handicrafts and garments, the entitlement for duty free import of trimmings, embellishments and other items has been increased from 2 to 3 per cent of FOB value of exports.

7.1.154 Some of the major initiatives during the Ninth Plan period were: changes in SSI investment limits, delicensing of integrated leather processing units without export obligations, export obligations being reduced from 75 per cent to 50 per cent for the reserved sector, export of raw hides/skins, wet blue, crust and other intermediates at 60 per cent duty, and, removal of QRs in the leather sector. The promotional measures and schemes were: National Leather Development Programme (NLDP) Leather Technology Mission deliveries, Tannery Modernisation Scheme, Indian Leather Development Programme, Market Development Assistance Scheme and establishing eco-testing labs etc.

7.1.155 A Plan scheme the Indian Leather Development Programme (ILDLP) was launched during the Ninth Plan for integrated development of the Indian leather industry at a total outlay of Rs. 14.50 crore. This scheme provided the much-needed financial assistance to the tanneries for their technological upgradation and better capacity utilisation and to undertake adequate pollution control measures. After the successful completion of Phase I of the United Nations Development

Export of Leather Goods in 2001-02 (\$ Million)	
• Finished Leather	457.37
• Leather Footwear	394.19
• Footwear Components	233.34
• Leather Garments	378.62
• Leather Goods	406.52
• Saddlery and Harness	35.50
• Non-Leather Footwear	26.09
• Total	1,931.63

Programme (UNDP)-assisted NLDP, Phase II of the programme SIDE-NLDP has been initiated with focus on poverty alleviation and sustained livelihood and building linkages between the organised and unorganised sectors. Under this scheme, Decentralised Common Facility Centres (DCFC) and Design Studios for Leather Goods and Footwear have been set up in Kanpur, Delhi, Kolkata, Hyderabad and Bhopal.

7.1.156 Many segments of the Indian leather industry have remained reserved for the SSI sector. There is need to review policies limiting the investments in a sector relating to a globally traded commodity like leather. The leather footwear and product sector offers vast potential for employment, social empowerment and gender equity. An employment-driven policy framework for large additional investments could be a possible policy direction. Labour policies need to be changed. An enabling trade and commerce policy to permit warehousing and reshipment support for attracting raw hides and skins into India and an environment policy for near-zero environmental risk would be necessary.

7.1.157 Strengthening, augmentation, modernisation and expansion through investment grants and credits as well as credit-backed investment support for SSI units would be required. Majority of the units under the SSI sector in the Indian leather industry need access to technologies, design support and skill upgradation of manpower base. Footwear, non-leather component, non-leather footwear, leather garment and leather goods sector need appropriate schemes for both modernisation and expansion. There is a need to expand the capacity of the footwear industry in the organised sector if India has to capture 14 per cent share of global trade. This means that the footwear component sector needs to be expanded by at least ten times and it calls for a planned expansion of the sector. SSI units are not often able to access technology advancements. The SSI sector of the Indian leather industry would need at least an investment of Rs. 500 crore for modernisation during the Tenth Plan period.

7.1.158 A special drive and mechanism would be needed to attract FDI and encourage joint ventures.

Such investments would be ideal for the tanning, footwear components, non-leather materials and footwear.

7.1.159 The Tenth Plan has identified 11 top priorities for the sector. These are:

- i) Employment-oriented policy promotion.
- ii) Readjustments to the de-reservation process.
- iii) Readjustments to the removal of QRs.
- iv) Promotional measures for compliance to WTO regimes.
- v) Modernisation of all sub segments.
- vi) A human resource development mission.
- vii) An environmental mission.
- viii) R&D back up and support.
- ix) FDI and large private investments.
- x) Readjustments to the WTO framework, and
- xi) Strategies for aggressive marketing.

Investments required for achieving these plans have been estimated at Rs 16,000 crore of which Rs. 9,000 crore may need to be invested during the Tenth Plan period.

Textiles and Jute

7.1.160 The textile industry is one of the largest and the most important sectors in the economy in terms of output, employment generation and foreign exchange earnings. The Indian textile industry contributes about 14 per cent to the national industrial production and about 35 per cent to the total national export earnings. The spinning sector has performed well but the weaving and processing sector has not performed satisfactorily because of lack of modernisation. This has affected the export of processed fabrics and other value-added items such as made-ups and garments.

7.1.161 Cloth production increased from 31,958 million sq. metres in 1995-96 to 40,256 million sq. metres in 2000-01 at an annual average growth rate of 4.72 per cent as against the target of 44,000 million sq. metres in the terminal year of the Ninth Plan. There is likely to be a shortfall in cloth

production vis-à-vis the Ninth Plan target. The share of cloth production of the mill sector has decreased from 6 per cent to 4 per cent over the same period the share of powerloom production has increased from 54 per cent to 59 per cent. The spinning spindle capacity has increased from 31.75 million in 1995-96 to 37.91 million in 2000-01. The production of spun yarn has increased from 2,485 million kg during 1995-96 to 3,160 million kg in 2000-01 at an average annual growth rate of 4.92 per cent. The production of man-made filament yarn has increased from 493 million kg in 1995-96 to 920 million kg in 2000-01. The decentralised hosiery sector has shown a significantly higher annual growth rate of 6 per cent during the last five years. The textile exports including jute, coir and handicrafts increased from \$ 8.53 billion during 1995-96 to \$ 12.10 billion during 2000-01 as against the target of \$ 20.17 billion in the terminal year of the Ninth Plan.

7.1.162 The production of textile machinery manufacturing industries, which comprise 600 units employing 30,000 workers, decreased from Rs. 1,500 crore to Rs.1,309 crore from 1995-96 to 2000-01 against the target of Rs. 5,400 crore in the terminal year of the Ninth Plan. The machinery manufacturing industries are exporting 15 per cent of the annual production to over 50 countries.

7.1.163 At present, the National Textile Corporation (NTC) has 119 mills controlled by nine subsidiary corporations of the holding company. Eight out of the nine have been referred to the BIFR. NTC has identified 53 viable mills and 66 unviable mills. The Government proposes to modernise the viable mills and close/privatise the unviable mills. The Draft Rehabilitation Scheme (DRS) proposing revival of 44 viable and closure of 60 unviable mills was approved by the Group of Ministers on an Action Plan for NTC. British India Corporation (BIC) has two woollen mills and two cotton subsidiary companies with 3,799 employees. It has been making continuous losses due to obsolete machinery, excess manpower, shortage of working capital, etc. Winding up of the two cotton subsidiaries of BIC has been ordered. The Government has offered VRS to all the employees in these mills. The

rehabilitation plan for BIC woollen mills is under consideration of BIFR.

7.1.164 R&D activities in the textile sector has been carried out by eight Textile Research Associations (TRAs), Central Sericulture Training and Research Institute (CSTRI) of the Central Silk Board and testing laboratories under Textile Committee. The TRAs provide consultancy services to the textile industry including their member mills, HRD training programmes, testing and certification activities in the area of process control, energy conservation, balancing equipments for process optimisation, productivity improvement and reduction in wastage or rejection, etc. on need basis. Out of the 74 publicly funded testing laboratories, 17 are under the Textile Committee and the rest are under TRAs and powerloom service centres and a few other institutions. The establishment of ISO 9000 Quality Management System was formulated to encourage the small and medium enterprises. Implementation of ISO 14000 Environmental Management System in the textile industry, especially in the processing units, is a social responsibility proposed to be introduced during Tenth Plan.

7.1.165 The Technology Upgradation Fund Scheme (TUFS) was introduced to modernise the textile sector, which is critical for facing competition from other textile producing countries like China, Taiwan, South Korea, Japan, etc. All the textile sub-sectors such as spinning, weaving, knitting, processing, garment making, cotton ginning and pressing and jute sector are covered under the scheme. Since inception of the scheme in April 1999 till 31 January 2002, a total of 1,465 applications with investment proposals of Rs.13,747 crore have been filed for loans amounting to Rs. 7,910 crore. Out of this, Rs. 5,057 crore has been sanctioned to 1,232 proposals and Rs. 3,282 crore has been disbursed to 968 applicants.

7.1.166 The Technology Mission on Cotton (TMC) Scheme strives to improve cotton productivity and quality. In order to reduce contamination of cotton, modern infrastructure is provided in the market yards and the programme on modernisation of ginning and pressing units has been taken up either by capital subsidy under TMC Scheme or a 5 per cent interest subsidy under the TUFS. It is proposed

to modernise/develop about 200 market yards under the Mini Mission-III and 350 ginning and pressing factories under the Mini Mission-IV in the Tenth Plan. Fifty-one market yards and 150 cotton ginning and pressing factories were modernised during the Ninth Plan.

7.1.167 The production of raw jute and mesta during the terminal year of the Ninth Plan has been estimated at 95-100 lakh bales of 180 kg each as against the target of 108 lakh bales. The production target of jute and mesta is placed at 110 lakh bales for the terminal year of the Tenth Plan, while the proposed target for jute goods is 19.50 lakh mt against 14.35 lakh mt achieved during 2000-01.

7.1.168 The UNDP-assisted National Jute Development Programme concluded on 31 March 1999. The second phase of the UNDP programme under the Country Cooperation Framework-I (CCF-I) known as the Fibres and Handicrafts Programme (FHAP) envisaging a total contribution of \$ 7 million by UNDP and Rs. 20 crore by the Government of India has since been launched. The FHAP has five sub programmes, one each in the areas of carpet, cane and bamboo, non-mulberry silks, wool and jute. The activities to be taken up under these sub programmes focus on creating a demand pull and on increasing value addition by emphasising product development, product diversification, marketing and introduction of new technologies. These include promotion of fibre cultivation, support to non-government organisations (NGOs), implementation of strategic marketing plans, human resource development, commercialisation of R&D efforts, indigenisation of machine manufacture, quality assurance and biotechnology interventions, etc.

7.1.169 As the textile industry has a very large potential for increasing employment opportunities in the country, the present labour laws need to be reviewed in the context of re-training and re-deployment of workers. Export led growth in textiles in a global market scenario is possible only with large investments in the key areas of industry, particularly in weaving, knitting, processing and apparel. The technology in these critical sub-sectors of the textile industry needs immediate upgradation to international levels.

7.1.170 To enable the textiles and apparel industry to build world class manufacturing capacities to attain and sustain a pre-eminent global position and to withstand competition, a holistic, need-based and balanced approach is proposed to be adopted while formulating schemes and programmes for different segments of the industry. This approach will be particularly important for the segments, which did not get adequate attention in the past but are critical to the growth of the textile industry. This would involve creation of a fair and competitive environment and a rational fiscal policy regime to enable the industry to successfully compete on cost and quality parameters in the international market.

7.1.171 The production targets envisaged in the terminal year of the Tenth Plan are 45,500 million sq. meters of cloth, 4,150 million kg of spun yarn and 1,450 million kg of man-made filament yarn. The per capita availability of cloth would be 28.00 sq. metres by 2006-07 as compared to 23.19 sq. metres in 2000-01 showing a growth of 3.19 per cent. The export target for textiles and apparel is placed at \$ 32 billion by 2006-07 and \$ 50 billion by 2010. The employment in the textile industry is expected to increase from 34.42 million persons to 40.15 million persons by the terminal year of the Tenth Plan. The employment in the allied industry is also expected to increase from 47.53 million persons to 50.75 million persons during the same period.

Cement

7.1.172 The cement industry in India is, by and large, self-sufficient both in raw material availability and process technology as well as indigenous sources of plant and machinery. It is comparable to the best in the world in respect of quality standards, fuel and power consumption and environmental norms. It has a high capacity utilisation and contributes to 6 per cent of the world production. The industry employs 1,35,000 people, while creating a substantially higher proportion of indirect employment through machinery manufacture, materials and services. The cement industry has recorded a CAGR of 8.4 per cent over the last two decades and contributes 5 per cent of the Central Government's excise revenues. Total decontrol and the subsequent general liberalisation regime saw

Overview

- A one million tonne production employs 20,000 persons
- The sector contributes 5 per cent Central Excise
- The sector has a 1.6 per cent weight in IIP
- One per cent increase in GDP leads to a 1.2 per cent increase in cement production

the capacity of the industry rise to the current level of 140 mmt. The industry comprises 120 large plants with an installed capacity of 129.43 mmt and about 365 mini plants (rotary and vertical shaft kiln or VSK) with an installed capacity of 11.10 mmt. Earlier, the public sector used to consume over 50 per cent of the total cement sold in India, but in the last decade, its share has come down to 35 per cent. Rural areas consume less than 23 per cent of the total cement produced.

7.1.173 The weighted average thermal energy consumption in dry process plants in India has reduced from 780 Kcal/kg clinker in 1995-96 to 750 Kcal/kg clinker in 2000-01. Similarly, the weighted average electrical energy consumption in dry process plants showed a reduction from 104 to 91 kWh/t cement during the same period. It is expected that the average thermal and electrical energy consumption will further come down by 2006-07 due to improvement in energy efficiency in the existing plants and new capacity addition with energy efficient technologies.

7.1.174 The Task Force for the Ninth Plan had projected a capacity of 135 mmt for the terminal year of the Plan (2001-02). The industry has reached a capacity of 140.53 mmt. Cement production also grew consistently during the Plan period at CAGR of 6.25 per cent. Capacity utilisation for large plants has been around 80 per cent and with the privatisation of more public sector units, the capacity utilisation is likely to go up further. The consumption is estimated to touch 100 mmt by the end of the Ninth Plan with a growth of 6.03 per cent. The per capita consumption is lower than the world average and offers scope for development and growth. Cement demand is expected to grow at 10 per cent per annum.

7.1.175 The Indian cement industry has the potential to double its exports of cement and clinker and thus be a major player in the South-East Asian market. In fact, cement has been identified by the Government as an extreme focus item. Though the Ninth Plan had set a target of 8 mmt of exports, exports are expected to be of the order of 5.15 mmt by the end of Plan period.

Reasons for low exports

- High input costs, domestic taxes, high energy charges, poor export infrastructure
- Tax as percentage of production cost is 60 per cent in India, 17 per cent in China, 0 per cent in Malaysia
- Hike in limestone royalty

7.1.176 The critical requirements for the cement industry are coal, power and infrastructure. Of a total consumption of 15.73 mmt of coal in 2000-01, 4.40 mmt was imported. Coal will continue to be the dominant fuel for cement industry. However, petroleum coke, lignite and waste derived fuels will also have a marginal presence. In fact, increased use of pet coke and lignite is likely in the future. Currently, over 40 per cent of cement production is from captive power plants using diesel, furnace oil and coal. The grid power supply system needs urgent overhaul for increased efficiency. Till grid power is available in adequate quantity/quality and at proper price, generation of captive power and its trading needs to be permitted without any restrictions.

7.1.177 In view of the location-specific characteristics of cement plants involving movement over long distances of raw materials and finished products, railway is the ideal mode of transportation. However, only 38 per cent movement through rail could be achieved. Inland water transport is an energy efficient and cheap mode of transport, particularly for those plants located near the coastal regions.

7.1.178 Ninety per cent of cement production in the developed world is moved in the bulk form. In the case of India, this is less than 2 per cent. It is necessary to provide an impetus to bulk cement

through incentives so that demand is created in the market. There is also need for setting up bulk terminals. The growth of bulk cement is dependent upon the development and growth of Ready Mix Concrete (RMC). The RMC industry's growth could not be maintained at the desired pace and has even started to decline. Many RMC units have closed down.

7.1.179 The mini cement plants set up in the country are based either on rotary kiln technology or on VSK technology. Many small VSK plants have also come up mainly in the SSI sector. Presently, only about 132 mini cement plants out of a total of 365 units, with a capacity of about 11 mmt, are reported to be in operation, producing about 4 mmt of cement. Limitations of capacity fixed for mini cement plants at the conceptual stage and financial assistance limits specially the term loans for projects execution, rising cost of fuel and its non-availability in case of VSK cement plants and absence of railway linkage, are issues of major concern. High ash content and poor quality of coal, poor quality of electrical power, lower realisation due to consumer preference for branded cement, shortage of term loans for modernisation and expansion etc. are some of the main impediments resulting in the poor performance and growth of this sector.

7.1.180 The cement demand, based on a scenario of 6.5 per cent GDP growth during the Plan, works out to 142.6 mmt (including 6 mmt of exports) which requires a production capacity of 168 mmt. During Tenth Plan, it is assumed that the demand may go up to 160.56 mmt at the targeted GDP growth of 8 per cent for the economy. This requires a production capacity of 202.64 mmt at the present trend of capacity utilisation.

7.1.181 The additional capacity during the Tenth Plan would be of the order of 62 mmt including 5 mmt from mini cement plants. Around 10 mmt capacity may come from greenfield cement plants at a capital investment of Rs. 3,500 crore. Around 35 mmt may come through modernisation and expansion at a capital investment of Rs. 7,000 crore. Another, 17 mmt capacity is likely to be created due to technology upgradation/ debottlenecking/ addition of fly ash and slag. In

order to cope with the total enhanced capacity of 62 mmt, power infrastructure of 1,125 megawatt (Mw) will have to be created by Indian cement industry. The capital investment for new captive power generation will be of the order of Rs. 4,600 crore. The capital investment for setting up coal washeries of 3 mmt capacity would be around Rs. 300 crore. The additional 5 mmt cement capacity from mini cement plants would require an investment of Rs. 1,000 crore. Further, the investment for developing supporting infrastructure in the railways would be around Rs. 1,200 crore. Thus, the total investment to be made by the Indian cement industry during the Tenth Plan is likely to be Rs. 17,600 crore.

Paper and Newsprint

7.1.182 The Indian paper industry has a total turnover of more than Rs 10,000 crore and provides direct employment to 200,000 people and indirectly to another 100,000 persons. Industry contributes Rs. 700 crore annually to the exchequer by way of excise duty.

7.1.183 Despite low per capita (4 kg) consumption of paper and paper boards, the industry has made a steady progress in the last five decades. At present there are 515 registered pulp and paper mills with the total installed capacity of about 5.1 mmt and production of about 3.2 mmt. The country is approaching self-sufficiency in the manufacture of most varieties of paper and paperboards. Plants with around one mt of capacity are closed primarily because of managerial, production, technical marketing and financial problems. The industry continues to operate with obsolete technology and the required modernisation has not taken place primarily because of resource constraints. Further, clandestine imports and dumping of paper and paper products from other countries has affected the health of the paper industry.

7.1.184 At present, about 60.8 per cent of the total production is based on non-wood raw material and 39.2 per cent on wood. The capacity utilisation of the industry is low at 60 per cent as about 194 paper mills particularly small mills are sick/or lying closed. The total production of paper during 2001-02 is expected to be 3.2 mmt.

7.1.185 The performance of the industry has suffered due to inadequate availability and high cost of inputs and power. Several policy measures were initiated in recent years to remove bottlenecks in the availability of raw materials and for infrastructure development. Duty on pulp and waste paper, wood logs/chips was reduced. Several fiscal incentives have also been provided, particularly to those mills which are using non-conventional raw materials.

7.1.186 Import of paper and paper products have been growing over the years. The imports during 2000-01 were to the tune of 0.152 mmt and are estimated to be 0.165 mmt in 2001-02. About 0.14 mmt of paper was exported in 2000-01, mainly to the neighbouring countries.

7.1.187 There are, at present, 64 newsprint mills (four in the Central public sector, two in the State public sector and 58 in the private sector) with an annual installed capacity of about 1.204 mmt. The capacity utilisation of the newsprint industry is low at 55 per cent. The total newsprint produced during 2001-02 is estimated at 0.65 mmt as against a production of 0.63 mmt in 1999-2000.

7.1.188 The domestic demand for newsprint is met partly from indigenous production and partly by import. Free imports and low customs duty have made the newsprint market competitive. There are no price or quantitative controls. Various policy measures have been taken to improve production and availability of newsprint. The industry has been delicensed. Excise duty on newsprint has been removed.

7.1.189 The public sector Hindustan Paper Corporation Ltd. (HPC), has two paper manufacturing units - Nagaon Paper Mills (NPM) and Cachar Paper Mills (CPM) in Assam. It also has three subsidiaries, -- Hindustan Newsprint Ltd. (HNL) in Kerala, Nagaland Pulp and Paper Company Ltd. (NPPC) in Nagaland and Mandya National Paper Mills Ltd. (MNPM) in Karnataka.

7.1.190 Of the three subsidiaries, HNL is a profit making concern. There have been efforts to revive the poor performing NPPC through financial restructuring. The company was referred to BIFR and declared sick in August 1998. BIFR directed

the operating agency (i.e. Industrial Development Bank of India) to explore the possibilities of changing the management by way of joint venture/ amalgamation/merger/sale, etc. A final decision is yet to be taken. MNPM has been closed with effect from 20 October 2000. The total liability of HPC (including those of MNPM and NPPC) as on 31 March 2000 to the Government of India in terms of loan and interest works out to Rs. 926.11 crore.

7.1.191 The performance of NEPA Ltd. has not been satisfactory. Cabinet had, in principle, approved private sector participation in the company and approved financial restructuring before inviting bids for strategic sale. Financial restructuring of the company was done in March 2000. The accumulated losses of the company have risen to Rs. 124.30 crore, while the paid up capital as on 31 March 2000 is Rs. 105.39 crore. The company is still before the BIFR because of further cash losses.

7.1.192 In spite of periodic recession, the Indian paper industry is expected to continue to grow in the next 10 years, and capacity expansion will have to take place in existing mills and also in greenfield projects. The Indian paper industry would need to grow at the rate of 5 per cent per annum in the next decade and installed capacity is expected to be around 7.5 mt by 2010.

7.1.193 Raw materials availability on a sustained basis will be a major constraint and both the Government and industry will have to evolve a long-term strategy regarding this. The elements of the strategy would include: wasteland utilisation, R&D efforts on effective utilisation of indigenously recovered waste paper, increased use of non-wood fibres and use of non-chlorine bleaching technologies.

7.1.194 In the next five to six years, stringent environmental regulations will virtually force the Indian paper industry to develop techniques for conservation of resources and reduction of pollutants and also new treatment systems for end-of-the-pipe treatment and management of effluent problems. Discharge of persistent organic pollutants such as organic halides and their control and management will be one of the major challenges before the Indian paper industry.

Pesticides

7.1.195 Pesticides, a product of the chemical industry, finds an important role both in agriculture and public health service. In agriculture, it is required to prevent crop losses and for public health, it is used to control pathogens responsible for epidemics.

7.1.196 The per capita consumption of pesticides in India is low in comparison to other countries. It is only 0.45 kg per ha as compared to 13.35 kg per ha in Italy, 9.18 kg per ha in Japan, 6.56 kg per ha in South Korea and 0.58 kg per ha in the United States. However, India ranks 12th in agro-pesticides globally and second in Asia alone. The industry was growing steadily till reports of the adverse effect of a few pesticides resulted in an increased thrust on bio-pesticides. Still the demand of various types of pesticides in the country is of the order of 43,380 mt (technical grade).

7.1.197 The large domestic demand and market protection led to the setting up of plants in the country to reduce import dependence and spurred growth of the industry. The economic liberalisation initiated in 1991 helped accelerate the growth of the sector. The three main economic measures which aided the industry are: removal of compulsory licensing, removal of the mandate requiring reservation of 50 per cent of technical grade produced for use in formulation by the small-sector and progressive reduction in import tariffs from 165 per cent to a uniform duty of 35 per cent in 2000-01. It is now able to meet 95 per cent of the country's demand. With a capacity of over 128,900 mt, it is now the largest manufacturer among South Asian and African countries with a turnover of Rs 3,200 crore. It also caters to export market to a small extent.

7.1.198 Insecticides account for 76 percent of the total domestic market. The main reasons for significantly lower usage of herbicides and fungicides in India are manual weeding and the fact that the tropical climate is more conducive for the growth of insects as compared to herbs/fungi. However, growth in these two categories is at a much faster rate than in the insecticides category. The agro-climatic factor mostly

regulates the performance of the industry. The leading crop, cotton, accounts for around 45 percent of the domestic agrochemical market.

7.1.199 The industry is divided into 67 large units (ten of them multinational companies) in the organised sector which takes care of all the requirement of the technical grade and over 400 SSI units, which are engaged exclusively in formulations. The only PSU in the sector is Hindustan Insecticide Limited (HIL), with three units. The financial health of the company is not bright and it started incurring losses since 1997-98 and performance has been deteriorating since then.

7.1.200 The critical success factor for the Indian agrochemical industry is low cost of production. The pesticide sector like drug is set for major change. Many pesticides would be banned or would be replaced by better and cheaper alternatives. But to remain in the position large investment in Research & Development is needed. Institute of Pesticide Formulation technology (IPFT), set up by the GOI with the assistance of UNDP/UNIDO in May, 1991, is actively engaged in the areas of development of new, safer and environment-friendly pesticides and formulations. It would be desirable that the Institute gains confidence of the industry by developing commercially viable new generation pesticide/ formulations and process technology.

7.1.201 The problems being experienced by the pesticide industry are sale of spurious pesticides, registration for export of pesticides and inadequate testing facilities at the Regional/State Testing Laboratories. The State Directorates of Agriculture have the administrative machinery to check the quality of pesticides at the manufacturing stage as also pesticides stored at the premises of stockists. However, despite such checks, spurious pesticides are reportedly sold in the market. In a number of cases of testing of pesticide samples, the results of the Regional/State Testing Laboratories are at variance with those of the Central Insecticides Laboratory. This could be due to either non-availability of high-tech instruments or untrained/inexperienced staff. This issue needs to be addressed.

7.1.202 The production and import of pesticides requires compulsory registration under the Insecticides Act 1968. The registration requires submission of authentic data on chemistry, bio-efficacy and residues, toxicity and packaging and labeling with details on pesticide presence in water, soil, crop and the environment. The Act has been amended providing for stringent punishment to offenders and also removing certain difficulties associated with its administration and implementation.

7.1.203 The enforcement of various provisions of the Act mainly rests with the State Governments and this requires licensing officers, appellate authority, insecticide inspectors and insecticide analysis (45 pesticides testing laboratories have been installed). A lot is desired in the implementation of various provisions of the Act. To curb marketing of spurious and duplicate pesticidal products, States have been advised to constitute inter-state committees and conduct periodic checks.

7.1.204 In the next decade, manufacturing standards are likely to be implemented more rigorously thereby ensuring that only plants with recognised good manufacturing practices would exist. There is a need to train extension workers and staff in the proper application of pesticides.

7.1.205 In view of the ecological considerations and global concern about harmful impact of pesticides on the environment, the Government adopted Integrated Pest Management (IPM) as the cardinal principle and the main plank of plant protection strategy in the overall crop production programmes. The Government is a signatory to Agenda 21 of United Nations Conference on Environment and Development (UNCED), 1992 which has approved and accepted IPM to reduce the use of pesticides in agriculture. The Government has taken a number of positive measures for the promotion of IPM among the extension functionaries and farmers. Biological control is an important component of the IPM programme. However a more definite action plan is to be drawn and implemented to achieve the goal.

7.1.206 Realising the importance of neem as a source of pesticides, the Government is promoting an UNDP-assisted project by way of technical

support for development and cleaner production of neem products as environment-friendly pesticides. Neem-coated urea serves both as a slow release product as well as a pesticide. Due attention is required in promoting the product through PSUs in fertiliser sector. Besides neem several other plants/herbs are traditionally being used as source of pesticide. The practical viability of these sources needs to be explored in view of the growing demand for the eco-friendly biopesticides.

Chemicals

7.1.207 The chemical Industry is perhaps the most diversified of all industrial sectors, covering more than 70,000 commercial products. The Indian chemical industry ranks 12th by volume in the world production of chemicals. The export of chemicals in 2000 was \$ 2.8 billion, which accounts for almost 14 per cent of the exports from the manufacturing sector and about 11.15 per cent of the country's total exports. Its contribution to the national revenue by way of custom and excise duties is about 20 per cent. More than 60 per cent of the production of the sector comes from SMEs.

7.1.208 The industry faces many challenges in the liberalised environment. Drastic reduction in import duties from more than 150 per cent to the present level of 30 per cent has made the market extremely competitive. Setting up of massive capacities by multinational companies in Singapore, Malaysia, South Korea, Taiwan and Japan have only made the competition more cut throat. Added to that is the demand to improve quality and develop marketing strategies and skills. Adverse economies of scale of domestic companies vis-à-vis the multinational companies further add to the disadvantages.

7.1.209 The units in the SME category, suffers from higher cost of production as the scale of operation is very small. Lack of coordinated research and development in these industries led to inconsistent product quality. In addition there are problems of adequate finance. The Indian plants are not internationally competitive due to lack of modernization and sub-optimal scale of operation.

7.1.210 As the Indian economy was a highly protected one, no large-scale R&D was undertaken. The industry would, therefore, have to invest huge

amounts of money in R&D to catch up with the international chemical industry. Fortunately, India has developed scientific institutes and hence there is no dearth of trained scientific human resources. The industry should equip itself to exploit the newly emerging speciality chemicals that will gradually replace the existing chemicals that are hazardous and inefficient. In coming years these chemicals will find an application in most of the daily use products and compositions. At present, most of the speciality chemicals are being patented by developed countries.

7.1.211 With the growing concern relating to environment, global players are closing operations. This has given developing countries like India the opportunity to emerge as prominent players in the global chemical market.

7.1.212 Availability of basic inputs (raw material), fuels and power at internationally competitive prices, implementation of VAT, bringing down the cost of funds for capital investment/working capital to the international levels, implementation of labour reforms and substantial development in infrastructure particularly roads, ports and power supply are some of the measures which would go a long way in making the Indian chemical industry globally competitive.

7.1.213 The realisation of income from operations in the case of the public sector Hindustan Organic Chemicals Limited (HOCL) was affected by recession in the world market. Disinvestment of HOCL is at an advanced stage.

7.1.214 The Chemical Weapons Convention (CWC) is a universal non-discriminatory multilateral disarmament treaty which bans the development, production, acquisition, transfer, use and stockpile of all chemical weapons. India signed the Convention on 14 January 1993. The convention is being implemented by the Organisation for the Prohibition of Chemical Weapons (OPCW) established in The Hague. The Institute for Pesticide Formulation Technology (IPFT), under the Department of Chemicals and Petrochemicals, has been participating in the proficiency tests conducted by the OPCW worldwide to assess the capabilities of laboratories. Laboratories are accredited if they

succeed in these tests. To be able to discharge the obligations under the Convention, each country is required to have a domestic legislation, which makes the filing of correct information about various activities in schedule chemicals mandatory. The CWC Act has been notified on 28 August 2000.

7.1.215 The dyestuff sector is one of the most important segments of the chemical industry in India, having forward and backward linkages with a variety of industries like textiles, leather, paper, printing ink and food technology. The Indian dyestuff industry has both small and big players. Fiscal concessions granted to the small-scale sector in the mid-eighties led to establishment of large number of units in the SSI sector. Today, nearly 95 per cent of the total 1,000 chemical units are located in the unorganised sector. However, organised players constitute about 65 per cent of total dyestuff production in the country. Currently, the industry is in the midst of major restructuring and consolidation. With the shift in emphasis on product innovation, brand building and environmental friendliness this industry is increasingly moving towards greater customer orientation. Even though India enjoys an abundant supply of basic raw materials, it will have to build up on technical services and marketing capabilities to face global competition and increase its share of exports, though the dyes and dye intermediate sector already enjoys a positive trade balance with exports far in excess of imports.

Petrochemicals

7.1.216 The country has made rapid strides in terms of production and consumption of petrochemicals. To remain competitive, in the wake of lowering of tariff barriers, the industry is adopting state-of-the-art technologies and is producing quality petrochemical products of international standards. This sector's yearly output is approximately Rs 1,20,000 crore, which is 15 per cent of the manufacturing sector's output. Its export of about Rs 16,000 crore is 16 per cent of the manufactured products' exports and it contributes about 20 per cent of the national revenue.

7.1.217 The domestic petrochemical industry has been growing at the rate of 14-15 per cent per annum which is almost in line with the anticipated growth rate of the Ninth Plan. Creation of additional

capacities to the tune of 3.61 mmt in respect of major petrochemical has reduced import dependency of petrochemicals considerably. Capacity utilisation of the major petrochemical plants at the commencement of the Ninth Plan was 73.3 per cent which was based on their capacity and production at the end of 1996-97. It is anticipated to go up to 93.43 per cent by the end of terminal year of the Plan.

7.1.218 Petrochemical projects commissioned during the Ninth Plan are: the gas-based cracker complex of GAIL at Auraiya (Uttar Pradesh) with an ethylene capacity of 0.3 mmta per annum (mmta) at a cost of Rs 2,500 crore; expansion of Indian Petrochemical Ltd.'s (IPCL) existing gas-based cracker capacity from 0.3 to 0.4 mmta and HDPE/LLDPE swing plant capacity from 0.16 to 0.22 mmta; naphtha-based cracker complex of Haldia Petrochemicals Limited (West Bengal) with an ethylene capacity of 0.42 mmta and other downstream polymer products; IPCL's second phase of Gandhar (Gujarat) complex with an ethylene capacity of 0.3 mmta and mono ethylene glycol of 0.10 mmta; and Reliance Group's 1.4 mmta p-xylene and 0.6 mmta polypropylene plant at their Jamnagar refinery complex. Due to uncertainty on price situation impacting profitability and return on investment, fresh investment to the extent required to meet the domestic demand did not materialise.

7.1.219 The Assam Gas Cracker Complex Limited (AGCL) is proposed to be set up as a joint venture of the Assam Industrial Development Corporation with Reliance Industries Limited (RIL). This project was mooted as a part of economic development plan under the Assam Accord. The progress of the project is highly unsatisfactory.

7.1.220 The per capita consumption of plastics in India in 1995-96 was around 2 kg, which is way below the world average of 17 kg. The outlook for the domestic plastic industry is quite bright. Given a good GDP growth and increasing purchasing power of middle-income groups, the demand for plastic goods will grow at a very good rate. Despite intermittent periods of sluggishness, the overall trend remains very positive. With future consumption of polymers expected to grow by 15 per cent and that of fibres and intermediates by 7-8 per cent, the petrochemicals sector offers immense

opportunity for domestic as well as foreign players. The estimated demand growth is 12-13 per cent for the Tenth Plan for polymers and over 6 per cent for synthetic fibres for the Tenth Plan period.

7.1.221 The basic objective of the Central Institute of Plastic Engineering and Technology (CIPET) is to train people in various disciplines of plastics, plastic processing, etc. for the plastic industry. Modernisation of CIPET facilities through World Bank assistance has been implemented.

7.1.222 IPCL has been disinvested and liquidation of the Petrofils Cooperatives Limited is under progress.

Atomic Energy

7.1.223 Activities of the Department of Atomic Energy (DAE) under the Industry and Minerals sector primarily include manufacture of nuclear and structural materials and control systems to build and operate the nuclear power plants and management of the back end of the fuel cycle. The programme profile ensures that there is a sustained and timely supply of nuclear fuel and other materials for the operating nuclear power plants and the plants that are being built. This sector is also engaged in the production of equipment for radiation and isotope products and services going to some important sectors of our economy, like agriculture, food, and health, etc.

7.1.224 The PSUs under DAE are Uranium Corporation of India (UCIL), Indian Rare Earths (IRE) and Electronics Corporation of India Ltd. (ECIL), which meet the requirements of uranium concentrates, zirconium sponge and instruments and controls respectively.

7.1.225 The present nuclear power generation capacity in the country is 2,720 megawatt (Mw). The DAE plans to raise the capacity to 7,180 Mw by 2009-10.

7.1.226 A majority of the programmes implemented in the Ninth Plan have achieved the goals set by the DAE. The activities covered included: exploration for uranium, rare metal and rare earth and beach sand mineral resources; mining and processing of uranium ores and mineral sands;

fabrication of nuclear fuel and production of heavy water for nuclear power reactors; reprocessing of the spent fuel and waste management; and production of control and instrumentation equipment for nuclear power plants. Reprocessing of spent fuel and irradiated thorium as well as waste management of the nuclear fuel cycle constituted the front end of the nuclear power programme. Radioisotopes produced in the research reactors, Dhruva and CIRUS at Trombay after formulating into radio-pharmaceuticals, radio-labelled compounds and radiation sources are supplied to various users for application in industry, agriculture, research and health care.

7.1.227 The present heavy water capacity is enough to take care of the country's power need during the Tenth Plan. Need for capacity addition will arise during the Eleventh Plan. During the Tenth Plan, the expenditure will be mainly towards energy saving retrofits and renewal and replacements and augmentation of plant capacities.

7.1.228 Increased fuel requirement will require new additions during the Tenth Plan. The heavy water moderated reactors (in operation or to be installed), would need addition in capacity for Zirconium Fuel Tubes through three related projects namely New Zirconium Oxide Plant, Zirconium Plant and Zirconium Fuel Tube Plant.

7.1.229 To tide over the problem of limited availability of natural uranium reserves in the country, development of Fast Breeder Technology with MOX fuel and advanced heavy water reactors on U-233 has been taken up in earnest. It would require new fuel fabrication facilities at existing site of Nuclear Fuel Complex (NFC) as well as new locations under two separate line of activities.

7.1.230 The major investment in Tenth Plan will be for the MOX Fuel Pin Fabrication Plant at Kalpakkam, Fast Breeder Reactor Reprocessing Plant and Fabrication of prototype fast breeder reactor (PFBR) Core assemblies.

7.1.231 In addition to above, DAE pursues the programmes based on application of radiation technology in the field of health care, food preservation and industrial sectors and has set up facilities under Board of Radiation and Isotope Technology (BRIT) and Centre for Advanced Technology (CAT). Some new projects have been added under these units apart from continuing projects.

Tenth Plan Schemes and Outlay

7.1.232 The approved Tenth Plan outlay for departments/ministries covered under industry sector is given in Table 7.1.13 :

Table 7.1.13
Tenth Plan Outlay

Sl. No.	Name of the Ministry/Deptt.	Outlay	BS	IEBR
A.	Industry			
1	Steel	11,044.00	65.00	10,979.00
2	Fertilisers	5,900.00	1,050.00	4,850.00
3	Petroleum and Natural Gas (I&M)	7,614.81	0.00	7,614.81
4	Chem.and Petro-Chem.	3,044.00	300.00	2,744.00
5	Ind. Policy and Promotion *	2,000.00	2,000.00	0.00
6	Heavy Industry	2,063.00	700.00	1,363.00
7	Commerce	4,562.00	4547.00	15.00
8 &	Public Enterprises	50.00	50.00	0.00
9	Textiles (I&M)	1,980.00	1,900.00	80.00
10 #	Consumer Affairs	55.00	55.00	0.00
11&	Company Affairs	50.00	50.00	0.00
12	Food and Public Distribution (I&M)	10.20	10.20	0.00

.....Contd. Table 7.1.13

Sl. No.	Name of the Ministry/Deptt.	Outlay	BS	IEBR
13	Surface Transport (Shipbuilding and Ship repair Sector)	1,047.86	242.86	805.00
14	Atomic Energy	3,350.00	2,270.00	1,080.00
15	Bio technology	30.00	30.00	0.00
16	DSIR	25.00	25.00	0.00
17	Ocean Development	100.00	100.00	0.00
18 \$	Supply			

* NRF Expenditure up to 2001-02 was included

@ Outlays of National Test House are not included (NTH was transferred from D/o Supply on 17.8.2001 to D/o Consumer Affairs)

\$ Deptt of Supply merged in Deptt of Commerce in 2001-02, the expenditure pertain to DGS&D and NTH

The expenditure of NTH is not included as it was transferred in 2001-02 after allocation under D/ Supply

& No Outlays in Ninth Plan

Schematic distribution of outlay Department-wise is at Annexure 7.1.1.

THE PATH AHEAD

7.1.233 Each element of the Tenth Plan strategy has been translated into a set of actionable points.

7.1.234 Important new policy packages and programme initiatives being launched in the Tenth Plan are described in chapters on specific sectors.

7.1.235 The success of the Plan is predicated upon global economic recovery, access to developed

markets, a level playing field, enforcement of rules of fair play, additional financial resources and latest technologies for developing countries. Equally critical is the enabling policy environment.

Simplification of Procedures

7.1.236 Investment decisions are today hampered by a plethora of laws, rules and regulations at the Central, State and local levels. On the basis of a study conducted by the Administrative Staff College of India (ASCI), the procedures governing the setting up of industries are being simplified.

Actionable Points	
Element of Strategy	Proposed Actionable Point
Conducive policy environment	<ul style="list-style-type: none"> • Labour, fiscal reforms and streamlining of procedures • Legal and procedural reforms • Bankruptcy and foreclosure laws
World-class infrastructure	<ul style="list-style-type: none"> • Clusters, Andhra model, Apparel Parks, Agri Zones
Augment resource base	<ul style="list-style-type: none"> • Stronger capital and institutional finance markets/ institutions • Attract higher level of FDI
Optimise resource allocation	<ul style="list-style-type: none"> • Pricing policy
<ul style="list-style-type: none"> • Increased flows into high growth areas • Release of unproductive resources 	<ul style="list-style-type: none"> • Leverage resources through effective public-private partnerships • Expeditious closure of non-revivable PSUs • Expeditious divestment of non-strategic PSUs • Improving productivity and efficiency of transitional PSUs.
Efficiency enhancing policies	<ul style="list-style-type: none"> • Innovate • Technology upgradation • Modernisation • R&D
Export thrust	<ul style="list-style-type: none"> • Skill upgradation • Assist States for updating export infrastructure • Special Economic Zones ,Maharashtra model • Standardisation, accreditation and certification • Market Access Initiatives • Making products/processes/practices eco-friendly
Level playing field	<ul style="list-style-type: none"> • Rationalisation of taxes and duties • Cost of finance and credit availability • Intellectual property rights regime • World class infrastructure • Modernising patent offices

Rationalisation of Indirect Taxes

7.1.237 A multiple-level duty structure with varying rates of levies has a cascading effect on industry. It also leads to sub-sectoral discrepancies. Exploiting the resultant loopholes is a full-time activity, sapping the energy of industry which should, instead, be concentrating on the enhancement of customer value. The Tenth Plan envisages significant progress in this direction by evolving an growth-oriented fiscal system for integrated development of industry by lending predictability and uniformity to the duty structure.

Intellectual Property Rights

7.1.238 India became a signatory to the Trade-Related Intellectual Property Rights (TRIPS) agreement. It is now mandatory for India to move towards a product patent regime by 2005 in addition to process patents. A substantial flow of FDI can be achieved if India is known as a country that protects intellectual property rights.

Standards, Accreditation and Certification

7.1.239 Enterprises in developing countries are increasingly excluded from the new production and

Standards Setting

The Codex Alimentarius, which is a collection of international food standards adopted by the Codex Alimentarius Commission, includes standards for all the principal foods: processed, semi-processed or raw. To date, the Codex Alimentarius includes 4,821 standards. The main purpose of the standards is to protect the health of consumers and to ensure fair practices in food trade. Standards are specified in the areas of Food Standards for Commodities, Codes of Hygienic or Technological Practice, Pesticides, Limits for Pesticide Residues, Guidelines for Contaminants, Food Additives and Veterinary Drugs.

The pros and cons of our adopting these standards need to be analysed and debated. India seems to be losing out due to these non-tariff barriers although it possesses immense comparative advantage in food processing. This is also true of the drugs and pharmaceuticals sector and automobile industry. Rigorously researched preparation in this field can also help us in WTO regime.

trade patterns. This is linked to many structural impediments and supply-side obstacles.

7.1.240 Even where productive capacity is established, there are problems with accessing external markets, as products have to comply with myriad technical standards, health and safety requirements set by the importing markets. The Technical Barriers to Trade (TBT) Agreement seeks to ensure that technical regulations and standards do not create unnecessary barriers to trade, but this requires countries to fully participate in the standard-setting processes, while having a full-fledged infrastructure and systems for certification, accreditation, metrology, and technical support and information services for industry.

7.1.241 Agreements reached by a member-country with another country or countries on issues related to technical regulations, standards or conformity assessment procedures also have considerable effect on trade. Recently, Japan has entered into

such agreements with the European Union and the United States in a number of products. These agreements are permitted under the WTO and facilitate considerable reduction in technical barriers to trade.

7.1.242 In order to be consumer-driven, Indian Industry needs to be alert to emerging tastes and preferences in the target markets. Concern for quality, health and safety (apart from changing fashion) is important. The application of eco-labelling and other environment quality requirements in textiles and clothing could affect the textile industry in many developing countries. For example, following the ban on azo dyes in Germany in 1996, textile manufacturers in Thailand switched to substitutes which involved additional costs estimated at 5 to 20 per cent. Textile manufacturers in some other countries in the Asia-Pacific region, like India, encountered difficulties in obtaining substitutes. Small and medium enterprises (SMEs) were slower to adjust to eco-labelling demands and found the costs of adjustment difficult to absorb. Several of these enterprises preferred to divert sales to the domestic market or other overseas markets which have no eco-labelling requirements.

7.1.243 In order to pre-empt such situations, a special area of focus needs to be quality control. Infrastructure in the nature of certification, accredited by acceptable professional agencies needs to be put in place. This may require institutional tie-ups and transfer of knowledge, skills and techniques. It is only on the basis of our ability to align our standards of quality, health and safety with emerging international requirements that we can expect to be integrated with the world economy. The issue of harmonisation of standards deserves much greater attention on a multi-disciplinary platform comprising economists, health experts, toxicologists and technologists. The tendency is to keep it in the domain of technologists.

Disinvestment

7.1.244 In the Tenth Plan, the Government would phase itself out as a producer of non-strategic goods and services. The closure of non-viable PSUs and expeditious disinvestment of others will release

unproductive assets and direct them into more efficient sectors with higher priority where they are likely to leverage economic growth.

7.1.245 In view of the severe constraint of Plan resources, voluntary separation schemes (VSS) and voluntary retirement schemes (VRS) are planned to be financed through commercial borrowing by the PSU in the hope that they will be able to service the loans when their finances improve. PSUs in the tourism sector have set aside the proceeds of disinvestment for VSS/VRS corresponding to the requirement of the PSU being disinvested. In the textiles sector, innovative ways have been found to deal with the vexed issue of closure of the National Textiles Corporation (NTC) mills located in the heart of Mumbai. An acceptable formula has been arrived at for apportionment of the immense wealth lying locked up in sick textile mills in consultation with the Maharashtra government and the local body.

Mechanism being contemplated in Companies Act, 1956 as alternative to the abolition of Sick Industrial Companies Act (SICA), 1986 and the Board for Industrial and Financial Restructuring (BIFR)

mechanism would considerably smoothen the process of disinvestment. Other measures are also being contemplated to deal with the issue of taking the public sector out of the jurisdiction of the BIFR until a more permanent solution is evolved. There are 250 Central PSUs, excluding six insurance companies and two financial institutions. With an investment close to Rs. 2,75,000 crore, the issue of managing those PSUs where disinvestment will take considerable time becomes important. It is proposed to bring these PSUs under a new management culture. Important elements of the new culture are modified memorandum of understanding (MoUs), global benchmarking, accountability and autonomy, induction of professional inputs, automatic listing/delisting as navaratnas and preparation of a blueprint for survival on a case-to-case basis. The investment in State-level PSUs is also immense. According to the Ministry of Disinvestment, the estimated investment in 835 State-level PSUs is of the order of Rs. 200,000 crore. The Tenth Plan envisages transfer of those PSUs which are non-strategic and can be revived to a more efficient management paradigm.

Table 7.1.14
Disinvestment Transactions Completed Up To February 2002

Year	No. of companies in which equity sold	Target receipt for the year (Rs. crore)	Actual receipts (Rs. crore)
1991-92	47	2,500	3,038
1992-93	35	2,500	1,913
1993-94	–	3,500	Nil
1994-95	13	4,000	4,843
1995-96	5	7,000	362
1996-97	1	5,000	380
1997-98	1	4,800	902
1998-99	5	5,000	5,371
1999-00	2	10,000	1,829
2000-01	4	10,000	1,870.53
2001-02	10	12,000	5,632#

Expected to be realised

Table 7.1.15
State Level Public Enterprises (SLPEs)

State	Approx. No. of SLPEs	Estimated total investment in SLPEs	Net accumulated loss (Rs. crore)	Approx. no. of loss-making SLPEs	Approximate no. of non-working SLPEs
All India of which	835	1,67,718	20,691	337	166
Uttar Pradesh	45	24,753	3,110	N/A	N/A
Gujarat	54	23,438	965	N/A	N/A
Karnataka	76	19,295	811	37	13
Maharashtra	65	19,186	N/A	43	17
West Bengal	82	18,241	5,068	59	6
Punjab	53	12,425	847	25	23
Kerala	109	9,805	1,280	52	13
Orissa	68	9,796	1,180	18	34
Madhya Pradesh	26	7,923	N/A	8	15
Tamil Nadu	59	6,192	N/A	N/A	12
Goa	12	4,869	730	N/A	N/A
Assam	42	3,649	2,792	28	10
Himachal Pradesh	21	3,143	369	12	2

N/A : Not Available

Source : State Governments, Institute of Public Enterprises, Hyderabad and other sources

Infrastructure

7.1.246 An efficient physical infrastructure is a pre-requisite for industrial development. The Tenth Plan proposes new initiatives to effect a substantial improvement in this area. Maharashtra and Andhra Pradesh have developed innovative models of raising resources

through public-private partnerships (See Boxes). A special feature of these initiatives is the formation of special purpose vehicles (SPVs) with a major role for industry so as to ensure that the infrastructure development is user-driven. This encouragement would also ensure the sustainability of assets created, something that was lacking in the previous Plans.

Maharashtra SEZ Policy

- A single empowered officer under supervision and control of designated Development Commissioner for all no objection certificates (NOCs) for the State Pollution Control Board (SPCB).
- The DC also has the powers of Labour Commissioner
- Exemption to SEZ developers from all State taxes and duties and stamp duty.
- All SEZ units declared as public utility service under the Industrial Disputes Act
- SEZ shall ensure the provision of adequate water and power supply
- SEZ to function as self-governing autonomous municipal body.

Andhra Pradesh Infrastructure Development Enabling Act, 2001

- Enable the performance of quasi-judicial functions
- Clearances provided within prescribed time limits and non-statutory State level clearances given automatically.
- Provides incentive to private sector participation in designing, financing, construction, O&M of bankable infrastructure projects in the State.
- Comprehensive legislation for reducing administrative and procedural delays.
- Detailed project delivery process and procedures for reconciliation of disputes.
- Acquire land required for the project.

Foreign Direct Investment

7.1.247 In view of its non-debt creating and non-volatile nature with returns dependent on the performance of the projects financed with it, FDI is preferred over other forms of external finance. FDI also facilitates international trade and transfer of knowledge, skills and technology. This catalytic role in itself can be very valuable in the Indian context. FDI has constituted between 1 per cent and 4 per cent of gross fixed capital formation during the 1993-97 period. Capital formation has been, by and large, restricted to telecom and financial services. Compared to other countries, particularly China, India's performance in attracting FDI has been dismal. Streering Group headed by Mr. N.K. Singh, Member, Planning Commission, has studied this matter and given a comprehensive set of recommendations. It is expected that the flow of FDI

will improve significantly as soon as these recommendations are implemented.

Sectoral share of FDI (%) during August 1991 to December 2001

Telecommunication	20.16
Fuels (power and oil refinery)	28.07
of which power	13.80
Computer Software	6.37
Service Sector	6.14
of which financial services	4.18
Metallurgical Industries	5.61
of which ferrous	2.7
Food Processing Industries	3.33
100 % =Rs. 2,73,577 crore	

Source : SIA

Table 7.1.16
Foreign Investment-Industry-wise Inflows
(As a percent of total)

Sector	1992-93	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99	1999-2000	2000-01
Total Inflows (in \$ million)	280	403	872	1,419	2,058	2,956	2,000	1,581	1,910
Chemical & Allied Products	17	18	16	9	15	9	19	8	7
Engineering	25	8	15	18	35	20	21	21	14
Financial Services	1	10	11	19	11	5	9	1	2
Electronics and Electrical	12	14	6	9	7	22	11	11	11
Computers	3	2	1	4	3	5	5	6	16

Source : RBI

Table 7.1.17
FDI as % share of total of Developing Countries

	1989-94 (annual average)	1995	1996	1997	1998	1999	2000	2001
Developing Countries (in billion \$)	59.6	113.3	152.5	187.4	188.4	222	240.2	225.0
China	23.5	31.6	26.4	23.6	23.2	18.2	17	20.8
Brazil	2.5	4.9	6.9	10.0	15.1	14.1	13.9	8.9
South Korea	1.5	1.6	1.5	1.5	2.9	4.8	4.2	-
Malaysia	6.2	5.1	4.8	3.5	1.4	1.6	2.3	-
India	0.7	1.9	1.7	1.9	1.4	1.0	1.0	1.7

7.1.248 The objective of 8 per cent GDP growth rate with the given incremental capital output ratio (ICOR) and the projected level of domestic savings seems to suggest that there is likelihood of a savings to current account deficit of the order of 2.2 per cent. This gap can be filled in by FDI. With the new initiatives in the areas of infrastructure investment and SEZs, it should be possible to raise the level of FDI inflow from the present level of about \$ 4 billion to \$ 8 billion a year during the Tenth Plan.

Indicative Sectoral Annual FDI Targets	
Sector	FDI target (\$ billion)
1 Telecom	1.2
2 Power	1.0
3 Financial Services	0.8
4 LNG and Oil Exploration	0.6
5 Software and IT enabled services	0.5
6 Food and Beverages	0.4
7 Transportation	0.4
8 Textiles	0.3
9 Ports	0.3
10 Chemicals and Petrochemicals	0.2
11 Hotels and Tourism	0.2
12 Others	0.6
Total	6.5

7.1.249 As anti-dumping appears to be becoming a primary instrument of trade restriction, many SMEs in developing countries are unable to defend their interests. This is because of the complexities of the system and the cost of compliance in investigation proceedings. For example, for exporters to Canada and the United States, it is not unusual to incur costs well in excess of \$ 500,000. As a result, small exporting firms in developing countries are hardly able to take advantage of the procedural and substantive rights theoretically available to them.

New Programme Initiatives

7.1.250 The following new initiatives are being taken up in the Tenth Plan:

- Apparel Parks for Exports
- Textile centres infrastructure development scheme (TCIDS)
- Technology Upgradation Fund Scheme (TUFS) in Textile sector
- Assistance to States for development of export infrastructure and allied activities
- Market Access Initiative
- Research and development in the automotive industry
- Industrial Cluster Development Scheme
- Pharmaceutical Research and Development - Support Fund
- Agri Export Zones
- Leather Industry Development Programme

The details of these initiatives are given in Annexure 7.1.2.

VILLAGE, SMALL AND FOOD PROCESSING INDUSTRIES

7.1.251 This sector includes sub-sectors like small-scale industries (SSI), handlooms, handicrafts, powerlooms, sericulture, khadi, wool, coir industry etc. Over the years, this sector has emerged as a dynamic and vibrant sector of the economy.

7.1.252 The VSI sector not only provides employment to large number of people both in the urban and rural areas, but also contributes significantly towards exports. Since it has the maximum local inputs in exports, it has a higher value realisation from exports.

7.1.253 During the Ninth Plan, various initiatives were taken to strengthen the SSI units through technology upgradation, modernisation, enabling and encouraging them to enhance quality, introduction of modern management practices, providing marketing and other key inputs, increase availability of credit/loans from financial institutions and banks against materials supplied, etc. In addition, SSI units were made aware about the implications of the WTO regime, removal of QRs,

reducing the list of items reserved for the sector, etc.

7.1.254 Two new schemes - the Credit Guarantee Fund and the Credit Linked Capital Subsidy scheme – were introduced. Adequate availability of modern infrastructure facilities was sought to be ensured by setting up Integrated Infrastructure Development Centres (IIDCs).

7.1.255 In the handlooms sector, greater emphasis was laid on increasing market-oriented production and value addition through design inputs and availability of hank yarn at mill-gate prices. Powerlooms were included under the TUF and setting up of Computer-Aided Design/Computer-Aided Manufacturing (CAD/CAM) centres, etc. In the handicrafts sector, promotional schemes focussed on training and skill upgradation, design and technology improvement, supply of quality tools, strengthening of organisational support by setting up institutions like Institute of Carpet Technology, Bamboo Craft Development Institute, etc. was taken up. New schemes like the Deen Dayal Hath Kargha Protsahan Yojana (DDHPY) and Ambedkar Hastashilpa Yojana were introduced for both handlooms and handicrafts.

7.1.256 In the sericulture sub-sector, promotional schemes laid stress upon improving silkworm rearing practices, enhanced use of insecticides, introduction of new hybrid mulberry and multivoltine silkworm races, improvements in silk reeling quality and capacities by setting up modern reeling machines and replacement of traditional matka and charkha reeling. The focus in the unorganised wool sector was on improving productivity of wool per sheep, better husbandry practices, improvement of wool quality by setting up mini scouring plants, quality and testing facilities, improvements in weaving and designs, diversification to new products by mixing new fibres, angora and Pashmina wool, etc.

7.1.257 Food processing industries were encouraged by reducing excise duty on processed food products and making new packaging materials available, increasing the shelf life of processed food products through R&D, setting up of quality testing and certification laboratories, providing

infrastructure facilities by setting up food parks, providing financial assistance for modernisation/expansion/technology upgradation, etc. A new beginning has been made to adopt Codex Alimentarius Standards, and Hazard Analysis Critical Control Point (HACCP) quality assurance systems, total quality management, ISO-9000 series standards, etc.

7.1.258 The policy measures taken up during the Ninth Plan period would need to be further strengthened as the VSI and food processing industry sectors are more vulnerable to the pressures of competition arising from economic liberalisation, reduction in QRs and WTO-related measures. New policy measure would be required in the Tenth Plan to provide a level playing field at par with the organised sector.

SMALL SCALE INDUSTRIES

7.1.259 Worldwide, SMEs are being recognised for their contribution to employment, innovation and economic dynamism. In the Indian context, SSI units are helping generate new jobs, supplying a wide range of products, contributing to exports, helping in more equitable distribution of national income and emerging as outsourcing destinations. The Government has been encouraging and supporting SSIs through policies for infrastructural support, technology upgradation, preferential access to credit, reservation of products for exclusive manufacture in the SSI sector, preferential purchase policy etc.

7.1.260 By the end of March 2002, there were over 3.4 million small scale industrial units in the country accounting for more than 40 per cent of the gross value of output in the manufacturing sector and about 35 per cent of the total exports of the country. They provided employment to over 19.2 million persons, which is second only to agriculture. During the Ninth Plan period, SSIs created over 3.2 million jobs. Presently, there is no in-built component keeping record of functional registered SSI units. SSI units often shut down due to unforeseen circumstances. The figures provided by District Industries Centres (DICs) may not include closed SSI units. Hence there is an urgent need to introduce a system of de-listing closed registered SSI units.

7.1.261 A Study Group on the Development of Small Enterprises was set up under the chairmanship of Dr. S.P. Gupta, Member, Planning Commission, to look into the problems of the SSI sector. The Study Group submitted an Interim Report in July 2000. After inter-ministerial consultations on the Interim Report, the Prime Minister announced a number of new policy initiatives on 30 August 2000. These announcements were followed by other announcements by the Ministry of Small-Scale Industry and Agro and Rural Industries (SSI&ARI). The final report of the Study Group was submitted in March 2001 and the recommendations are being considered.

Package Announced By The Prime Minister For The SSI Sector

- Enhancement of excise duty exemption limit for SSI units from Rs. 50 lakh to Rs.100 lakh.
- Increase in composite loan limit to Rs.25 lakh.
- Coverage of loans up to Rs.25 lakh under the Credit Guarantee Fund scheme.
- Increase in project cost limit under the National Equity Fund scheme to Rs. 50 lakh.
- Credit linked capital subsidy at 12 per cent of the cost of technological upgradation of SSI units for modernisation of SSI units.
- The service and business related small scale units with a maximum investment limit of Rs.10 lakh would also be covered under priority lending
- Enhancement of investment limit to Rs.500 lakh for hi-tech and export oriented sectors.
- Technology Bank would be set up for SSI sector by strengthening the existing Technology Bureau for Small Enterprises (TBSE) of SIDBI.
- One time capital grant of 50 per cent to SSI associations for setting up international-level testing laboratories for SSI units.
- Preference to be given to tiny units while organising buyer-seller meets, vendor development programmes and exhibitions.
- Conduct of Third Census on SSI.
- Integrated Infrastructure Development Centres (IIDC) scheme extended to all areas.

7.1.262 Indicative physical targets and achievements in respect of production, employment and exports are given in Annexure 7.1.3 and Annexure 7.1.4. Plan outlays and expenditure for the Ninth Plan period, 2001-02 (Anticipated/Actual), Tenth Plan approved outlays and 2002-03 (BE) are given in Annexure 7.1.5.

7.1.263 Separate Ministries for Small Scale Industries and Agro and Rural Industries were created by bifurcating the Ministry of SSI&ARI. This would help in giving boost to rural industrialisation and development of agro-based tiny units. The scheme of Prime Minister's Rozgar Yojana (PMRY) would now be looked after by the Ministry of Agro and Rural Industries.

RESERVATION

7.1.264 Reservation of items for exclusive production in the SSI sector was introduced in the 1970s to ensure bulk production of consumer products and enhanced employment generation. Presently, there are 749 items reserved for the SSI sector. It has been found that though the SSI sector is manufacturing around 8,000 items, the reserved list items constitute around 15 per cent of the total SSI production. Taking into account the WTO regime and economic liberalisation, the Study Group recommended continuation of reservation and de-reservation only in a phased manner so that the SSI units engaged in the production of reserved items are not affected. It would be prudent to consult the stakeholders while de-reserving items.

SMALL INDUSTRIES DEVELOPMENT ORGANISATION

7.1.265 The Small Industries Development Organisation (SIDO), under the Ministry of Small Scale Industries, is the nodal agency for assisting SSIs through technology, marketing, infrastructure and training support. It works with the Reserve Bank of India (RBI), Small Industries Development Bank of India (SIDBI) and commercial banks in making credit available to SSI units.

7.1.266 SIDO has set up a number of Tool Rooms to provide assistance for technological upgradation, technical consultancy and common service facilities

for design and production of quality toolings. Presently 10 Tool Rooms are functioning at Kolkata, Ludhiana, Jalandhar, Nagaur, Hyderabad, Bhubaneshwar, Jamshedpur, Ahmedabad, Indore and Aurangabad. A new Tool Room and Training Centre has been set up at Guwahati. Mini Tool Rooms would be set up in various States to help in creating localised training and production facilities.

7.1.267 The Technology Upgradation and Management Programme (UPTECH) was launched in 1998 to take care of the modernisation and technological needs of the SSI clusters. Six clusters have been identified and diagnostic studies for these have been taken up. A major cluster development programme would be taken up during the Tenth Plan period through the UPTECH Scheme. There are about 350 important SSI clusters in the country identified by the Office of the Development Commissioner (SSI) and a few new clusters would be taken up for development each year.

INTEGRATED INFRASTRUCTURE DEVELOPMENT CENTRES

7.1.268 The IIDC Scheme aims at augmenting the infrastructural facilities in rural and backward areas to promote industrial development. This scheme has been revamped in the Ninth Plan by removing certain restrictive provisions and by providing liberal finance to the northeastern region, including Sikkim, and Jammu and Kashmir. So far, 58 IIDCs have been approved and Central grant of Rs. 38.83 crore has been released up to February 2001. An additional 50 centres are proposed to be taken up during the Tenth Plan period.

PRIME MINISTER'S ROZGAR YOJANA (PMRY)

7.1.269 The PMRY, now under the Ministry of Agro and Rural Industries, makes institutional finance available to educated unemployed youths for setting up of business/industrial ventures. A number of modifications have been made during the Ninth Plan period to make it more attractive, e.g. increase in the age limit to 45 years for ex-servicemen, women and disabled; reduction of minimum educational qualification; enhancing the income limits and project size; enhancing credit/loan portion for beneficiaries in the northeast etc.

7.1.270 Since the inception of PMRY in 1993-94, against the target of 1.8 million beneficiaries (1993-94 to December 2001), 1.868 million beneficiaries were sanctioned loans and Rs. 8,402 crore was disbursed to 1.433 million beneficiaries. For the Tenth Plan period, the target of number of beneficiaries to be covered annually is proposed to be increased from 0.22 million per year to 0.26 million per year, so as to cover the backlog. Average lending by banks to PMRY beneficiaries was Rs. 53,632 per project/venture. It has been observed that the number of beneficiaries to whom loans were disbursed was around 34 per cent of the number of applicants. This is a huge gap and requires corrective measures. Beneficiaries need to prepare economically viable project reports. The national average rate of repayment of loans of around 35-40 per cent is also a cause of worry. This needs to be improved.

OTHER SCHEMES

7.1.271 The Ministry of SSI is also implementing other schemes like international cooperation, surveys, studies and policy research, Trade Related Entrepreneurship Assistance and Development for Women (TREAD); National Entrepreneurship Development Board (NEDB); and Micro Finance Programme. The Ministry provides financial assistance to SSI entrepreneurs for participation in overseas fairs to enable them to source technology and access export markets. The Ministry has entrusted a number of studies and surveys to various research, academic and training institutions on topics relevant to policy making. A package of assistance of loans from financial institutions such as SIDBI and Government grants is provided under TREAD to NGOs and groups of women to take up income generating industry/service related activity. The NEDB has been set up to consolidate and coordinate the syllabus for training and other activities of various institutes like the National Institute of Entrepreneurship and Small Business Development (NIESBUD), National Institute of Small Industry Extension Training (NISJET), Entrepreneurship Development Institute (EDI) etc. Under the micro finance programme, NGOs are provided financial assistance to enhance their capabilities to provide help to self-help groups to take up income generating activities.

7.1.272 Indicative physical targets and achievements in respect of production, employment and exports are given in Annexure III. Plan outlays and expenditure for the Ninth Plan period, 2001-02 (Anticipated/Actual), Tenth Plan approved outlays and 2002-03 (BE) are given in Annexure 7.1.5. The sector is targeted to grow at 12 per cent per annum during the Tenth Plan. To make this possible, it is necessary that the concerns of the sector receive due attention of policy makers.

7.1.273 Under the zero-based budgeting exercise carried out by the Planning Commission, 89 schemes being implemented by the Ministry of SSI&ARI in the Ninth Plan were brought down to 22 and 13 respectively for the Ministry of SSI and Ministry of A&RI. A large number of old schemes have been eliminated and remaining schemes have now become more focused, avoiding thin spread of outlays/expenditure. SIDO was implementing 64 schemes in the Ninth Plan, which were reduced to 13 by weeding out, merging and regrouping.

NATIONAL SMALL INDUSTRIES CORPORATION LIMITED

7.1.274 The National Small Industries Corporation (NSIC) Ltd. was established in 1955 to promote, aid and foster the growth of small industries. The Corporation provides machinery on hire purchase, equipment on lease, raw material assistance, marketing inputs for domestic and exports, single point registration, technical and managerial assistance, etc. The NSIC is also helping SSI units in marketing, enterprise building, training to promote viable small industries all over the country, particularly in backward areas and in selected lines of production identified as priority areas for exports.

7.1.275 The NSIC is operating schemes like (i) Raw Materials Assistance Programme (ii) Integrated Marketing Support Programme (iii) Marketing to Government and Tender Marketing (iv) export and exhibitions (v) setting up of software technology parks and (vi) consortia formation.

7.1.276 Under the Raw Materials Assistance Programme, the Corporation purchases raw materials, components, sub-assemblies for and on behalf of SSI units and allows them to take delivery

in small lots, as per their requirement and paying capacity so as to clear the entire stock within 100 days from the date of storage. The Integrated Marketing Support Programme has been envisaged to meet financing requirements of SSI units arising due to deferred payment being made for sale of goods.

7.1.277 The NSIC has established five technical service centres at Okhla in Delhi, Rajkot, Howrah, Chennai and Hyderabad to provide technical and consultancy services to SSI units. During the Ninth Plan, against the target of Rs. 6,015 crore the Corporation's turnover was Rs. 4,074.90 crore. It registered profits up to 1999-2000. In 2000-01, the Corporation made an additional ad-hoc provision of Rs. 41.11 crore over and above the normal provision for bad and doubtful debts, which resulted in a loss for the year. The main reasons for this loss were additional provision to bring the Corporation's finances in line with the intrinsic values of its investment, accumulated defaults of SSI units towards hire purchase financing, leasing of machinery, etc.

7.1.278 The Corporation is in the process of business restructuring and has adopted new strategies like sectoral approach, identifying the growing sectors/industries, promotions of technology led interventions, networking with national and international industry associations and multilateral agencies to rejuvenate the Corporation with a focus on improving profitability. It is making all efforts to salvage the maximum it can from defaulting SSI units through legal and other recourse. Stress would need to be laid upon increasing the internal and extra budgetary resources (IEBR) of the Corporation so as to enhance the Plan outlays and extend the Corporation's coverage to more SSI units through the services/schemes under implementation in the Tenth Plan period.

7.1.279 The Corporation is organising Tech Marts in collaboration with the Asia and Pacific Centre for Transfer of Technology. The NSIC is also helping SSI units in technology transfer from abroad through the Technology Transfer Centre. An Internet portal (Technology Showcase) has been set up for sourcing technologies from international partner institutions.

COIR INDUSTRY

7.1.280 Coir industry ranks foremost among the traditional cottage industries. It is a labour intensive and export oriented industry. Coir Board is vested with the responsibilities of promoting growth and development of coir industry, promotion of exports and expansion of the domestic market through building brand equity. The emphasis will be on greater participation of private sector and State Governments. The Board implements a number of developmental programmes aimed at higher utilisation of coconut husk for industrial use particularly in the non traditional areas providing scope for augmenting rural employment. The strategy is to focus on research and development for restructuring the production base with adoption of appropriate technology, reduction of drudgery, transfer of technology through skill development training, cluster approach in development, environment protection and welfare of all those who are engaged in this industry.

7.1.281 As part of modernisation of spinning sector, setting up of Integrated Coir Development Projects (ICDPs) has been taken up. In Kerala, 125 spinning units and 46 defibring units are being set up. A sum of Rs. 5.35 crore has been released to the State Governments towards 20% central share. So far 81 spinning units and 34 defibring units have been commissioned. The ICDP for Tamil Nadu has been sanctioned at an estimated cost of Rs. 14.91 crore with Central share of Rs. 2.91 crore. A total amount of Rs. 0.84 crore has been released so far. A similar project at an estimated cost of Rs.4.65 crore has been sanctioned for Karnataka. The scheme envisages setting up of 8 new primary cooperative societies, modernisation and expansion of 27 existing coir cooperatives and setting up of Common Facility Centres for yarn dyeing. An amount of Rs. 0.53 crore has been released to Govt. of Karnataka towards central share. The ICDP for west Bengal has been sanctioned at an estimated cost Rs. 0.13 crore for setting up of motorised spinning units with 50 motorised ratts.

7.1.282 Based on a study by the National Council for Applied Economic Research (NCAER), the minimum export price on coir and coir products has been phased out. This step has made the exports of coir products cost competitive and easier. Coir exports have shown consistent growth after removal of minimum export prices.

7.1.283 The Coir Board is implementing a scheme of Technology Transfer, Modernisation and Capacity Building in Indian Coir Sector with funding support

from UNDP to the tune of \$ 8,46,000. Six coir clusters in Tamil Nadu, Andhra Pradesh, Karnataka and Kerala have been identified. The rebate scheme has been abolished and the Market Development Assistance (MDA) scheme has been introduced to assist the coir cooperative societies.

7.1.284 Hindustan Coir is a model powerloom factory established by the Coir Board in 1969 with a view to demonstrate the production of coir matting on powerlooms to motivate other entrepreneurs to start such units. The factory produced 0.279 million sq. meters of powerlooms matting during 2000-01, valued at Rs. 2.47 crore.. The factory has obtained ISO 9002 certification by BVQ1 in 1997 and is the first powerloom factory in the coir industry to get this certification.

7.1.285 Important achievements in R&D are: development of Coirret (a bacterial consortia) to reduce the period of retting and processing, conversion of coir pith into organic manure by using Pith Plus (a fungal spawn), development of motorised spinning ratt, development of semi-automatic loom to increase productivity and reduction of drudgery in weaving, setting up of ASTM laboratory for testing coir geo-textiles, etc.

Tenth Plan Initiatives

- 12 per cent growth in coir and coir products and exports during Tenth Plan
- Rapid growth of coir industry in non-traditional States and higher utilisation of raw materials
- To concentrate upon R&D and market development activities

7.1.286 Under the zero-base-budgeting exercise the number of schemes under the coir sub-sector have been reduced from 10 in the Ninth Plan to seven in the Tenth Plan. This exercise has made the schemes more concerted and avoided thin spread of Plan outlays.

TEXTILE (VSI) SECTOR

Handlooms

7.1.287 Handlooms are a part of India's rich heritage and exemplify the country's diversity and the artistry of the weavers. It plays a very important role in the economy. This sector is estimated to

provide direct and indirect employment to about 2.52 million weaver households and about 12.4 million weavers and others engaged in weaving and allied activities in 2001-02. Due to effective State intervention through financial assistance and implementation of various developmental and welfare schemes, this sector has been able to withstand competition from the powerloom and mill sectors. The sector contributes nearly 19 per cent of the total cloth produced in the country and also contributes substantially to the country's export earnings. Performance of the sub-sector is indicated in Annexure 7.1.3.

Tenth Plan Initiatives

- Ensure better access to inputs like yarn, dyes and chemicals, design and credit
- Creation of a brand identity and positioning in international market

7.1.288 The handlooms sector is facing a number of problems like obsolete technology and traditional production techniques, high price of hank yarn, inadequate availability of inputs like standardised dyes and chemicals in small packs, lack of new designs, inadequate training for upgradation of skills etc. and inadequate marketing intelligence and feedback. Besides, it suffers from disadvantages like unorganised structure, weak financial base of the weavers and bureaucratisation/politicisation of cooperatives.

7.1.289 The schemes/programmes for handlooms are weaver oriented. Concerted efforts are being made through the schemes to enhance the productivity, income and socio-economic status of weavers by upgrading their skills and providing essential inputs. Major schemes under implementation are: Deen Dayal Hathkargha Protsahan Yojana, National Centres for Textile Design, Enforcement of Handloom Reservation Act, Mill Gate Price Scheme, Handloom Export Promotion, Workshed-cum-Housing Scheme, welfare schemes, marketing support and training and development.

7.1.290 The handloom sector is largely dependent on the organised mill sector for supply

of its principal raw material, namely, hank yarn. The Central Government has been making efforts to ensure regular supply of yarn to the handloom sector at reasonable prices through the Hank Yarn Obligation Scheme and supply of yarn at Mill Gate Price through the National Handloom Development Corporation (NHDC). The NHDC had supplied 16.79 million kg of yarn during 2000-01 to the handloom agencies. During 2001-02, the NHDC supplied 17.581 million kg of hank yarn up to February 2002.

7.1.291 As part of marketing support, financial support is provided to handloom organisations to participate in exhibitions/melas at Surajkund, Shilpgram-Udaipur, Craft Bazar - Madepura, Hyderabad, Taj Mahotsav and Dilli Haat. Financial assistance is also provided to State Handloom Corporations, Apex Federations, etc. to organise district-level fairs, festivals and setting up of Urban Haats in different parts of the country. So far 11 Urban Haats have been sanctioned.

7.1.292 A group insurance scheme, health package scheme, thrift fund scheme and workshed-cum-housing scheme etc. are being implemented as welfare measures and to provide better working conditions to handloom weavers.

7.1.293 The DDHPY was initiated in 2000 as a comprehensive scheme for the development of the handlooms sector. Under the scheme, financial assistance is provided to handloom organisations for components like basic inputs, infrastructure support, design input, publicity, marketing incentive, transport subsidy and strengthening of handloom organisations. Grant is provided in the ratio of 50:50 between Central and State Governments. In the case of Sikkim, Jammu and Kashmir and the northeastern States, the sharing ratio is 90:10. For implementing agencies where all the beneficiary members are scheduled castes/scheduled tribes/women/minorities, the grant portion would be shared in the ratio of 75:25. The assistance for marketing would be in the ratio of 50:50 between the Central and State Governments in respect of all the states. During 2000-01, Rs. 16.96 crore were released to 12 States and in 2001-02 up to December 2001 Rs. 26.04 crore were released.

7.1.294 Under the zero-base-budgeting exercise, the number of schemes under handlooms sub-sector has been reduced from 19 in the Ninth Plan to eight in the Tenth Plan. This exercise has made the schemes more focussed.

POWERLOOMS

7.1.295 The decentralised powerloom sector contributes in a major way in meeting the clothing needs of the country. The powerloom industry produces a wide variety of cloth, both grey as well as processed, with intricate designs. It contributes around 68 per cent of total cloth production of the country, excluding the cloth produced by non-SSI, weaving and hosiery/knitting units. This sector also contributes significantly to the export earnings by exporting made ups, ready made garments manufactured from the powerloom cloth.

7.1.296 The estimated number of powerlooms in the decentralised sector has increased from 0.639 million in 1986 to 1.662 million as on 31 December 2001. There are 13 Powerloom Service Centres (PSCs) functioning under the Textile Commissioner and 29 PSCs under the different Textile Research Associations (TRAs). Two PSCs have been set up by the Governments of Andhra Pradesh and Madhya Pradesh at Hyderabad and Jabalpur respectively. These PSCs have been established to provide inputs like technical consultancy, training, designs, technology information, etc, to the powerlooms. Existing laboratories set up at these PSCs to provide testing facilities to powerlooms are being upgraded and 14 such laboratories have been upgraded. This programme would be continued during the Tenth Plan period also.

7.1.297 There is a need to modernise and strengthen the existing PSCs by installing shuttleless looms, Cop-changing/shuttle changing looms, Drop box looms, Dobby, Jacquard terry fabric weaving looms, prin winding machines, sectional warping machines, yarn and fabric testing equipment, chemical testing equipment etc. Twenty-one PSCs have been modernised during the Ninth Plan period and this programme would be continued during the Tenth Plan to cover the remaining PSCs. Seventeen CAD centres have been set up. Uplinking and downlinking of two CAD centres at Panipat in

Haryana by the North India Textile Research Association (NITRA) and at Solapur in Maharashtra by the Bombay Textile Research Association (BTRA) along with the National Design Centre, New Delhi, has been completed.

7.1.298 There is an urgent need to modernise the powerloom industry so as to enable it to face the competition which would come with the phasing out of the Multi Fibre Agreement (MFA) by December 2004. Indian powerlooms would have to face tough competition from neighbouring countries like China, Bangladesh, Sri Lanka and also South Korea etc. The TUF scheme is being extended to cover powerlooms. However, powerloom units are not coming forward to take advantage of this scheme in a large way. Also, the financial institutions would have to provide adequate working capital after the unit has completed its modernisation. Normally, financial institutions are reluctant to provide adequate working capital and hence the scheme is not picking up. There is need for setting up modern cloth processing facilities in powerlooms and to provide new varieties of cloth like anti-crease, anti-wrinkle cloth etc. The Credit Linked Capital Subsidy Scheme for the modernisation of the SSI sector would now also be available to the powerloom sector.

Tenth Plan Initiatives

- Technology upgradation of powerlooms
- Modernisation of powerloom service centres and testing facilities
- Welfare of powerloom workers

7.1.299 Under the zero-based budgeting exercise, the number of schemes under the powerlooms sub-sector have been reduced from eight in the Ninth Plan to three in the Tenth Plan.

WOOL AND WOOLLEN DEVELOPMENT (UNORGANISED SECTOR)

7.1.300 The woollen industry in India is mainly located in Himachal Pradesh, Punjab, Haryana, Rajasthan, Uttar Pradesh, Maharashtra and Gujarat. Forty per cent of the woollen units are located in Punjab, 27 per cent in Haryana, 10 per cent in

Rajasthan while the remaining 23 per cent are situated in other states. The organised sector, unorganised sector and the rural sector operate in a complementary manner towards meeting the requirements of different sections of the domestic market as well as exports. The organised sector comprises composite mills, combing units, worsted and non-worsted spinning units and machine made carpet manufacturing units are covered while the unorganised sector contains hosiery and knitting, powerlooms, hand knotted carpet units and independent dyeing/processing houses.

7.1.301 The Central Wool Development Board (CWDB), Jodhpur, was set up in 1989 to harmonise various diversified interests of different sectors of the wool industry for the integrated development of the industry. The CWDB promotes growth and development of wool and woollen products through various activities like market intelligence, marketing of wool and woolens, standardisation of wool and woollen products, quality control, dissemination of information, product diversification, advising government on policy matters, coordination etc.

7.1.302 For the development of angora wool a Rs. 8.43 crore UNDP-aided project under UNDP-CCF1 is being implemented. Rural unemployed youths and farmers of the hill areas of Uttar Pradesh, Himachal Pradesh, Darjeeling, Sikkim, etc, are being encouraged to take up production and processing of Angora wool. The project aims at encouraging rabbit farming in remote hilly areas to increase the production of Angora wool to result in saving of foreign exchange and generation of new employment. The Board has provided funds to implementing agencies of Himachal Pradesh, Uttar Pradesh and Sikkim for setting up of germplasm centres under the UNDP programme. The Board has benefited 450 families during the Ninth Plan period.

7.1.303 Under the Integrated Sheep and Wool Development Project, the focus has been on breed improvement, health coverage, product development, marketing assistance, training to sheep breeders in sheep, sheep husbandry and productivity, etc. The Board has covered 3.875 million sheep under this programme during the Ninth Plan period.

7.1.304 The CWDB has set up wool testing centres at Bikaner, and Beawar in Rajasthan for providing testing facilities to wool growers, merchants and the industry. The Board has also set up mini wool scouring plants in Jammu and Kashmir, Gujarat, Himachal Pradesh, Maharashtra and Karnataka to provide scouring facilities to small and cottage industries engaged in the wool sector. The Board has set up a weaving and designing centre at Kullu, besides training centres, industrial service centres, wool testing facilities, etc. at other locations.

7.1.305 The Board is implementing a machine shearing-cum-training project to encourage the use of shearing machines and demonstrate machine shearing to enable sheep rearers to take up as an economically viable activity. The Board has set up 10 market intelligence centres in the main wool markets. Information is collected with respect to prevailing market rates of wool and yarn, latest trends and transactions of wool and woollen products on a weekly basis and disseminated to wool growers, wool merchants and wool users.

7.1.306 The Board has sponsored 174 farmers/resource persons for imparting training in sheep management/machine shearing/angora rabbit rearing. To promote wool and woolens and to provide better marketing facilities to weavers, the Board is implementing a Woollen Expo Scheme and has organised 20 Expos. The Board has also provided training to 255 weavers under the Weaving and Designing Training Programme during the Ninth Plan. The Board is also printing a magazine WOOLWAYS for informing those in the trade about technological advancements, market intelligence, etc.

Tenth Plan Initiatives

- Augmentation of availability of carpet grade wool, Angora and Pashmina and Technology Upgradation
- Integrated development and growth of wool and woollen in a Mission Mode

7.1.307 Under the zero-based budgeting exercise, the number of schemes under wool development have been reduced from 14 in the Ninth Plan to six in the Tenth Plan.

SERICULTURE

7.1.308 India is the only country producing all four varieties of silk -- mulberry, Eri, Tasar and Muga and it is the second largest producer of silk in the world after China. Sericulture is a labour-intensive, agro-based industry providing employment to about 6.25 million persons. The Central Silk Board (CSB) looks after the development and growth of sericulture, providing extension and R&D inputs to the sericulture industry. The Board covers areas like research and technology development, seed maintenance and production and development of sericulture and silk industry.

7.1.309 Research institutes established under the CSB are functioning at Mysore (Karnataka), Berhampore (West Bengal) and Pampore (Jammu and Kashmir), all dealing with mulberry sericulture. The institute at Ranchi (Jharkhand) deals with Tasar, whereas the institute at Jorhat (Assam) is looking after R&D related to Muga. Post-cocoon R&D activities are carried out by the Central Silk Technological Research Institute (CSTRI), Bangalore. The Silkworm Seed Technology Laboratory (SSTL), Bangalore (Karnataka), is engaged in seed maintenance and production. The Central Sericulture Germplasm Resource Centre (CSGRC) at Hosur (Tamil Nadu) is engaged in sericulture germplasm related R&D and the Seri Biotech Research Laboratory (SBRL), Bangalore, undertakes R&D in areas related to development of new silkworm races.

7.1.310 During the Ninth Plan period, the target of production of 20,600 mt of raw silk could not be achieved as the anticipated production was expected to be 17,980 mt by 2001-02. The main reasons for the shortfall were lower demand for multivoltine silk and switching over to imported Chinese silk, particularly for weft as well as warp purpose by handlooms and powerlooms. In view of the lower production cost of raw silk in China and the growing international demand for silk, India should take new initiatives in the Tenth Plan. These should relate to: (i) achieving international standards in all varieties of silk; (ii) improving R&D and effective transfer of technology; (iii) focus upon increasing bivoltine silk production and non-mulberry varieties of silk; and (iv) encouraging cluster development

for reeling and weaving and strengthening linkages between sericulture and textile industry. The Tenth Plan strategies for sericulture have been formulated taking into account the above aspects.

7.1.311 The CSB provides quality silkworm seeds through the National Silkworm Seed Project (NSSP). During the Tenth Plan, the requirement of silkworm seeds would be higher than the present capacity of CSB and State Government silkworm seed production centres. There is need to strengthen basic seed multiplication and training centres, P2 seed farms, grainages under CSB and State Governments. Private entrepreneurs would be encouraged to take up seed cocoon and disease free layings (DFLs) production. The seed production activity need to be made self sufficient without any subsidy.

7.1.312 The CSB had formulated 36 catalytic development schemes for implementation in the Ninth Plan to motivate States to increase productivity and quality and provide marketing support. These schemes have been reviewed under zero-base budgeting and 11 schemes have been weeded out. The remaining 25 schemes have been reorganised into 12 schemes. These schemes are aimed at increasing quality raw silk production, promotion of drip irrigation, enterprise development, creation of improved mulberry variety banks, etc.

7.1.313 Under the bivoltine sericulture development project taken up with the assistance from Japan International Cooperation Agency (JICA), a number of improved bivoltine breeds were evolved of which bivoltine hybrids (CSR (2 - 4 - 5), CSR (12 - 6), CSR (18 - 19), CSR (16 -1) and CSR (3 - 6)) were authorised for commercial use. These races yielded high quality silk of 2/3A grade during experimentation.

7.1.314 The CSB signed an MoU with the National Research Development Corporation (NRDC) for assisting in commercialisation of the evolved technologies. Presently the CSB has offered around 29 technologies to NRDC for patenting and commercialisation. These include the silkworm bed disinfectants like Reshamkeet Oushadh, Vijetha, Resham Jyothi and Uzitrap which are found to be effective in controlling various mulberry silkworm

diseases and have been put to large scale commercial exploitation.

7.1.315 The UNDP has started a sub-programme on development of non-mulberry silk (Tasar, Muga and Eri) in Andhra Pradesh, West Bengal, Assam, Bihar, Orissa, Meghalaya and Nagaland under the Fibres and Handicrafts Programme (FHAP) of CCF-1 in collaboration with the Government of India at a total cost of Rs. 11.99 crore. Of this, the Government of India's share is Rs. 3.98 crore. This programme covers increase of quality egg production and supply, training and skill upgradation, technological support in pre-cocoon and post-cocoon processes, including reeling, spinning, etc. The programme is expected to be completed by 2002-03.

7.1.316 The sericulture project of the Madhya Pradesh Government is being implemented in collaboration with the JBIC at an estimated cost of Rs. 748.80 crore. The Manipur Government is also implementing a sericulture project from July 1998, at an estimated cost of Rs. 490.61 crore with financial assistance from JBIC.

7.1.317 During the Tenth Plan period, the CSB plans to focus upon the quality of raw silk by setting up quality certification systems for silkworm seed, cocoons and yarn as well as certification of export products. There is need to promote the culture of quality in every production process. The CSB has also proposed to take up market-linked production planning in the Tenth Plan period. Promotion of multivoltine based crossbreed mulberry sericulture would be continued along with expansion of Eri and Muga silk. For Jharkhand, Chhattisgarh and Uttaranchal more stress would be laid upon oak Tasar sericulture along with normal Tasar. There is an urgent need to take up bivoltine mulberry hybrid silk production to meet warp demand and also to take up production of export-oriented silk powerloom production. Besides this, the CSB proposes to take up new schemes/projects like integrated nutrient management, integrated farming systems, development of new hybrid silkworm seeds, cluster development and assistance to States for specific projects.

7.1.318 China is the major producer of silk and accounts for 75 per cent of global production. China

also dominates exports of raw silk, silk yarn and silk fabrics with a global share of around 93 per cent, 43 per cent and 29 per cent respectively. The Indian sericulture industry is also facing a major problem of imports of cheaper silk. A lot of silk is also coming through illegal channels. This affects the prices of raw silk in India, further building pressure upon cocoon prices and narrowing the margins of farmers/sericulturists.

7.1.319 The entry of China into the WTO provides opportunities as well as challenges to the Indian silk industry. It would help India to improve its global positioning. It is generally believed that the Chinese silk is highly subsidised and its products are sold at cheaper rates as compared to Indian silk. Under the Subsidies and Countervailing Measures of the WTO agreement, China would have to regulate these subsidies.

7.1.320 During the Tenth Plan period, there is an urgent need to adopt bivoltine sericulture on a large scale and to improve the quality of raw silk. Further diversification into new products and taking up value addition in the silk industry would also be necessary.

Tenth Plan Initiatives

- Achieving international standards for silk
- Improving R&D and effective transfer of technologies to farmers/ reelers
- Enhancing production of Tasar, Muga Eri silk
- Enhancement of bivoltine silk production
- Cluster development and improvement in reeling and weaving
- Strengthening linkages between producers of silk and industry

HANDICRAFTS

7.1.321 The handicrafts sector is making substantial contribution to the country's economy in terms of employment generation and foreign exchange earning through exports. Growth in this sector over the last few years has been encouraging (Annexure 7.1.3).

7.1.322 The developmental schemes under implementation in the handicrafts sub-sector cover

various areas like training, design development, technology upgradation, market promotion, exhibitions and publicity, exports etc. Training is being provided to artisans for upgrading the skills of existing craftsmen as well as to un-skilled ones with a view to expanding employment and the production base of crafts for economic growth and reviving languishing crafts. Several studies have shown that 70 to 80 per cent of the trainees get gainful employment.

7.1.323 Out of 196 departmental Basic Training Centres and 100 Advanced Training Centres providing training for carpet weaving, 141 centres have been closed. To help the artisans in Jammu and Kashmir, training centres in the State would be continued during the Tenth Plan. For post-weaving operations like washing and finishing of carpets seven centres are providing training to artisans. Training is being provided to artisans for crafts like hand printed textiles, art metal-ware, cane and bamboo, wood-wares, etc, in various training centres set up at important clusters of these crafts.

7.1.324 Regional Design and Technical Development Centres (RDTDCs) are providing design and technical guidance in different crafts to artisans at Bangalore, Kolkata and Guwahati. Various design workshops and other activities are carried out at these centres to make these crafts a success in the contemporary market, and help in preserving traditional beauty of the crafts on the basis of strong ethnic designs. Besides these RDTDCs, Development Centre for Musical Instruments at Chennai, Cane and Bamboo Development Institute at Agartala, Institute of Carpet Technology at Bhadohi and Metal Handicrafts Centre at Moradabad are undertaking research and design, developing technology, improving tools and equipment, developing new designs, prototypes, etc.

7.1.325 The Metal Handicrafts Service Centre (MHSC) at Moradabad provides common facilities for silver plating, powder coating, lacquering, testing of metals and upgradation of skills of artisans. There are three departmental training centres, two at Chennapatna and one at Tirupati (in Andhra Pradesh) to provide training in lacquer ware craft. The Cane and Bamboo Development Institute at

Agartala is working on development of proper techniques for treatment and preservation of cane and bamboo handicrafts by using suitable chemicals, lacquer, etc, to protect them from insects, fungus, etc. Other organisations like Central/State corporations, apex societies and voluntary organisations are provided financial assistance to provide training in various crafts to (i) increase the production base of those crafts with high market demand, (ii) upgradation of skills, and (iii) to revive languishing crafts. An Apprenticeship Training Scheme is being implemented and around 2,500 trainees are provided training by master craftsmen.

7.1.326 The Scheme of Market Meets has been modified to have a better and meaningful interaction with artisans, NGOs, State Governments, exporters and traders. Marketing inputs are provided through local level marketing workshops, national level melas, product promotion programmes, craft bazaars, local fairs and festivals, mini-handicraft expos and national expos. Ample opportunities are provided to artisans to market their products directly to customers and get remunerative prices.

7.1.327 Under the scheme of Setting up Urban Haats, 18 Urban Haats were to be set up during the Ninth Plan period. So far, eight haats at Agra, Ahmedabad, Bhubaneshwar, Ranchi, Karnal, Jammu, Tirupati and Kolkata have been approved. This programme would be continued during the Tenth Plan period and haats would be set up at prime market locations and places of tourist interest.

7.1.328 Export promotion efforts of the office of Development Commissioner (Handicrafts) and Export Promotion Council for Handicrafts (EPCH) include participation in international fairs, organising buyer-seller meets and sponsoring Sales/Technical cum Study teams to various countries.

7.1.329 Exports from handicrafts generally includes craft items of zari and zari goods, art metal ware, wood ware, hand printed textiles and scarves and embroidered and crocheted goods. Exports of handicrafts during the Ninth Plan period were to the tune of Rs. 41,470 crore. During 2001-02, Rs. 10,610 crore worth of handicrafts exports were achieved and for the Tenth Plan a target of Rs. 95,000 crore has been kept, indicating a growth of

over 23 per cent. Targets for estimated production and employment for 2006-07, the terminal year of the Tenth Plan, are given in Annexure 7.1.4.

7.1.330 As a comprehensive database for handicrafts is not available, the figures of production and employment in handicrafts are derived from the figures of handicraft exports. There is an urgent need to strengthen the database for handicraft units and prepare a reporting mechanism/estimates for the production and employment of handicrafts.

7.1.331 During 2001-02, a new scheme titled Ambedkar Hastshilp Vikas Yojana (AHVY) was launched with the following aim:

- Empowerment of artisans by making them active entrepreneurs - cum - primary stakeholders in the process of development and bringing them to a visible platform for easy access to domestic and overseas markets.
- Effective collective participation of all members involved in the production and marketing process for optimal growth in human resources, production, business and income.
- Organisation of artisans into community-based enterprises, e.g., self-help groups /cooperative societies, etc.

7.1.332 Social security and welfare of artisans is another area which is being given special attention. Schemes like workshed-cum-housing, health package for artisans, group insurance, etc, are being implemented, which would also be continued in the Tenth Plan period. A zero-based budgeting exercise has been carried out for the handicrafts and out of 27 schemes in the Ninth Plan period, only eight schemes would be taken up in the Tenth Plan period. Most of the schemes have been merged, regrouped and two schemes have been weeded out.

Tenth Plan Initiatives

- To enhance India's share of handicrafts in global market
- Presentation of cultural heritage through documentation and R&D
- Adoption of integrated artisan centric approach

7.1.333 To give a boost to the handlooms and handicrafts sector, a new model for marketing their products has been envisaged in the Tenth Plan. A web-based marketing of VSI products has been proposed to be taken up.

Proposed Model for Marketing of VSI Products

- Web site to be created by marketing company with stake holders like KVIC, DC(Handicrafts), Cooperatives, CAPART, NABARD, SIDBI, SBE, EXIM Bank and private sector marketing/manufacturing organisations like Tatas, Hindustan Lever, Britannia, Amul, Wipro, Reliance, Zandu, Himalaya, etc.
- Common brand building programme for brands like Indian Handicrafts, Sarvodaya, Khadi, etc. would be taken up. The website will describe the product and give details about its specifications, geographical location, specialities, values etc. along with photographs. This will be supported by a brick-and-mortar model of distribution.
- Depots, warehouses would be set up to sell products being marketed on the website and customers can make purchases online with a click of the mouse.
- The website would also help in design and ethnic value presentation, collection and collation of systematic product specifications, branding of products, information about exhibitions, expos, melas, buyer-seller meets, etc.
- Sales outlets of KVIC, KVIBs, Apex Cooperative Societies, State Handlooms, Handicrafts Development Corporations, CAPART associates, private sector organisations, exporters, etc, could be used for selling VSI products.

FOOD PROCESSING INDUSTRIES

7.1.334 The Ministry of Food Processing Industries is looking after the food processing industries and implementing policies and plans relating to the sector. The food processing sector includes sub-sectors like grain processing, fruits and vegetable products, milk products, meat and dairy products, fish and fish processing, beverages, aerated drinks, etc. The food processing industry has been identified

as a sunrise industry which can play a significant role in increasing value addition in agricultural and horticultural produce, diversification and commercialisation of agriculture, reduction in wastage of horticulture produce by increasing the processing level, generating new employment and enhancing export earnings. The performance of the sector during the Ninth Plan period and proposed targets for the Tenth Plan and figures relating to outlays and expenditure are given in Annexure 7.1.4 and Annexure 7.1.5.

7.1.335 Rice milling, processing of pulses and production of wheat flour and other wheat products are the main activities in the grain processing sector. The Rice Milling Industries Regulation Act, 1958, has been repealed and no licence is required for the manufacture of rice products. Nearly 12.5 mt of wheat is converted into various wheat products annually and the country has 820 functioning roller flour mills with an installed capacity of 19.5 mt. The production of bakery products is estimated to be in excess of 37 lakh tonnes. The organised sector produces 65 per cent of breads and biscuits, which account for 82 per cent of the total bakery products. Besides these, soft drinks, beer and alcoholic drinks are also a part of the food processing industry. The Post Harvest Technology Centre at the Indian Institute of Technology (IIT), Kharagpur, has courses and conducts short term training programmes on Home Scale Food Processing and Preservation Techniques and Processing of Minor Millet.

7.1.336 India is the world's leading milk producing country and milk production is expected to touch 81 mt in 2000-01 from 78 mt in 1999-2000. India ranks second in the production of fruits and vegetables. While in countries like Brazil, about 80 per cent of the fruits and vegetables are processed, in India only 2 per cent of horticultural produce is being processed. About 30 per cent of is wasted due to the lack of post-harvest processing facilities, cold storages and cold chains. This sector has vast potential for increasing production, exports and employment.

7.1.337 The schemes and programmes being implemented by the Ministry of Food Processing Industries include development of infrastructural facilities, setting up/expansion/modernisation of food processing industries, meat processing,

poultry and egg processing etc. Schemes for fish processing include strengthening of traditional fish processing, utilisation of low-value fish to make value-added products, etc. The Ministry also provides financial assistance for generic advertisements, strengthening of backward linkages, setting up of cold storages, refrigerated vans, etc.

7.1.338 Further, special emphasis is being laid on supporting research and developmental activities for food processing. Funds are being provided for development of traditional foods, new products, processes and packaging materials, utilisation of by-products, etc. Financial assistance is provided to universities/technical colleges/research institutes to take up specific R&D projects. The Ministry has sponsored projects on gamma irradiation, development of standards for packaging of pickles in flexible materials, mushroom based extruded foods, etc. Financial assistance is being provided to human resource development institutions for creating infrastructural facilities, laboratories, pilot plants, running of courses, etc.

7.1.339 The existing infrastructural facilities for food processing industries are inadequate and need upgradation and modernisation. Facilities for quality testing and certification are not up to the standards required for meeting the demands of the domestic as well as the highly competitive export markets. In view of this, a number of Food Parks have been sanctioned and taken up by State/promotional organisations. During the Ninth Plan period, 27 Food Parks have been sanctioned and work on most of the sites is under completion at various stages. In the Tenth Plan, more Food Parks are proposed to be created and corrective measures will be taken based on the experience gained by the implementing organisations.

Tenth Plan Initiatives

- Promotion of investment, exports and employment
- Infrastructure and institution building
- Promotion of new technologies; cluster development approach
- To increase food processing level to 10 per cent in the Tenth Plan period from the present level of 2 per cent

7.1.340 A draft National Food Processing Policy has been formulated which envisages the creation of an enabling environment, a Development Fund for Food Processing, a Food Processing Authority, infrastructural development and linkages at the farm level, etc. An approach paper on the proposed Processed Food Development Act has been circulated to various organisations for their comments. All these efforts are aimed at harmonisation of the various laws for the food processing industries sector and to bring all the laws under one authority. The Finance Minister has announced the constitution of Group of Ministers (GOM) for the purpose of ending the multiplicity of regulations in food standards and the preparation of a modern integrated food law, harmonisation of quality standards and setting up of an independent regulatory authority etc.

7.1.341 The Food Products Order (FPO), 1955, attempts to provide hygienic and quality food products to the consumers. It is mandatory for all manufacturers of fruits and vegetable products to obtain an FPO licence and to ensure good quality products manufactured under hygienic conditions. The FPO is being amended at the instance of the Central Fruit Products Advisory Committee, which has representatives of the Government, Central Food Technology and Research Institute (CFTRI), Bureau of Indian Standards (BIS), Fruit and Vegetable Processors Industry.

7.1.342 Codex Alimentarius Commission is an international body constituted by the Food and Agriculture Organisation (FAO) and World Health Organisation (WHO) to help in developing standards for food manufacturing and international trade by bringing together scientists, technical experts, Government bodies, consumers and industry representatives. Codex standards are used worldwide for ensuring safety and quality of food, for international trade negotiations as well as for settling of disputes related to food processing. A monitoring cell has been set up in the Ministry of Food Processing Industries for dissemination of information on Codex standards. Under the HACCP quality assurance system, which is based on the food safety system, the Ministry provides grants up to 50 per cent (subject to a ceiling of Rs. 10 lakh), towards the cost of implementation of HACCP, Total

Quality Management (TQM) and obtaining ISO 9000 certification, etc.

7.1.343 To enhance India's share in exports from food processing industries, there is an urgent need to adopt Codex standards. Domestic industry may face practical difficulties initially in adopting these stringent standards due to the non-availability of high quality testing laboratories and standard raw materials and the prevalence of obsolete technology, etc. However, it would be useful for the industry to focus on attaining the Codex standards as early as possible.

7.1.344 The North Eastern Regional Agricultural Marketing Corporation Ltd (NERAMAC) markets food products as well as other agro-based products. The administrative control of NERAMAC has been transferred to the Department for the Development of the North East.

7.1.345 Under the zero-based budgeting exercise, the number of schemes under the Ministry of Food Processing Industries have been reduced from 24 in the Ninth Plan to six in the Tenth Plan.

7.1.346 A study by NCAER commissioned by the Ministry points out that the growth in employment in the food processing sector is likely to be 1.25 per cent per annum during the Tenth Plan period assuming a 6 per cent GDP growth. However, if GDP growth is at 8 per cent per annum, the employment in the sector is likely to increase 2.61 per cent per annum. The estimated employment as in 2001-02 is 7.55 million persons which is likely to go up to 8.6 million persons at the end of the Tenth Plan (assuming a 8 per cent GDP growth). It is also estimated that the indirect employment generation in the sector is 2.38 times the direct employment.

7.1.347 Statement showing the details of export of processed food items during between 1996-97 and 2001-02 (target) is given in Annexure 7.1.4.

THE PATH AHEAD

7.1.348 Taking into consideration the higher potential for growth in the unorganised sector, mainly VSI and food processing sectors, in terms

of output, employment and exports, it would be prudent to strengthen these sectors to enable them to remain competitive in the market-led economy.

7.1.349 The SSI sector would be provided proper and timely inputs like:

1. Adequate credit/loans from financial institutions/banks.
2. Funds for technology upgradation and modernisation.
3. Adequate infrastructure facilities.
4. Modern testing facilities and quality certification laboratories.
5. Modern management practices and skill upgradation through advanced training facilities.
6. Marketing assistance.
7. Level playing field at par with the organised sector.

7.1.350 There is an urgent need to provide sufficient orders to the SSI sector by enabling units to supply 25 to 30 per cent of the government purchases through statutory marketing arrangements, on the lines done by Small Business Administration (SBA) of the United States. Such marketing assistance would enable SSI units to face competition and avoid sickness/closure.

7.1.351 The handlooms sector would be provided better access to inputs like hank yarn and dyes and chemicals at reasonable prices, designs and credit. This will enable handloom weavers to produce marketable products and increase their incomes. In the powerloom sub-sector, emphasis would be laid upon technology upgradation, modernisation of power service centres and testing facilities and welfare of powerloom workers. More designs would be made available by CAD/CAM centres.

7.1.352 The unorganised wool and woollen sector would require strategies like augmentation of the

availability of carpet grade wool, Angora and Pashmina wool; integrated development through a new Technology Mission to improve productivity of wool per sheep, diversification of products by mixing Angora and Pashmina wool; and reducing carpet grade wool imports. Training and extension, particularly in modern sheep rearing practices, enhancement of the quality of wool and increasing income of sheep rearers would need to be taken up on a priority basis in the Tenth Plan period.

7.1.353 The sericulture sector would require strategies like achieving international standards for silk; more intensive R&D efforts and effective transfer of technologies to farmers/reelers; enhancement of production of Tasar, Muga and Eri silk; enhancement of bivoltine silk production; strengthening of linkages between producers of silk and silk industry; and adoption of cluster development and improvement in reeling and silk weaving practices.

7.1.354 In the handicrafts sector, the strategies in the Tenth Plan would focus upon enhancement of India's share in global market; preservation of cultural heritage through documentation and R&D; and adoption of an integrated artisan-centric approach. Efforts would be made to provide welfare schemes and increase income levels of artisans, craftsmen, cooperative societies. Artisans could benefit if more direct exports are encouraged.

7.1.355 Tenth Plan strategies for the food processing industries sector would focus on promotion of investment in the industry, and enhancing production, employment and exports; providing adequate infrastructure and institution-building; promotion of new technologies; adoption of the cluster development approach; and achieving the objective of enhancing food processing levels from the current 2 per cent to 10 per cent by the end of the Plan period.

Ministry/Department-wise Ninth Plan Expenditure and Outlays for Tenth Plan (2002-07)

(in Rs. Crore)

Sl. No.	Name of the Ministry/Deptt.	Ninth Plan		Ninth Plan Anticipated Expenditure		Tenth Plan		
		Outlay	BS	Outlay	BS	Outlay	BS	IEBR
		1	2	3	4	5	6	7
A. Industry and Minerals								
1	Steel	16,232.50	85.50	6,490.70	66.00	11,044.00	65.00	10,979.00
2	Fertilisers	11,013.00	1,043.00	4,177.54	993.79	5,900.00	1,050.00	4,850.00
3	Petroleum and Natural Gas (I&M)	8,386.02	0.00	1,378.26	0.00	7,614.81	0.00	7,614.81
4	Chemicals & Petrochemicals.	6,760.00	171.00	3,406.44	187.02	3,044.00	300.00	2,744.00
5	Industrial Policy and Promotion *	1,923.75	1,923.75	1,482.00	1,482.00	2,000.00	2,000.00	0.00
6	Heavy Industry	2,027.00	551.00	1,923.74	916.75	2,063.00	700.00	1,363.00
7	Commerce	893.75	859.75	1,049.52	1,049.52	4,562.00	4,547.00	15.00
8 &	Public Enterprises	....	...	8.00	8.00	50.00	50.00	0.00
9	Textiles (I&M)	331.01	331.01	652.09	616.22	1,980.00	1,900.00	80.00
10 #	Consumer Affairs	28.37	28.37	30.36	27.02	55.00	55.00	0.00
11&	Company Affairs	....	....			50.00	50.00	0.00
12	Food and Public Distribution (I&M)	1.80	1.80	15.88	15.88	10.20	10.20	0.00
13	Surface Transport (Shipbuilding and Ship repair Sector)-M/o Shipping	161.80	161.80	166.03	120.03	1,047.86	242.86	805.00
14	Atomic Energy (I&M)	1,218.50	850.00	905.04	815.00	3,350.00	2,270.00	1,080.00
15	Bio technology	6.30	6.30	3.61	3.61	30.00	30.00	0.00
16	DSIR	21.50	21.50	11.00	11.00	25.00	25.00	0.00
17	Ocean Development	84.23	84.23	72.03	72.03	100.00	100.00	0.00
18 \$	Supply	22.19	22.19	31.11	31.11			
	Total	49,111.72	6,141.20	21,803.35	6,414.98	43,128.81	13,598.00	29,530.81
B. VSI Sector								
1	SSI & ARI	3,330.00	2,813.00	2,855.00	2,295.00	3,449.00	3,065.00	384.00
2	Textile (VSI)	1,083.50	1,083.50	1,203.00	1,203.00	1,600.00	1,600.00	0.00
3	Food Processing Ind.	235.04	235.04	195.68	195.68	650.00	650.00	0.00

* NRF Expenditure up to 2001-02 was included

@ Outlays of National Test House are not included (NTH was transferred from D/o Supply on 17.8.2001 to D/o Consumer Affairs)

\$ Deptt. of Supply merged in Deptt of Commerce in 2001-02, the expenditure pertain to DGS&D and NTH

The expenditure of NTH is not included as it was transferred in 2001-02 after allocation under D/ Supply

& No outlays in Ninth Plan

Initiatives in the Tenth Five Year Plan (2002-07)

1 Apparel Parks for Exports

Name of the scheme	Apparel Parks for Exports
Concerned Ministry	Ministry of Textiles
Nature of Scheme	New centrally sponsored scheme - already approved
Objective of the Scheme	The scheme is in pursuance of the National Textile Policy, 2000 to give a focused thrust to setting up of apparel manufacturing units of international standards at potential growth centres and to give fillip to domestic production to meet competition from imports and to enhance exports so as to achieve the target of \$ 50 billion by 2010 as envisaged in the Policy.
Details of the Scheme	<ol style="list-style-type: none"> 1. The State Government or an undertaking sponsored by the Government (the designated agency) will provide land free of cost for establishing the park of sufficient size. (The size of an apparel park may be approximately 150-250 acres, but this can be determined on the merits of a case) 2. The location of the apparel park will be such that it is conducive to the establishment of state-of-the-art manufacturing units, has access to ports, airports, rail heads etc., easy availability of raw materials and has a reasonable level of infrastructural facilities. 3. The designated agency will provide infrastructural facilities like power, water, roads, (including approach roads to the park), sewerage and drainage, telecommunications and other facilities for the park. Such facilities shall be of high standards to ensure that the units established in the park are able to function efficiently.
Funding pattern under the scheme	<p>The Central Government will give as a grant to the tune of 75 per cent of the capital expenditure incurred by the State Government on the infrastructural facilities of the Apparel Park, while the remaining 25 per cent will be borne by the agency. This grant shall be limited to a maximum of Rs.10 crore.</p> <p>The Central Government will also provide a maximum grant of Rs.5 crore for setting up of an effluent treatment plant, crèche/s, any multi-purpose centre/hall for marketing /display etc. (These facilities are required to enable the units to meet emerging labour/social/environmental standards).</p> <p>The Central Government will provide a grant up to 50 per cent of the cost of any training facility created in the park subject to a maximum of Rs.2 crore.</p>
Project Approval Committee	<p>The project proposals shall be considered by a Project Approval Committee (PAC) headed by Secretary (Textiles). Other members will be Advisor (Industry) in the Planning Commission, AS&FA, Ministry of Textiles, Textile Commissioner, a representative from Department of Expenditure with Joint Secretary, Ministry of Textiles as Member Secretary. The Committee will approve and sanction the proposals received from the agencies for the establishment of 'parks' to monitor their implementation and to evaluate the progress and achievement under the scheme.</p> <p>The agencies seeking assistance under the scheme will prepare feasibility studies and detailed project reports. Only those proposals which are approved will be eligible for assistance under the scheme. While approving the proposal, care will be taken to see that the location of the park is conducive to meet the objectives of the scheme.</p>

	While considering the proposals, due weightage shall be given to the potential of the park for attracting investments, employment generation and upgradation in technology.
Extent of Central Assistance	The Central assistance for each park would be limited to Rs.17 crore (i.e.Rs.10 crore for infrastructure facilities, Rs.5 crore for ETP and common facilities and Rs.2 crore for training facilities)
Budgetary provision	2002-03 -Rs.10 crore, Tenth Plan - Rs.75 crore
Status of Implementation	Five Apparel Parks have been approved in principle by the Planning Commission. These are located at (i) Surat (Gujarat) (ii) Tronica City (Uttar Pradesh) (iii) Visakhapatnam (Andhra Pradesh) (iv) Bangalore (Karnataka) and (v) Thiruvananthapuram (Kerala) . In a recent Cabinet decision, the limit of five apparel parks has been removed.

2 Textile Centres infrastructure development scheme (TCIDS)

Name of the scheme	Textile Centres Infrastructure Development Scheme (TCIDS)
Concerned Ministry	Ministry of Textiles
Nature of Scheme	Centrally sponsored scheme - already approved
Objective of the Scheme	To improve infrastructure facilities at potential textile growth centres and, therefore, removing bottlenecks in exports.
Details of the Scheme	<ul style="list-style-type: none"> • The scheme shall cover investments, which are in the nature of exigencies, which could not be foreseen as part of the annual Plan scheme proposals. Broadly, the scheme covers investments required for quicker and strategic removal of bottlenecks and for general export facilitation. The investment must reflect its linkage to export promotion. • Balancing investment may, inter alia, relate to construction of roads, provision of testing facilities etc. • Under the scheme funds can be given to Central/State Government Departments/ Public Sector Undertakings/other Central/State Government's agencies/ recognised industrial association or entrepreneur bodies for development of infrastructure directly benefiting the textile units. The fund would not be available for individual production units.
Funding pattern under the scheme	The Central assistance will be generally limited to 50 per cent of the critical components of the project subject to a maximum of Rs. 20 crore for a particular centre.
Project Approval Committee	An Empowered Committee under the chairmanship of Secretary (Textiles). A committee would be duly constituted by the concerned State/UT / agency/PSU to implement and monitor each of the approved proposals. A representative of Ministry of Textiles would be included in the Committee.
Performance evaluation	The performance of the TCIDS scheme as a whole will be evaluated annually by an appropriate authority or agency to be decided by the Empowered Committee of the Scheme.
Extent of Central assistance	A maximum of Rs. 20 crore for a particular centre.
Budgetary provision	Annual Plan 2002-03-Rs.15 crore Tenth Five Year Plan - Rs. 75 crore
Status of Implementation	The proposal has not been received

3 Technology Upgradation Funds Scheme (TUFS)

Name of the scheme	Technology Upgradation Fund Scheme (TUFS)
Concerned Ministry	Ministry of Textiles
Nature of scheme	Central sector scheme - Already approved
Objectives of the Scheme	To provide a focal point for modernisation efforts through technology upgradation in the industry.
Details of the scheme	This scheme was introduced in 1999 as an instrument for modernisation and technology upgradation and covers all sub-sectors of textiles like spinning, weaving, knitting, processing, garment making, cotton ginning and pressing and the jute sector. Under the TUF Scheme, generally only new machinery will be permitted. However, machinery with a minimum residual life of 10 years, import of second hand machinery will also be eligible subject to maximum expired life (vintage) of 5 years as reckoned from the year of manufacture. Investment in land and factory building including renovation, effluent treatment plant (ETP), water treatment plant for captive industrial use, captive power generation will be eligible to the extent necessary for the plant and equipment to be installed for technology upgradation and the total of such investments will not normally exceed 25 per cent of the total investment in such plant and machinery.
Funding Pattern under the Scheme	The main feature of the TUF Scheme would be a 5 per cent reimbursement on the interest actually charged by the identified financial institutions on the sanctioned projects. To modify the scheme to make it more investor-friendly, the weaving sector can now avail either 5 per cent interest reimbursement or 12 per cent of upfront credit linked capital subsidy for SSI units.
Project Approval Committee	The Inter-ministerial Steering Committee under the chairmanship of Secretary (Textiles) lays down norms for monitoring and appraisal mechanism for effective implementation of the scheme on a macro-basis. Secretaries of the Department of Expenditure, Ministry of Commerce, Ministry of Industry, Department of Banking, Addl. Secretary and Financial Adviser, Ministry of Textiles, Adviser, Planning Commission, Textile Commissioner, Jute Commissioner, Deputy Governor, RBI, Chairmen of IDBI, SIDBI, IFCI are the prominent members of the Committee in addition to other trade bodies.
Budgetary Provision	2002-03 - Rs.250 crore Tenth Plan - Rs.1,270 crore.
Status of implementation	Up to 31 May 2002, 1,654 textile units have applied for loans amounting to Rs.14,365.26 crore. Out of this, 1,419 proposals for loans amounting to Rs.5,226.59 crore had been sanctioned and an amount of Rs. 3,607.37 crore has already been disbursed for 1,134 units. The fund requirement under this scheme has essentially been from the mill sector with SSI sector having only limited access to benefits of the scheme.

4 Technology Mission on Cotton (TMC)

Name of the scheme	Technology Mission on Cotton (TMC)
Concerned Ministry	Ministry of Textiles
Nature of scheme	Centrally sponsored scheme - Already approved
Objective of the Scheme	The main objectives of the scheme are to improve the productivity and quality of cotton, reducing cost of production by increasing the yield per hectare by the proper transfer of technology to the growers, improving the infrastructure in the market yards for cotton and improving cotton processing facilities by upgrading/ modernising the existing ginning and pressing factories resulting in cotton processing with minimum or no contamination to achieve better value added products like yarn, cloth, garments and made-ups etc.
Details of the scheme	The scheme is being jointly implemented by the Ministry of Agriculture and Ministry of Textiles in the form of four Mini Missions under TMC. While 'Mini Mission for R & D' (MM-I) and the 'Mini Mission for dissemination of technology' (MM-II) come under the purview of Ministry of Agriculture, the 'Mini Mission for improvement in marketing infrastructure' (MM-III) and the 'Mini Mission for modernisation of ginning and pressing factories' (MM-IV) are under the Ministry of Textiles.
Funding pattern under the scheme	The expenditure in Mini Missions I and II will be shared by the Ministry of Agriculture and State Governments on 75:25 basis. Under Mini Mission III, 60 per cent of the cost of improvement will be borne by Ministry of Textiles and balance 40 per cent by the concerned APMC/State Governments. Under Mini Mission IV, 25 per cent cost of the modernisation of the upgradation for ginning factories will be borne by Ministry of Textiles under TMC.
Project Approval Committee	An Empowered Committee under the chairmanship of the Cabinet Secretary monitors and directs the Technology Mission to decide the modifications in the components, areas of operation, etc. as considered essential from time to time.
Budgetary Provision	2002-03 - Rs. 30 crore Tenth Plan - Rs.150 crore.
Status of implementation	Up to June 2002, under MM-III, 89 project proposals (setting up of 16 new market yards, improvement of 58 market yards and activation of 15 market yards) at a total estimated cost of Rs.152.85 crore have been sanctioned. Out of these, the Government of India share would work out to Rs.76.75 crore. Under MM-IV, modernisation of 172 ginning & pressing factories, have been sanctioned at an estimated cost of Rs. 202.53 crore out of which Government of India share would be Rs. 34.04 crore.

5 Assistance to States for Development of Export Infrastructure & Allied Activities

Name of the scheme	Assistance to States for Development of Export Infrastructure & Allied Activities
Concerned Ministry	Department of Commerce, Ministry of Commerce and Industry
Nature of Scheme	New Centrally sponsored schemes - Already approved
Objective of the Scheme	Intends to establish a mechanism for seeking the involvement of the State Governments in export efforts through assistance linked to export performance which will result in growth in the infrastructure necessary for promotion of exports .
Details of the scheme	Projects for development of complementary infrastructure for exports, creation of new export promotion industrial parks and augmentation of facilities in the existing ones, development of minor ports, setting up of common facility centres for trade, equity participation in infrastructure projects including the setting up of SEZs., projects of national/regional importance and activities permitted as per EDF in relation to the North East and Sikkim.
Funding pattern under the scheme	The funds are to be allocated to the State Governments on the basis of laid down criteria.
Project Approval Committee	There shall be a State Level Export Promotion Committee (SLEPC) headed by the Chief Secretary and consisting of the Secretaries of concerned departments at the State level and a representative of the States cell of the Department of Commerce (DoC) and the Joint Director General of Foreign Trade posted in that State/region. SLEPC will scrutinise and approve specific projects and oversee the implementation of the scheme. For outlays under the Central component, there shall be an Empowered Committee in the Department of Commerce, headed by the Commerce Secretary and consisting of representatives from the Planning Commission and the respective ministries to consider and sanction the proposals received as per the prescribed procedure. If any project has any bearing on the external sector, a representative of the Ministry of External Affairs would be invited for the meeting of the Empowered Committee.
Extent of Central assistance	100 per cent
Budgetary provision	2002-03- Rs. 330 crore Tenth Plan- Rs. 1,725 crore
Status of Implementation	Started in 2002-03

6 Market Access Initiative

Name of the scheme	Market Access Initiative
Concerned Ministry	Department of Commerce, Ministry of Commerce and Industries
Nature of the scheme	Central sector scheme - Already approved
Objective of the scheme	To put in place an instrument which is not only WTO compatible but would also mitigate the negative effects of various handicaps faced by the exporters vis-à-vis their counterparts in the competing countries.
Details of the scheme	To identify the priorities of research relevant to trade and commerce and sponsor research studies consistent with the priorities, arranging for wide dissemination and discussions on the result of such studies, trade promotion organisation for market survey/studies, assist exporters and export trade councils in participation in international departmental store promotion programmes, promotion of India, Indian products and Indian brands. State Government efforts in carrying out export potential survey of the State for identified product groups would also be supplemented.
Funding pattern under the scheme	Central assistance ranging from 50 to 80 per cent
Project Approval Committee	Empowered Committed under Secretary (Commerce)
Budgetary provision	Annual Plan 2002-03 Rs. 42 crore Tenth Five Year Plan - Rs. 552 crore
Status of implementation	Initiated in 2001-02

7 Research and Development in Automotive Industry

Name of the scheme	Research and Development in Automotive Industry
Concerned Ministry	Department of Heavy Industry, Ministry of Heavy Industries and Public Enterprises
Nature of the scheme	Central Scheme
Objective of the scheme	To strengthen the testing and certification facilities.
Details of the scheme	<ol style="list-style-type: none"> 1. The proposed scheme envisages partnership with industry. 2. In addition to the upgradation of existing facilities, two new facilities - one in the north and one in the south - are proposed to be set up in the Tenth Plan for meeting the requirements of safety and environmental regulations. 3. Besides, some new testing facilities are required to be set up. These include 'life cycle testing' and 'world class test track' which are not there at present. 4. Increased allocation from the existing automotive cess fund created for R&D of automotive industry would be made available.
Project Approval Committee	SFC / EFC as applicable
Budgetary provision	Annual Plan 2002-03 Rs. 25 crore Tenth Five Year Plan - Rs. 150 crore
Status of implementation	Existing automotive research institution like the Automotive Research Association of India (ARAI) are being supported.

8 Industrial Cluster Development Scheme

Name of the scheme	Industrial Cluster Development Scheme
Concerned ministry	Deptt. of Industrial Policy and Promotion , Ministry of Commerce and Industry
Nature of the scheme	Central sector scheme
Objective of the scheme	<ul style="list-style-type: none"> • The scheme aims to pick the industrial clusters with high growth potential. The main emphasis of the scheme would be on the making strategic interventions to convert static local efficiency into dynamic competitiveness. • The scheme makes it possible to have intervention for each cluster to be need-based and specifically designed.
Details of the scheme	<ol style="list-style-type: none"> 1 The main emphasis of the scheme would be on making strategic interventions to convert static local efficiency into dynamic competitiveness by: <ul style="list-style-type: none"> • creating conducive conditions for the development of inter-firm cooperation; • promote innovation and collective learning by creating a suitable customised infrastructure support and service network; • promoting product design and development through focused support and association with specific R&D Institutions; • assist the units in developing/setting up common facilities like raw material depots, testing facilities, design centres, information hub, etc. • assisting appropriate technology transfer, information sharing and quality improvement. 2 The services offered would also include organisation of fairs and export promotion, client rating, waste management, pollution control, quality certifications, product promotion, product testing, information sharing, training and HRD, product innovation and R&D support.
Funding pattern under the scheme	Share of Central Government will be limited to 75 per cent of the project cost. The remaining 25 per cent have to be financed by other stakeholders of the respective cluster. The release of funds shall be project-specific. The central assistance would be in the form of grant.
Project Approval Committee	An Apex Committee, chaired by Secretary (IP&P) is proposed for scrutinising the proposals received and giving approvals on a project to project basis.
Budgetary provision	Annual Plan 2002-03 Rs. 45 crore Tenth Five Year Plan - Rs. 675 crore
Status of Implementation	Process of approval of competent authority has been initiated

9 Pharmaceutical Research & Development - support Fund

Name of the scheme	Pharmaceutical Research & Development - support Fund
Concerned Ministry	Department of Science and technology
Nature of Scheme	Central Scheme
Objective of the Scheme	Encouraging R&D in the pharmaceutical sector in a manner compatible with the country's needs and with particular focus on diseases endemic or relevant to India by creating an environment conducive to channelising a higher level of investment into R&D in pharmaceuticals in India.
Details of the Scheme	<p>In order to strengthen the pharmaceutical industry's research and development capabilities and to identify the support required by Indian pharmaceutical companies to undertake domestic R&D, a Committee was set up in 1999 by the Department of Chemicals and Petrochemicals (DCPC) by the name of Pharmaceutical Research and Development Committee (PRDC) under the Chairmanship of Director General, CSIR.</p> <p>The PRDC had recommended inter-alia ,the setting up of a Drug and Pharmaceutical Research and Development Support Fund (PRDSF).</p> <p>M/o Finance had agreed to allocate Rs.150 crore as a Plan Fund for creation of R&D fund.</p>
Funding pattern under the Scheme	Corpus fund -Rs 150 crore - to be allocated
Budgetary provision	Corpus fund -Rs 150 crore - (one time) to be allocated

10 Agri Export Zones (AEZ)

Name of the scheme	Agri Export Zones
Concerned ministry	Ministry of Commerce
Nature of the scheme	The scheme was announced in Export import Policy 2002-07
Objective of the scheme	To promote agricultural export from the country and remunerative returns to the farming community in a sustained manner. AEZs are being set up for end-to-end development for export of specific products from a geographically contiguous area.
Details of the scheme	<ol style="list-style-type: none"> 1. AEZs are identified by the State Government, who evolve a comprehensive package of services provided by all State Government agencies, State agriculture universities and all institutions and agencies of the Union Government for intensive delivery in these zones. 2. Such services which are managed and coordinated by State Government include a provision of pre/post harvest treatment and operations, plant protection, processing, packaging, storage and related R&D etc. 3. The Agricultural Products Export Development Authority (APEDA) will supplement, within its schemes and provisions, efforts of State Governments for facilitating such exports.
Funding pattern under the scheme / Extent of assistance	Central scheme - Financial support to APEDA Units in AEZ would be entitled for all the facilities available for exports of goods in terms of provisions of the respective schemes.

11 Leather Industry Development Programme

Name of the scheme	Leather Industry Development Programme
Concerned ministry	Department of Industrial Policy and Promotion
Nature of the scheme	Central sector scheme
Objective of the scheme	Modernisation of all sub-segments of leather industry, attract FDI , environmental mission and manpower development and development of leather clusters.
Funding pattern under the scheme / Extent of assistance	100 per cent Central sector scheme

Performance of the VSI Sector Production, Employment and Exports

S. No.	Sub-Sector (Scheme)	Unit	Ninth Plan Actual Achievement					Tenth Plan Target	
			1997-98	1998-99	1999-00	2000-01	2001-02 (Anti.)	2002-03	2006-07 Terminal Year
(A) Production									
1	Small Scale Industries.	Rs. crore	462641	520650	572887	609024	690522	624363	1401939
2	Coir Fibre	000 Tonnes	296	334	356	364	375	390	435
3	Handloom Cloth	Mill. Sq m	7603	6792	7352	7506	7579	7875	10000
4	Powerloom Cloth	Mill. Sq m	20951	20690	23187	23803	25273	24360	132821
5	Raw Silk	M. Tonnes	15236	15544	15214	15857	18395	21900	26450
6	Handicrafts	Rs. Crore	10411	12175	13916	16340	18677	22765	47204
7	Raw Wool	Mill kg.	44.74	45.50	46.50	47.00	47.50	47.50	49.00
(B) Employment									
1	Small Scale Industries	Million persons	16.7	17.2	17.9	18.6	19.3	20.1	23.7
2	Coir Industries	Million persons	0.43	0.46	0.48	0.53	0.54	0.56	0.65
3	Handlooms	Million persons	12.4	12.4	12.4	12.4	12.4	12.0	12.0
4	Powerlooms	Million persons	3.8	4.0	4.1	4.2	4.2	4.25	4.5
5	Sericulture	Million persons	6.057	6.141	6.364	5.400	5.573	5.825	6.003
6	Handicrafts	Million persons	5.292	5.424	5.560	5.700	5.841	6.010	6.770
7	Wool Develop. (unorganised sector)	Million persons	0.3	0.5	0.5	0.5	0.5	0.5	0.7
(C) Exports									
1	Small Scale Industries	Rs. Crore	44437	49481	53975	59978	65000	73600	126000
2	Coir Industries	Rs. Crore	239	292	303	314	325	450	700
3	Handlooms	Rs. Crore	1855	2008	1892	2127	2200	2950	4500
4	Powerlooms	Rs. Crore	8418	8915	9915	10200	11000	NA	NA
5	Silk	Rs. Crore	1060	1251	1756	2480	2530	2650	4050
6	Handicrafts	Rs. Crore	6458	7072	8060	9271	10610	12732	17000

Physical Performance of the Food Processing Industries (FPI) Sector production and Exports

S. No.	Sub-Sector (Scheme)	Unit	Ninth Plan Actual Achievement					Tenth Plan Target	
			1997-98	1998-99	1999-00	2000-01	2001-02 (Anti.)	2002-03	2006-07 Terminal Year
Production									
1	Fruit & Vegetable Products	Lakh tonne	9.10	9.40	9.80	9.90	10.50	11.00	14.00
2	Milk Products	Lakh tonne	720	750	780	801	849	890	1100
3	Soft Drinks	Mill. Bottles	4920	5670	230	6450	6600	6800	7500
4	Fish Products	Mill. Tonne	5.39	5.26	5.65	5.95	6.29	6.50	7.00
5	Meat & Meat Products	000' Tonne	3600	3809	3875	3950	4200	4350	4900
6	Eggs	Mill Nos.	30000	31000	32000	32500	33000	33445	35500
7	Broiler	Mill. Nos.	450	500	550	600	700	750	950
Exports									
1	Fruit & Vegetable	Rs. crore	762	706	994	1346	1265	1340	2050
2	Animal Products	Rs. crore	908.30	851.70	905.00	1637.10	1440.00	1600	2300
3	Rice (both Basmati & non-Basmati)	Rs. crore	3370.00	6279.40	3125.80	2943.30	3500.00	3850	5500
4	Marine Products	Rs. crore	4697.00	4626.80	5116.60	6443.80	5800.00	6000	8350
5	Walnuts	Rs. crore	56.40	68.90	60.50	109.90	85.00	90	135

Annexure 7.1.5

Plan Outlay/Expenditure of VSI and EPI Sector (Sub-Sector/Scheme-Wise)

(Rs. crore)

S. Sub-Sector No (Scheme)	Ninth Plan Actual Expenditure					Ninth Plan (Expdr)	Tenth Plan	
	1997-98	1998-99	1999-00	2000-01	2001-02 (anti.)		2002-03	2002-07 Terminal Year
I M/o SSI								
1 SIDO	132.53	203.29	251.41	279.55	407.00	1273.78	313.00	1975.00
2 NSIC (Budgetary Support)	132.17 (28.50)	148.00 (27.30)	161.90 (27.12)	149.35 (34.21)	111.33 (25.42)	702.75 (142.55)	117.00 (32.00)	564.00 (180.00)
3 Other Schemes	0.76	1.14	1.84	0.69	0.58	5.01	5.00	45.00
Total: SSI (IEBR)	265.46 (103.67)	352.43 (120.70)	415.15 (134.78)	429.59 (115.14)	518.91 (85.91)	1981.54 (560.20)	435.00 (85.00)	2584.00 (384.00)
II M/o A&RI								
1 Coir Industry	12.48	8.88	12.50	13.84	11.60	59.30	18.00	115.00
2 PMRY	94.83	135.46	189.46	200.98	193.50	814.23	169.00	750.00
Total: A&RI	107.21	143.34	201.96	214.82	205.10	873.53	188.00	865.00
III M/o Textiles (VSI)								
1 Handlooms	97.00	81.50	80.92	101.45	111.11	471.98	140.00	625.00
2 Powerlooms	2.89	3.63	9.32	6.87	6.00	28.71	12.00	60.00
3 Handicraft	45.97	49.20	52.81	66.66	87.00	301.64	88.00	425.00
4 Sericulture	49.48	63.49	67.00	78.19	116.08	374.24	87.50	450.00
5 Wool & Woolen Dev.	5.09	4.52	5.06	3.76	8.00	26.43	8.00	40.00
Total Textiles (VSI)	200.43	202.34	215.11	256.93	328.19	1203.00	415.50	1600.00
IV M/o FPI								
1 Food Processing Industries	22.87	30.00	37.79	50.00	55.00	195.66	75.00	650.00

CHAPTER 7.2

MINERALS

7.2.1 The development and management of mineral resources plays a major role in the industrial growth of a nation and its people at large. India's per capita mineral consumption is one of the lowest in the world. The growth in cement and energy sector has been faster than growth in the metallic sector. Minor minerals, particularly dimensional and decorative stones, have emerged as a major contributor to mineral output and exports.

7.2.2 Realising the need for a faster pace of industrialisation, the country had pursued an integrated approach to mineral development, attempting to augment the mineral base by establishing giant exploration and exploiting agencies. This resulted in increasing indigenous mineral production from Rs. 58 crore in 1947 to Rs. 30,000 crore during 2000-01 (excluding crude petroleum and natural gas production of Rs. 25,360 crore). Presently the country is comfortably placed in the field of bauxite, iron ore, limestone, dimensional and decorative stones and non-coking coal and a major breakthrough is required for augmenting the reserves of diamond, platinum, base metals, fertiliser and industrial minerals.

7.2.3 In keeping with the spirit of economic liberalisation, the Government has taken a series of initiatives under the overall framework of the National Mineral Policy, 1993 for the growth of the mineral sector. It amended the Mines and Minerals (Regulation and Development) Act, 1957 in 1994 and 1999 and renamed it as the Mines and Minerals (Development and Regulation) Act (MMDR Act). The amendments were aimed at attracting private investment including foreign direct investment (FDI) into the sector.

7.2.4 A review of the mineral exploration and development work indicates that most of the accessible and near-surface deposits are either exhausted or under production. A major portion of the copper, lead and zinc reserves are in the 'possible' category and have not been explored to the level of 'proven' reserves. Besides, the life index of base metals as indicated in Table-1 for copper, lead and zinc is estimated to be ten years, five years and 15 years respectively beyond 1 April 2007. The self-sufficiency acquired in minerals does not fully cater to the future industrial needs of the nation and India is still a net importer of minerals. Only a few significant discoveries have been reported in the Ninth Plan period.

Table. 7.2.1
Life Indices for selected base metals

Ore/Metal	Recoverable Reserves (mt)		Anticipated demand at the end of the Tenth Plan(9%)	Life index (Proved + probable) beyond 1.4.2007
	Proved & Probable / Demonstrated	Possible		
Lead Zinc	Ore	97.58	59.70	
	Metal	Lead 1.19	0.72	0.178
		Zinc 6.33	2.73	0.415
Copper	Ore	328.595	205.24	0.32 mt
Aluminium	(Bauxite)	1218	1307	8.00

Source : Report of the Working Group on Mineral Exploration & Development (other than Coal & Lignite) for the Xth Five Year Plan - Vol. II, Planning Commission.

7.2.5 To enhance the indigenous mineral resources, intensive exploration is required. An enabling environment must be created to attract new investments through private sector participation with modern technical and managerial expertise for finding new deposits and develop them sustainably in the Tenth Plan.

INITIATIVES TAKEN IN THE NINTH PLAN

7.2.6 The policy objective of the Ninth Plan for the mining sector (non-fuel) was to make minerals available to the consumers at internationally competitive prices with the domestic mining industry competing with imports. No protection barring what was permitted within the World Trade Organisation (WTO) regime was available. The major thrust in the mining sector was to accelerate the growth rate along with conservation and protection of the environment through inflow of foreign technology and capital. The objective, by and large, has been achieved.

7.2.7 The London Metal Exchange prices of non-ferrous metals fluctuated widely during the Ninth Plan period. Copper, in particular, was the worst affected and its prices have remained depressed, adversely affecting the performance of the public sector Hindustan Copper Limited (HCL). Companies in the aluminium and zinc metals business have, however, been able to absorb the price shocks.

7.2.8 The Foreign Investment Promotion Board (FIPB) cleared about 90 FDI proposals in the mining sector and the expected FDI flow is Rs. 3,963 crore as of February 2002. During 2000-01 alone, the FIPB approved seven proposals involving FDI worth Rs. 230 crore.

7.2.9 Under the indigenous research and development (R&D) programme, emphasis was laid on promoting R&D efforts in hydrometallurgical and bio-leaching processes for the extraction of low-grade ores.

7.2.10 The non-ferrous metals and mining sector have been opened up to the private sector. As such, no physical targets were set for the Ninth Plan. However, indicative physical targets were set for the terminal year of the Plan (2001-02). Annexure-

7.2.5 indicates the output of iron ore and non-ferrous metals during 2000-01 as well as likely production in 2001-02 as against the Ninth Plan indicative targets. It can be seen that the production of iron ore, copper and lead are likely to fall short of the indicative targets set for the Ninth Plan (i.e. the terminal year of the Plan). The reasons have been discussed under sub-sectoral profile.

7.2.11 The major initiatives taken in the Ninth

Box 7.2.1

Major Initiatives in the Ninth Plan

The Mines and Minerals (Regulation and Development) Act 1957 was amended and has been renamed as Mines and Minerals (Development and Regulation) Act. More powers have been delegated to the State Governments.

A new clause relating to reconnaissance permit has been added in the Act as a stage distinct from and prior to actual prospecting operations in order to make investment in the state-of-the-art technologies in mineral exploration more attractive.

Consequential amendments have also been made to the Mineral Concession Rules, 1960 (MCR) and Mineral Conservation and Development Rules, 1988 (MCDR). The power of approving mining plans for 29 non-metallic and industrial minerals in respect of open cast mines has been given to the State Governments.

A time frame has been set for State Governments for the disposal of mineral concession applications and for approval of mining plans.

State Governments have been delegated powers to grant mineral concession even for areas which are not compact or contiguous.

State Governments have been empowered to permit the amalgamation of two or more adjoining mining leases.

No separate application for prospecting and mining is now necessary.

The mining sector has been exempted from obtaining a no objection certificate (NOC) from the existing joint venture partners for new ventures, provided it is not for an existing area/mineral.

Guidelines have been issued for computation of royalty on ad valorem basis.

Revised rates of royalty for major minerals (other than coal, lignite and sand for stowing) have brought 21 rates on ad valorem basis covering 39 specified minerals, which is similar to practice followed in competing countries.

The Government has allowed foreign equity participation up to 100 per cent through the automatic route in the case of exploration and mining of all minerals, except diamonds and precious stones where only 74 per cent FDI is permissible via this route.

The Department of Mines has constituted the Granite Development Council for the development of an internationally competitive granite industry. A Group on Marble Development has also been constituted to look into the various problems related to the marble industry and suggest appropriate measures.

The Government disinvested 51 per cent of its equity in Bharat Aluminium Company (Balco) to a strategic partner i.e. Sterlite Industries Ltd.

It also approved disinvestment of HCL and the strategic sale of 26 per cent of its equity in Hindustan Zinc Limited (HZL), .

The Government decided to wind up the sick Bharat Gold Mines Ltd.

After liberalisation, the private sector's share in indigenous copper output has increased to 76 per cent, ending HCL's dominance in the field.

A Fast Track Committee comprising representatives of the State Governments, Central Government and concerned agencies has been set up for monitoring the progress on implementation of major projects.

A major breakthrough has been made in the extraction of nickel and cobalt from the chromite over-burden by developing technology and its techno-economic feasibility is under evaluation.

The Ministry of Environment and Forests has issued the Battery (Management and Handling) Rules, 2001 in order to organise and streamline the collection and recycling of scrap lead batteries in an eco-friendly manner. Many overseas countries have framed similar rules/legislations, thus ensuring a clean environment.

The Ministry of Environment and Forests has set up a Registration Committee through which eco-friendly recycling of lead, zinc, etc. is encouraged by identifying such units. This will also pave the way for the creation of new capacities/units for processing wastes containing lead, zinc, etc. in an environment friendly manner.

The Geological Survey of India (GSI) has published a Seismotectonic Atlas of India that will help researchers and planners in various down stream analysis for monitoring earthquakes.

A Broad Band Observatory has also been set up in Jabalpur and work is in progress for installation of more instruments in other parts of the country.

The exploration and commercial exploitation of Beach Sands (Atomic Minerals), which were hitherto reserved for the public sector, have been opened to the private sector for subject, however, to some guidelines under the Atomic Minerals Act.

Plan are highlighted in Box 7.2.1

THE SUB SECTOR PROFILE

Iron Ore

7.2.12 As against an anticipated production of 100 million tonnes (mt), production of iron ore during 2001-02 is expected to be 79 mt. This shortfall is attributed to the slowdown in the economy during the Plan period. The indicative export target of 32 mt set for 2001-02 is, however, likely to be exceeded by 8 mt primarily because of demand from China,

South Korea, etc.

7.2.13 The Government had approved development of the Bailadilla 10/11A iron ore projects of the National Mineral Development Corporation (NMDC) at an estimated cost of Rs. 430.50 crore in August 1995. The project was to be completed by August 1999. The implementation of the project got delayed because of some technical reasons. Besides, the NMDC board, under powers delegated to it, had approved the setting up of a Tertiary Crushing Plant at Bailadilla deposit-14/11C at an estimated cost of Rs. 11.47 crore. The project is nearing completion.

Non-ferrous Metals

Aluminium

7.2.14 As against the anticipated annual growth rate of 8 per cent in aluminium demand during the Ninth Plan period, the actual apparent consumption of the metal grew at an average annual growth rate of around 4.5 per cent. This was primarily due to the economic slowdown, especially in the major aluminium consuming sectors such as power (transmission), construction, transport and packaging, etc.

7.2.15 Primary aluminium output during 2001-02 is likely to fall short as Indian Aluminium Company's (Indal's) Belgaum Smelter is not likely to be re-energised and nor is the marginal expansion of its Hirakud Smelter likely to materialise, as was anticipated (Annexure 7.2.5).

7.2.16 No greenfield investment was anticipated in the aluminium sector, either in the private sector or in the public sector, during the Ninth Plan period. However, an additional 42,000 tonnes was added to the primary aluminium capacity – 30,000 tonnes by the private sector Hindustan Aluminium Company (Hindalco) and 12,000 tonnes by the public sector National Aluminium Company (NALCO) with the expansion of their smelters.

7.2.17 NALCO's de-bottlenecking project of its alumina refinery and expansion projects of bauxite mines from 2.4 million tonnes per annum (tpa) to 4.8 million tpa and alumina refinery from 0.8 million tpa to 1.575 million tpa have been completed. The

expansion of the aluminium smelter capacity from 230,000 to 345,000 million tpa, additions of the seventh and eighth units of 120 MW capacity each to the captive power plant are likely to be completed early in the Tenth Plan period.

7.2.18 The investment in the three large private sector export-oriented alumina refineries in Orissa was deferred due to commercial reasons.

7.2.19 A major development in the primary aluminium market was the taking over of Indal by Hindalco from Canadian firm, Alcan.

Copper

7.2.20 The demand for copper was anticipated to grow at 8 per cent annually during the Ninth Plan period. As against this, the annual growth in copper consumption during the Plan period was a little over 8 per cent. This was due to the spurt in demand for the metal from sectors such as telecommunication, consumer durables, handicrafts, etc., which more than offset the decline in demand for the metal from sectors such as the process industry, transport, construction, defence, mints, etc.

7.2.21 The indigenous primary copper smelting capacity during the terminal year of the Ninth Plan is likely to be around 3,47,500 tpa as against the Ninth Plan anticipated target of 5,00,000 tpa. This is because anticipated additions to the indigenous copper smelting capacity to the tune of 1,52,500 tpa — 52,500 tpa from the expansion of HCL's Khetri smelter and 1,00,000 tpa from a new smelter of Metdist Ltd. — not materialising on commercial considerations. The copper output during 2001-02 is, however, expected to be higher than the indicative Plan target by 60,000 tonnes mainly due to higher production by the private sector smelters (Annexure 7.2.5).

Zinc and Lead

7.2.22 The anticipated annual growth of 6 per cent in the demand for zinc during the Ninth Plan may be exceeded due to a steady growth of the zinc consuming sectors such as the galvanising industry (consuming around 70 per cent of zinc annually),

die-casting, dry-cell batteries, chemicals, etc.

7.2.23 The demand for lead was anticipated to grow at 7 per cent during the Ninth Plan period. This is likely to be realised due to the steady growth of the lead consuming sectors like automobiles, inverters, uninterrupted power supply (UPS) system, etc.

7.2.24 Zinc output during 2001-02 is expected to be higher than the indicative Plan target due to additional capacity coming on stream and efficiency gains. However, lead production will be lower due to the ban imposed on importing lead scrap in the form of whole-drained batteries or battery plate scrap, lead residues or lead dross under the Basel Convention. This resulted in the secondary lead output of the private sector India Lead Ltd. declining to about 50 per cent of its annual capacity apart from the additions to its lead capacity not materialising on commercial considerations. Lead production was also lower because of the closure of the Vizag lead refinery plant by HZL primarily due to environmental reasons (Annexure 7.2.5).

7.2.25 No new greenfield zinc smelter was anticipated to be set up in the public sector or in the private sector during the Ninth Plan period. HZL had planned to expand the capacity of its Vizag and Debari smelters in Andhra Pradesh and Rajasthan respectively by 10,000 tpa during the Ninth Plan period. These projects have since been completed.

7.2.26 For most of the last four years of the Ninth Plan, the secondary zinc producers were not in operation because they were not able to import raw materials such as zinc ash, dross and skimmings, etc., because of the ban imposed by the Government under the Basel Convention. The Planning Commission also considered the matter. After lengthy deliberations, the secondary zinc producers were permitted to import these raw materials under the 'Actual Users Licence', allowing them to resume production.

Externally Aided Projects

7.2.27 The GSI has completed the 'Technical Assistance project for Detailed Exploration of Platinum Group of metals in Orissa'.

7.2.28 The Indian Bureau of Mines (IBM) has

completed two projects with the assistance provided by BRGM, France. The two projects were related to environment management of mines and waste recovery at an estimated cost of 16 million French Francs and technical management information system at an estimated cost of 23.4 million French Francs.

7.2.29 The Mineral Exploration Corporation of India Ltd. (MECL) is implementing a project involving around 1.5 million French Francs on the development of cost models included in the United Nations Framework for economic evaluation of mining projects.

Plan Outlay and Expenditure

7.2.30 An outlay of Rs. 7,753.96 crore was approved for the Ninth Plan for the Department of Mines to be financed with budgetary support of Rs. 844.96 crore and internal and extra budgetary resources (IEBR) of Rs. 6,909 crore. As against this, anticipated expenditure during the Ninth Plan period is placed at Rs. 4,907.24 crore, which has been financed through budgetary support of Rs. 866.42 crore. Lower anticipated expenditure during the Plan period has been due to delay in taking up investments such as cold rolling mill project of Balco, de-bottlenecking of HCL, dropping of HCL's expansion programme etc. (Annexures 7.2.1 and 7.2.2).

TENTH PLAN OBJECTIVES

7.2.31 One of the major objectives of the Tenth Plan will be the search for minerals in off-shore areas such as the continental shelf and the maritime zone within the territorial water limits along the Indian Peninsula and the islands of the Indian Ocean. The work will also involve delineation of the area, which is likely to extend by more than one million sq. km. The Government is actively considering enactment of suitable legislation for offshore mineral investigations which will ultimately lead to the extraction of minerals from the seabed. The GSI will have to play a major role in this programme.

7.2.32 In the matter of basic exploration, thrust will have to be given on building up of a reserve-

base of those minerals in which reserves are presently low such as base metals, nickel, tin, graphite, noble metals, precious stones, rock phosphate, etc. This will also be done for minerals the present resource-base of which is negligible and India is totally dependent on imports, such as antimony, molybdenum, the platinum group of minerals, tin, tungsten, potash, native sulphur, etc. It is quite likely that the private sector will not invest in the exploration of these minerals because of risk involved, apart from the fact that the private sector is yet to make a mark in the Indian exploration market. The State (both the Central and State Governments), therefore, will have to continue performing a promotional role for the exploration of these minerals.

7.2.33 The GSI will have to be restructured and modernised, including in the areas of instrumentation for both ground and aerial geophysical surveys, state-of-the-art laboratory instrumentation with high precision capabilities, etc. Also, a new research vessel will have to be acquired for carrying out bathymetric and magnetic surveys in off-shore areas for staking claim on the extended continental shelf zone up to 350 nautical miles under III Convention – United Nations Conference on the Laws of the Sea (UNCLOS).

7.2.34 Beneficiation projects will have to be undertaken for upgradation of low-grade minerals. For this, self-sustaining institutions as well as private sector organisations will have to work together and the Government will facilitate the creation of this network.

7.2.35 It will be necessary to adopt U.N. Framework Classification (UNFC) of mineral resources at the earliest and to bring the national mineral inventory in line with this classification. This will present reserves/resources of minerals on an internationally uniform system and will help in attracting more FDI into the mining sector.

7.2.36 Despite the progress made during the Ninth Plan period, particularly in the expansion of the private sector as well as in attracting FDI to the mining sector, there are some areas of concern having policy implications. These have been

highlighted in Box 7.2.2.

Box 7.2.2 Major Areas of Concern

Indian spending on exploration, on an average, has been around less than 1 per cent of the global spending despite India being among the few mineral rich countries in the world.

The time taken in the disposal of various applications, including those for mineral concessions, transfer of surface rights and environment clearances, have been perceived to be unduly long.

Presently, one cannot mine a deposit which lies in a declared forest area. There are many excellent mineral deposits available in such forest areas. A way out must be found for commercially exploiting such deposits for the benefit of the economy even while maintaining the requisite forest cover and eco-balance.

The taxation regime pertaining to the mineral sector is not perceived as being on par with that in competing countries. This is considered one of the reasons affecting private sector investment, including FDI, in the mining sector.

Inadequacy and high cost of infrastructure continues to be a big constraint on the growth of the mineral sector, including exports.

Various State Governments have laid down conditions and demands such as requesting mining companies to put up their processing plants within the respective States. Such conditionalities are contrary to the present policy dispensation.

The practice of State Governments reserving large mining areas for exploitation by the public sector is also inconsistent with the present policy framework.

Qualitative and quantitative restrictions imposed by the Government on the export of high-grade iron ore particularly from Bailadilla in Chhattisgarh) and Bellary-Hospet in Karnataka (both lumps and fines), manganese and chrome

ores, go against the present policy regime.

Also inconsistent is the canalisation of the export of high-grade iron ore from Bailadilla and Bellary-Hospet areas and chromite and manganese ores through the Minerals and Metals Trading Corporation (MMTC).

The present multiplicity of legislation — such as laws related to forests, environment, mining and labour – with a bearing on mining operations are not considered conducive to the speedier growth of private sector investment in the sector.

There is a need for restructuring and modernisation of the GSI as well as strengthening its research capabilities, particularly in offshore areas for which procurement of a new research vessel is also necessary.

7.2.37 India continues to import metals such as magnesium, vanadium, molybdenum, antimony, tin, tungsten, nickel, cobalt, etc. It is also not a major player in the world market in minerals such as iron ore, bauxite (i.e. alumina).

7.2.38 The known copper resources are characterised by low volume, narrow width, low grade and poor precious metal content. With the exception of the Malanjkhand deposit in Madhya Pradesh, no deposit is amenable to low-cost surface mining and high degree of modernisation.

7.2.39 Except for thermal coal, iron ore, cement-grade limestone, barites, mica and metallurgical grade bauxite in which the inventory is good, fertiliser minerals, base-metals, refractory minerals (including refractory grade bauxite), strategic minerals, noble metals, rare metals, etc., fall under the deficit category. India has large deposits of lean-grade ores such as in base metals, fertiliser minerals, etc., which can be explored and exploited with appropriate technologies.

7.2.40 One of the major factors for low FDI inflows during the Ninth Plan has been that the investment was limited to exploration only – in which initial investment is low. Procedural delays at the level of State Governments was the other major factor. State Governments, by and large, do not have a

regulatory mechanism in position to ensure timely disposal of cases, which is essential for the rapid growth of private sector investment. This constraint will have to be removed.

7.2.41 While addressing these areas of concern, the Tenth Plan objective of faster development of an internationally competitive mining sector must revolve around cost-effective mineral exploration and development with the state-of-the-art exploration technologies through promoting private investment in both mineral exploration and creating new mining capacities. The major thrust will have to be on accelerating growth along with conservation and the protection of environment, for which both foreign capital and technology will have to be encouraged.

TENTH PLAN STRATEGY

7.2.42 The GSI and the State Directorates of Geology and Mining will have to continue working for the assessment and augmentation of mineral resources, particularly for the generation of basic geological data, understanding the process of ore genesis, regional surveys, specialised and focused geological studies, etc. including search for minerals in the off-shore areas, continental shelf and maritime zone. At the same time, private sector investment, including FDI, will have to be encouraged for detailed exploration.

7.2.43 With the advancement in the frontiers of science, there is an emerging demand for hi-tech minerals, which will have to be met. This will call for earth scientists anticipating demand and exploring and extracting these minerals with cost-effective and environment-friendly extraction technologies. Agencies of both of the Central and State Governments will have to play an important promotional role in the exploration of these minerals.

7.2.44 The mineral surveys and exploration programmes to be carried out by the Central and State agencies will also have to be targeted to take up concept-oriented studies integrating geological, geo-physical (both air-borne and ground) and geo-chemical surveys appropriately linked up with laboratory studies/analysis involving state-of-the-art technologies. Deeper probing of known deposits,

intensive and extensive belt-wise mineral exploration including covering areas out of the traditional mineral belts and even basement rocks will also have to be undertaken.

7.2.45 Concerted action plans need to be drawn up by the concerned organisations to acquire higher capability in all fields of mineral exploration and development. This will call for technology upgradation for field data acquisition, state-of-the-art laboratory back up and development of expertise. Focus areas will include air-borne surveys, ground geo-physical surveys, exploratory drilling, marine survey, shifting to digital equipments for surveys, etc.

7.2.46 There have been rapid advances in information technology (IT) and IT can be used for cutting costs in mineral exploration and in making advances to the exploration technology. Intensive applications of IT and computers in mineral exploration, particularly by the State agencies will have to be given due attention in the Tenth Plan. This will, inter alia, include customised information packages and databases, conversion of all available data from print media to digital format, extensive utilisation of geo-spatial technologies, etc.

7.2.47 In view of the fast changes that have taken place in the frontiers of exploration technology and the emerging competition in the mineral markets, it has become necessary to maintain dynamism in the development of skills through appropriate programmes for human resource development. Accordingly, scientific and technical professionals must be exposed to emerging developments in various domains of mineral exploration and exploitation. The training would have to cover what is available within the country as well as abroad.

7.2.48 Collaborative programmes for upgradation of expertise such as geo-chemical exploration with China, mineral exploration techniques for identifying concealed deposits with Australia, off-shore diamond exploration with South Africa and technological upgradation with BRGM, France is contemplated.

7.2.49 Realising the need for a quantum jump in

R&D efforts, particularly in the case of scarce and high priority materials, emphasis must be laid on creating an effective and efficient industry–laboratory–academia linkage under the R&D programmes.

7.2.50 The growth of the mineral sector could also be fuelled with increasing exports particularly of iron ore, chromite, barites, granite, marble, decorative stones, bentonite, mica, titanium minerals in which India is well placed in terms of reserves. An important reason why India has not been able to become a major player in the export of these minerals has been lack of competitiveness. Thrust, therefore, will have to be given for increasing exports of these minerals through internationally competitive capacity expansion, mostly in the private sector.

7.2.51 A special thrust will have to be given to the mineral exploration and development in the northeastern region, given the potential of minerals and the need to tap this potential for faster economic development of the region. While the States of the region will have to play a major role in this, the Central Government will facilitate it with specific intervention.

THE SUB-SECTOR PROFILE

Iron Ore

7.2.52 It is likely that the production of iron ore during the terminal year of the Tenth Plan (2006-07) will touch 110 mt. Around 40 mt is likely to be exported annually during the Plan period.

7.2.53 Hitherto, export of high-grade iron ore has been canalised through the Minerals and Metals Trading Corporation Ltd. (MMTC) apart from quantitative restrictions being imposed by the Government to ensure that only the surplus quantity is exported after indigenous demand is met. This policy is perceived to be inconsistent with the present policy dispensation. It is likely that there will be a shift in the policy relating to canalisation as well as quantitative restrictions for high-grade iron ore. In case the high-grade iron ore export is to be discouraged, it can best be done through tariff

mechanism.

Non-Ferrous Metals

7.2.54 With gross domestic product (GDP) targetted to grow at 8 per cent, the aluminium and copper sectors are both anticipated to grow at 8 per cent, zinc at 6.5 per cent and lead at 6 per cent during the Tenth Plan period.

7.2.55 The demand is expected to be met with additions to the present indigenous smelting capacity by way of brown-field expansion. The expansion will be entirely in the private sector, since Nalco, the only public sector company left in the aluminium sector at the beginning of the Tenth Plan, is likely to be disinvested early in the Plan period. It is quite likely that the indigenous aluminium smelting capacity will increase from 7,14,000 tonnes to one million tonnes by the end of the Tenth Plan, all in the private sector. No new greenfield smelter is likely to come up in the Tenth Plan period.

7.2.56 The export-oriented alumina refineries, which were planned to be taken up in the Ninth Plan by the private sector but were dropped due to commercial considerations, are likely to be taken up for implementation.

7.2.57 Recycling of aluminium is gaining momentum the world over for its low cost of energy. Secondary aluminium production in India continues to be in the unorganised sector and is to the tune of around 50,000 tpa. It is expected that the industry will become organised and production will increase to meet around 30 per cent of the demand by the end of Tenth Plan period.

7.2.58 In the aluminium downstream sector, particularly semis, sheets, extrusions, rolled products, foils and castings, expansion of output is required for meeting the growing domestic demand. Thrust is required to be given to improving productivity and quality with appropriate R&D inputs. The private sector as well as the Jawahar Lal Aluminium Research and Development Centre at Nagpur will have to jointly play a major role in this regard.

Copper

7.2.59 Primary copper production is expected to

increase to around 500,000 tonnes from the present level of around 300,000 tonnes. The additions to the copper production capacity will be with imported concentrates in the private sector since HCL – the only copper producer in the public sector – is likely to be disinvested. The demand is expected to touch a level of around 460,000 tonnes during the terminal year of the Plan.

Lead and Zinc

7.2.60 The production capacity of zinc is likely to increase during the Tenth Plan with both HZL and private sector Binani Zinc Ltd expanding their capacities, which also will include a new smelter to be set up by HZL in Rajasthan.

7.2.61 Additions to lead capacity are likely to be through the secondary route since the country has very poor primary lead resources and no viable lead deposit is expected to come up for commercial exploitation.

7.2.62 Even after the likely expansion in the production capacities of zinc and lead, both in the primary and secondary sectors, there will be a supply gap in both the metals which will be bridged with imports.

7.2.63 In the case of all non-ferrous metals, the consumers, however, will decide whether to buy indigenously produced or imported metals and this will depend on the international competitiveness of the indigenous output. The indigenous output will be decided by the market forces. Hence, no output targets are suggested.

Externally Aided Projects

7.2.64 GSI, IBM and MECL are likely to get assistance from BRGM, France for on-going and new projects in the Tenth Plan.

Research and Development

7.2.65 The focus of R&D in the mineral sector will have to be on developing beneficiation as well as bio-leaching technologies for commercial exploitation of low-grade ores such as copper,

fertiliser minerals, etc. and on improving upon mining technologies for enhancing productivity in order to stay internationally competitive. Presently, R&D spending in the mining sector is very low when compared with competing countries. The mining companies, therefore, will have to increase R&D spending. The Government (both Central and the States) will have to facilitate investment in R&D through appropriate support to its institutions.

7.2.66 It will be necessary that an effective and efficient industry-institutional-government linkage is created for better synergy in R&D efforts in the mining sector. Getting this linkage in position will have to be facilitated by the Government. FDI is also likely to help in a great measure in improving upon technologies both in exploration and mining.

Environment and Natural Hazards

7.2.67 Sustainable development has become a global agenda. Like other development-related activities, mineral exploration and exploitation also adversely affect the environment. For sustainable development, the key issue is managing natural resources including minerals optimally without disturbing the ecological balance and containing natural hazards.

7.2.68 The role of earth scientists has, therefore, become important, especially since environment problems cannot be resolved in isolation through engineering solutions only or even through legal and administrative actions. In the domain of environment and earth system studies, one of the goals will have to be continued updating of the geo-scientific database.

7.2.69 Notifying new national parks or extending the existing ones has created problems for some of the existing mines such as of Kudremukh Iron Ore Company Ltd. in Karnataka. Since many mineral deposits which are considered commercially exploitable are located in and around these parks, it has become necessary to consider this issue in the larger interest of the economy. Any mining zone around national parks/zoos/sanctuaries will have to be decided after due consideration to the technologies likely to be used for extraction of

minerals.

7.2.70 To ensure better coordination between the Ministry of Environment and the Department of Mines, as well as the State Departments of Mining and Geology, the National Forest Advisory Committee and the Regional Advisory Committees will have to be strengthened with representatives from the IBM and the State Departments of Mining and Geology.

7.2.71 Further, a suitable strengthening of the State Pollution Control Boards is considered necessary for effective public hearing and evaluation of environment management plan (EMP)/environment impact assessment (EIA). Regional environmental studies will also have to be undertaken for small clusters of mines for facilitating the preparation of EMP/EIA.

7.2.72 Mitigation of natural hazards, including landslides, is one area where geo-scientists can play an effective role. For this, gathering of base-line geological data and related information, its critical analysis and monitoring will be the key to understanding the basic physical processes which cause the phenomenon, its area of influence and the magnitude of impact. The GSI and other agencies involved in basic geo-scientific work will have a major role to play in the area of managing natural hazards.

Strengthening of Institutional Mechanism

7.2.73 One of the major reasons for low private, especially foreign, investment in the mining sector has been procedural delays at the state level, and the lack of regulatory mechanisms for ensuring timely disposal of cases. Many State Governments are not perceived to be geared up sufficiently to take up this responsibility. Central Government institutions such as GSI and IBM have also been slow to change in order to meet the challenges posed by the new liberalised economic environment. There is, therefore, a need to restructure, modernise and strengthen these institutions. The State Directorates of Geology and Mining will have to be made more effective and efficient. The mindset will have to change in order to make it easy for investors to invest in mineral exploration and mining by framing rules, procedures and administrative

actions at par with those in competing countries. The costs involved in delivering data will have to be recovered through an appropriate pricing mechanism.

7.2.74 The Central Geological Programming Board as well as the State Geological Programming Boards will also need to be strengthened with representation from the private sector, including some leading foreign investors, consultants and other individuals concerned with the mineral industry.

7.2.75 For the private sector to develop fully, there is a case for setting up a regulatory authority which can be established by appropriate restructuring and strengthening of one of the existing institutions.. Such an agency will also provide technical guidance and other assistance to the State Governments for conservation and systematic development of mineral resources, review and prescribe the criteria of statistical and technical data and the threshold values of minerals from time-to-time for its optimum utilisation, regulate mining operations including size of the operations, tackle royalty issues, etc. While considering this, it may be necessary to study such structures and practices in the competing countries.

Mineral Development in the States

7.2.76 The States will have to provide adequate resources for promoting mineral development and reform their policies for attracting private investment in the mining sector. They will have to implement the amended Mineral Concession Rules – both in letter and spirit — for ensuring various approvals within the stipulated time frames.

THE PATH AHEAD

7.2.77 The following action points are proposed for addressing the areas of major concern relating to the minerals sector:

7.2.78 The Central Government, in exercise of the power conferred by Section 13 of the MMDRA Act amended the Mineral Concession Rules, setting time frames for various clearances — i.e. six months from the date of receipt of complete

application for reconnaissance permit, nine months for prospecting licence and 12 months for mining lease. The Department of Mines should pursue the matter with the States. The Planning Commission will also rigorously monitor this through its Annual Plan and quarterly performance review meetings.

7.2.79 The mining industry is constrained in a major way by inadequate and poor quality infrastructure. The transaction costs of handling minerals for domestic consumption as well as for exports are very high compared to competing countries. While removing the infrastructure constraints in the economy will be one of the main objectives of the Tenth Plan and the State will play a major role in this, the Department of Mines should coordinate issues relating to infrastructure for the mining sector. It should identify projects which need to be taken up for implementation in consultation with the State Governments and the mining industry. The projects may include roads connecting mineral deposits to the national highways and ports, dedicated railway lines, power units, deepening of ports, creating additional dedicated port capacity, handling technology at ports, etc.

7.2.80 One of the projects already identified is the 155 km Daitari-Keonjhar-Banspani (DKB) railway line project. This link will reduce the rail distance between the mineral-rich region of north Orissa/Jharkhand and Paradip port by around 335 km and the rail link to Vizag port in Andhra Pradesh will also be reduced by about 170 km. This project is included in the Plan and needs to be completed expeditiously. The Ministry of Railways should implement this project without further delay. The Planning Commission is already monitoring this project and it will continue to be done till the project is implemented.

7.2.81 Other projects include: a rail link between Hubli-Ankola, Karnataka; a mechanical ore handling facility at Mormugoa port, Goa; a 55 km rail link between Kottur-Harihar, Karnataka; 47 km gauge conversion between Arsekere-Hassan, Karnataka; a deep water port at Tadri/Belekeri/Karwar with a minimum draft of 16-18 m, Karnataka, with mechanical ore handling facilities. Other planned projects are: improvement and strengthening of the ore handling facilities at Chennai port; deepening

the draft at Marmugao up to 16.5 m and installing facilities for mechanical handling for rail-borne iron ore from Bellary-Hospet to Goa port; developing a dedicated iron ore berth at Ennore Port since Chennai port is likely to be closed for export of iron ore from 2005; strengthening of the communications and infrastructure facilities in and around mining belts for reducing the time between granting of lease and starting of operations. The Ministries of Steel, Coal and Mines, Department of Mines should facilitate the implementation of these projects. The Planning Commission will also monitor implementation of these projects.

7.2.82 Further, the Central and State Governments will have to invest in basic exploration in order to expand the geological database and improve upon the national mineral inventory. The Planning Commission will monitor programmes that will be taken up by the GSI and IBM and the State agencies in this regard.

7.2.83 The issue concerning carrying out mineral exploration as well as opening up of new mines in the declared forest areas has been debated extensively both at the Central and State level as well as at the industry level and at various seminars and symposia. Some action points in this regard will include updating of revenue and forest land records of the mineral-bearing areas by the Forest and Revenue Departments of the State Governments and the IBM speeding up the process of generating the remaining 270-odd maps with forest overlays, etc. This is a Plan project and is monitored by the Planning Commission. Updating of revenue and forest land records by the State Governments is one of the Plan objectives and it will continue to be monitored by the Planning Commission.

7.2.84 IBM should also study, deposit-wise, the impact of exploration and mining on flora and fauna and other damages including on human settlements in forests with mineral resources. The next logical step would be to suggest the manner in which the impact will be minimised, which may include afforestation, taking care to replicate the flora and fauna, measures for rehabilitation including time-bound and satisfactory re-location of human settlements, etc. Practices followed in other

countries in this regard can also be studied in order to evolve workable guidelines and this can also be done by the IBM. The Planning Commission will facilitate this study and monitor its implementation.

7.2.85 For compulsory afforestation including of declared forest areas, if these are opened up for commercial exploitation of mineral deposits, it is necessary to clearly demarcate areas to be afforested. This may include land with sparse or with no green cover, area covering barren, wastelands, ravines, etc. The user agencies should be spared from the requirement of finding land for compulsory afforestation. The Department of Mines and the Ministry of Environment and Forests need to coordinate their efforts in this regard. The Planning Commission will facilitate this coordination, particularly with the Ministry of Environment and Forests and the State Governments, and monitor progress through the quarterly performance reviews as well as the Annual Plan meetings.

7.2.86 Conditions laid down by the various State Governments include asking mining companies applying for mining leases to set up their plants in the States, compelling investors to set up joint venture mining companies with State public enterprises, setting up mineral-based unit in the State itself for exploiting the mineral deposit for which lease will be granted, etc. Some States have demanded extra royalty. The Department of Mines should take up this issue with the State Governments and get these extraneous conditions removed, as a matter of reform. The Planning Commission will also identify these conditions, State-wise, and facilitate their removal through its Annual Plan process.

7.2.87 Similarly, reservation of mining areas for the public sector by the State Governments should also end. The Department of Mines should take this matter up with the State Governments and the Planning Commission will monitor this.

7.2.88 Quantitative restrictions on the export of high-grade iron ore, particularly from Bailadilla and Bellary-Hospet, manganese and chrome ores must be abandoned. In case the Government wants to discourage export of these high-grade ores for safeguarding the interest of the domestic steel industry, this can be done through tariffs. Export of

high-grade iron ore as well as chrome and manganese ores also needs to be de-canalised forthwith. The Ministries of Steel and Commerce and Industry should take action on these issues forthwith. The Planning Commission will facilitate the policy change.

7.2.89 The multiplicity of legislation related to forests, environment, mining and labour need to be harmonised for speedier growth of private sector investment in the mining sector. The Department of Mines and the Ministries of Environment and Forests and Labour should initiate a discussion with other concerned agencies, particularly for identifying problem areas in these legislations and identify areas for amendments/ supplementary additions.

The Department of Mines, being the administrative department, should coordinate in this exercise. The Planning Commission will monitor this.

7.2.90 The GSI needs to be restructured and modernised. This should be done quickly by the Department of Mines. The Planning Commission will monitor the programme.

Plan Outlay

7.2.91 An outlay of Rs. 9458 crore has been allocated for the Tenth Plan of which Rs 8187 crore is to be financed through IEBR and remaining Rs 1271 crore will be the gross budgetary support. The schemewise break-up of the Tenth Plan outlay is given in the Appendix.

Annexure-7.2.1
(Rs. in CRORE)

(Actual Expenditure in the IXth Plan (1997-2000) - MINES

DEPARTMENT OF MINES

9th Plan (1997-2002) Approved Outlay	Annual Plan 1997-98		Annual Plan 1998-99		Annual Plan 1999-00		Annual Plan 2000-01		Annual Plan 2001-02			
	Outlay	Actual Exp.	Outlay	RE								
Mines	7753.96	844.96	400.49	478.11	478.11	146.11	1176.21	159.84	1463.22	234.48	1445.95	242.45

Organisation/company - wise actual expenditure in the IXth plan(1997-2002) - Mines

(Rs. in CRORE)

DEPARTMENT OF MINES

ORGN.	9th Plan (1997-2002) Approved Outlay		Annual Plan 1997-98 Actual Exp.		Annual Plan 1998-99 Actual Exp.		Annual Plan 1999-00 Actual Exp.		Annual Plan 2000-01 Actual Exp.		Annual Plan 2001-02 RE	
	Outlay	BS	Outlay	BS	Outlay	BS	Outlay	BS	Outlay	BS	Outlay	BS
BALCO	839.15	0.00	26.42	0.00	42.90	0.00	162.64	0.00	76.46	0.00	Since Disinvested	
NALCO	3559.10	0.00	172.67	0.00	236.27	0.00	777.43	0.00	871.49	0.00	1100.00	0.00
HCL	1280.00	80.00	12.37	12.35	20.00	20.00	28.00	28.00	27.00	27.00	110.00	110.00
HZL	1250.00	0.00	57.29	0.00	48.47	0.00	73.25	0.00	342.37	65.08	100.00	0.00
MECL	80.00	35.00	6.00	6.00	7.00	7.00	10.00	10.00	11.96	11.96	7.00	7.00
BGML	12.00	12.00	5.90	5.90	4.50	4.50	5.00	5.00	0.00	0.00	0.00	0.00
SMC	3.25	3.00	0.16	0.16	0.50	0.50	0.38	0.38	0.65	0.65	Transferred to NER	
GSI	585.46	585.46	85.64	85.64	80.30	80.30	87.42	87.42	94.60	94.60	94.53	94.53
IBM	80.00	80.00	18.49	18.49	18.31	18.31	17.47	17.47	21.98	21.98	19.00	19.00
S & T	25.00	9.50	7.05	3.40	7.06	2.70	8.42	5.37	8.34	4.84	8.00	4.50
CONSTn.	40.00	40.00	8.50	8.50	12.80	12.80	6.20	6.20	8.37	8.37	7.42	7.42
TOTAL	7753.96	844.96	400.49	140.44	478.11	146.11	1176.21	159.84	1463.22	234.48	1445.95	242.45

\$Includes Rs.138.91crores of aid through budget

\$\$Includes Rs.20.00 crores of aid through budget

Annexure-7.2.3
(Rs. in Crore)**Approved Outlay for the Xth Plan (2002-07) - MINES**

Ministry/Department	Ninth Plan (1997-02)		Tenth plan period (2002-07)			
	Outlay	Outlay	Outlay	GBS	NBS	IEBR
		7753.96	9458.00	1271.00	1021.00	8187.00

Annexure-7.2.4
(Rs. in Crore)**Tenth Plan 2002-2007 (DEPARTMENT OF MINES)
Organisation/Company-wise approved outlay for Xth Plan - Mines**

ORGn.	OUTLAY	IR	EBR	G.B.S.	N.B.S.
BALCO		Since Disinvested			
NALCO	7056.00	954.20**	6101.80	0.00	0.00
HCL	50.00	0.00	0.00	50.00	50.00
HZL	1113.50	913.17	200.33	0.00	0.00
MECL					
a) Promotional	45.00	0.00	0.00	45.00	45.00
b) Capital	5.00	0.00	0.00	5.00	5.00
c) Grants for VRS	^^^	0.00	0.00	^^^	^^^
BGML		Since Closed			
GSI	1000.00	0.00	0.00	1000.00 #	800.00
IBM	103.00	0.00	0.00	103.00 ##	53.00
S & T	57.50	13.75	3.75	40.00	40.00
CONSTn.					
a) GSI	25.00	0.00	0.00	25.00	25.00
b) IBM	3.00	0.00	0.00	3.00	3.00
TOTAL	9458.00	1881.12	6305.88	1271.00	1021.00

Includes Rs. 200.00 Crore aid through budget.

Includes Rs. 50.00 Crore aid through budget.

** Figure does not include Rs. 12.09 crore as retained balance

^^^ Funds for VRS not included

Annexure – 7.2.5

**Physical Performance during the terminal year of the
Ninth Plan – 2001-02 — vis-à-vis indicative Plan targets**

S.No.	Item	Unit	2001-02		Ninth Plan Target
			Plan Target	Actual*	
1.	Iron Ore	mt	80.00	78.00	100.00@
2.	Aluminium (Primary)	Tho. Tonnes	650.00	631.00	750.00@@
3.	Copper (Cathodes - primary)	Tho. Tonnes	240.00# (43.00)\$	300.00 (35.80)	425.00@@@
4.	Zinc (Primary)	Tho. Tonnes	178.00##	205.20	161.00
5.	Lead	Tho. Tonnes	45.00	38.50	78.50@@@@
*	Estimate (Actual April 2001 – February 2002 and likely for March 2002).				
#	Including production from the private sector companies i.e. Sterlite Industries Ltd., Indo Gulf Copper Ltd. (Birla Copper) and the public sector Hindustan Copper Ltd. .				
@	Market will not be as buoyant as was anticipated.				
@@	Indal's Belgaum Smelter not likely to be re-energised and a marginal expansion programme of its HiraKud smelter will also not materialise, as was anticipated. Besides, Indal's Always, Kerala, smelter capacity has also declined by around 7,000 tonnes due to some technical reasons.				
@@@	Additional capacity from SWIL and Metdist is not likely to materialise, Khetri Smelter expansion also not coming up.				
@@@@	Vizag Lead Smelter of HZL remained closed in 2001-02 and secondary capacity with India Lead Ltd. utilised to the tune of producing only 357 tonnes of lead during April 2001 – February 2002 and both its smelters located at Thane (Maharashtra) and Kolkata (West Bengal) were closed down as the company is before the BIFR.				
\$	Indicative Plan target for HCL.				
##	Higher output through additional capacity coming on stream and efficiency gain as against indicative Ninth Plan target.				

CHAPTER 7.3

ENERGY

7.3.1 India ranks sixth in the world in terms of energy demand accounting for 3.5 per cent of world commercial energy demand in 2001. With a gross domestic product (GDP) growth of 8 per cent set for the Tenth Five-Year Plan, the energy demand is expected to grow at 5.2 per cent. Although, the commercial energy consumption has grown rapidly over the last two decades, a large part of India's population does not have access to it. At 479 kg of oil equivalent (kgoe), the per capita energy consumption is also low even compared to some of the developing countries.

7.3.2 India is fortunate to be endowed with both exhaustible (particularly coal) and renewable energy resources. Despite the resource potential and the significant rate of growth in energy supply over the last few decades, India faces serious energy shortages. This has led to reliance on increasing imports for meeting the demand of oil and coal. As per current projections, India's dependence on oil imports is expected to increase. The demand of natural gas also outpaces supply and efforts are being made to import natural gas in the form of liquefied natural gas (LNG) and piped gas. The power sector has also been experiencing severe shortages.

7.3.3 The Tenth Plan strategy for the sector includes increasing the production of coal and electricity, accelerated exploration for hydrocarbons, equity oil abroad, introduction of reforms through restructuring/deregulation of the energy sector to increase efficiency, demand management through introduction of energy efficient technologies/processes and appliances. The process of producing, transporting and consuming energy has a significant impact on the environment. Pollution abatement processes would form an important part of the development of energy sector.

7.3.4 In order to have an integrated energy approach and to meet the policy goals of economic efficiency, energy security, energy access and environment, the establishment of institutional links and coordinating mechanisms has been proposed.

Energy Scenario

7.3.5 Primary commercial energy demand grew almost three-fold at an annual rate of 6 per cent between 1981 and 2001, to reach 314.7 million tonnes of oil equivalent (MTOE). In the case of China, primary commercial energy consumption has grown at an annual rate of 5.4 percent in the same period, even though its primary commercial energy consumption is at least twice as much as that of India. India's incremental energy demand for the next decade is projected to be among the highest in the world, spurred by sustained economic growth, rise in income levels and increased availability of goods and services.

7.3.6 India's commercial energy demand is expected to grow even more rapidly than in the past as it goes down the reform path in order to raise standards of living. A large part of India's population does not have access to commercial energy. The 479 kgoe per capita total energy consumption is only about 20 per cent of the global average in 1997 and compared poorly with the per capita consumption of Thailand (1,319 kgoe), Brazil (1,051 kgoe) and China (907 kgoe).

Non-Commercial Energy Resources

7.3.7 More than 60 per cent of Indian households depend on traditional sources of energy like fuel wood, dung and crop residues for meeting their cooking and heating needs. Out of the total rural energy consumption, about 65 per cent is met from fuel wood. Fuel wood consumption during 2001-02 is estimated at 223 million tonnes, 180 million tonnes

of which is for household consumption and the balance for cottage industry, big hotels etc. The consumption of animal dung and agro-waste is estimated at 130 million tonnes, which does not include the wet dung used for biogas plants. It is assumed that the wet dung used as manure is being diverted to biogas plants as these plants, in addition to providing a cleaner fuel, also supply enriched manure.

7.3.8 Even though there has been an impressive increase in the availability of the two petroleum based domestic fuels - liquefied petroleum gas (LPG) and kerosene (SKO), they do not appear to have made any significant dent in the pattern of fuel consumption in the rural areas. To some extent, the biogas programme has made progress in rural areas and it is estimated that about 3.2 million plants have already been installed as on August 2001. The National Council for Applied Economic Research (NCAER), Delhi, has estimated the likely availability of gas from these plants during 2001-02 at 1,360 million cubic meters.

Trends of Economic Growth and Energy Use

7.3.9 The average annual world economic growth in the 1997-2020 period is projected at

3.2 per cent, while the energy growth rate is estimated at 2.1 per cent per annum. This yields an elasticity of energy consumption at about 0.68 per cent. In India's case, the elasticity was more than unity for the 1953-2001 period. However, the elasticity for primary commercial energy consumption for the 1991-2000 period is less than unity. This could be attributed to several factors such as the improvement in efficiency of energy use and the consequent lowering of the overall energy intensity of the economy and the higher share of hydrocarbons in the overall energy mix. The projected requirement of commercial energy is estimated at about 412 MTOE and 554 MTOE in the terminal years of the Tenth and Eleventh Plans respectively. Based on the inputs of various working groups, the commercial energy demand during the Tenth Plan and Eleventh Plan is estimated to grow at an average rate of 6.6 per cent and 6.1 per cent respectively. Table 7.3.1 indicates the estimated energy demand in the terminal years of the Tenth and Eleventh Plans. However, the demand may be less by 5 per cent and 10 per cent during 2006-07 and 2011-12 respectively due to increasing use of information technology (IT) and prevalence of e-commerce, which will mainly affect the demand of energy in transport sector.

Table 7.3.1
Estimated Energy Demand

Primary Fuel	Unit	Demand (in Original Units)		Demand (MTOE)	
		2006-07	2011-12	2006-07	2011-12
Coal	mt	460.50	620.00	190.00	254.93
Lignite	mt	57.79	81.54	15.51	22.05
Oil	mt	134.50	172.47	144.58	185.40
Natural gas	BCM	47.45	64.00	42.70	57.60
Hydro Power	BKwh	148.08	215.66	12.73	18.54
Nuclear Power	BKwh	23.15	54.74	6.04	14.16
Wind Power	BKwh	4.00	11.62	0.35	1.00
Total Commercial Energy				411.91	553.68
Non-Commercial Energy				151.30	170.25
Total Energy Demand				563.21	723.93

mt : Million Tonnes; BCM : Billion Cubic Meter; Bkwh : Billion kilo watt hour

International Experiences

Energy Policy Focus and Current Energy Policy Framework and Objectives for China :

ENERGY POLICY FOCUS IN CHINA

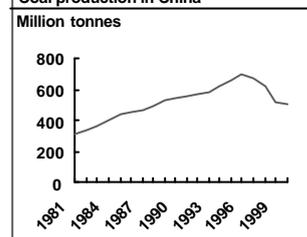
1980s

- Rapid increase in coal production to address severe shortage of energy supply driven by reform-led economic growth
- Large number of township and village-run coal mines were set up

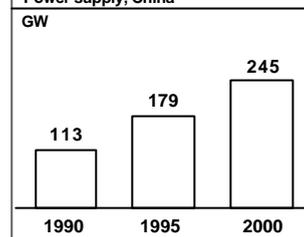
1990s

- Coal liberalisation initiated:
 - Reduction in government subsidies
 - Price liberalisation/de-regulation
- Electricity sector reforms lead to capacity additions
 - Entry of non-state sector via build-operate-transfer
 - Electricity supply meets demand in most regions, with surplus in some areas

Coal production in China



Power supply, China



- Coal accounts for 65-70 per cent of primary energy requirements
- Highest level of SO₂ emission in the world (~25 million tonnes in 2000)
- Energy consumption/GDP four times that of US (1.2 toe/000 US\$ versus 0.3 toe/000 US\$ for US)
- Low import dependence – only 6% of total primary energy comes from non-indigenous sources

CHINA'S CURRENT ENERGY POLICY FRAMEWORK AND OBJECTIVES

Highlights of energy policy in tenth five-year plan (2001-05) in China

Guiding principles

Structural adjustment of the energy industry

Energy efficiency

Energy security

Key features/policies

- Increase share of clean energy (including natural gas and clean coal)
- Set up 40-50 nuclear power plants – to account for 5% of total primary energy in 10-15 years
- Promote renewable energy (solar, wind, hydro) sources
- Reduce/close number of small sub-scale loss making energy (power generation, coal mining, oil refining) units

- Strictly enforce energy consumption standards and technologies for new industrial capacities
- Build a more efficient national power grid (as-opposed to transporting coal from North to South/East)
- More market oriented reforms in the power sector
 - Separate power gencos from grid companies
 - Free competition in power generation

- Continue to pursue policy of self-reliance in energy supply, based primarily on domestic coal production, without sacrificing economic efficiency
- Increase the number of suppliers in oil to meet increased import requirements

Two schools of thought on energy security

1. Upto 30% of primary energy from imports is manageable
2. Imports should not be greater than 10% of primary energy needs

Availability of Commercial Primary Energy Resources

7.3.10 India's energy use is mostly based on fossil fuels. Although the country has significant coal and hydro resource potential, it is relatively poor in oil and gas resources. As a result it has to depend on imports to meet its energy supplies.

The geographical distribution of available primary commercial energy sources in the country is quite skewed, with 77 per cent of the hydro potential located in the northern and north-eastern region of the country. Similarly, about 70 per cent of the total coal reserves are located in the eastern region while most of the hydrocarbon reserves lie in the west.

Table 7.3.2
Regional Distribution of Primary Commercial Energy Resources

Region	Coal (bt)	Lignite (bt)	Crude Oil (mt)	Natural Gas (BCM)	Hydro Power (TWH)
Northern	1.06	2.51	0.03	0.0	225.00
Western	56.90	1.87	519.47	516.42	31.40
Southern	15.46	30.38	45.84	80.94	61.80
Eastern	146.67	0	2.19	0.29	42.50
North-Eastern	0.89	0	166.17	152.00	239.30
Total	220.98	34.76	733.70	749.65	600.00

bt : Billion Tonnes

BCM : Billion Cubic meters

TWH : Trillion Watt Hours

mt : Million Tonnes

Coal

7.3.11 The geological coal reserves of the country are estimated at 220.98 billion tonnes (bt) as on January 2001. Out of this, proven reserves are 84.41 bt, while 98.55 bt are indicated reserves and 38.02 bt are inferred reserves. Coal continues to remain the principal source of commercial energy accounting for nearly 50 per cent of the total supplies. About 70 per cent of the power generated is coal and lignite based and this trend is likely to continue in the foreseeable future.

7.3.12 India has an estimated 1000 billion cubic meters of Coal Bed Methane (CBM), which is likely to emerge as a new source of commercial energy in the country. A demonstration project is under implementation with financial support from the Global Environment Facility (GEF) and the United Nations Development Programme (UNDP). In April 2001, the Government announced a programme for exploration and production of CBM. Under the first round of bidding, five CBM blocks have been awarded to private companies. Apart from this, exploration work in two blocks has been awarded to two public sector undertakings (PSUs) on nomination basis. The successful implementation of these projects will facilitate exploitation of this clean source of energy.

Lignite

7.3.13 The current estimates of geological lignite reserves in India are 34.76 bt spread over Tamil Nadu and Pondicherry (87.5 per cent), Rajasthan (6.9 per cent), Gujarat (4.9 per cent), Kerala (0.31 per cent) and Jammu and Kashmir

(0.37 per cent). The lignite deposits in the southern and western regions have emerged as an important source of fuel supply for states like Tamil Nadu, Rajasthan and Gujarat. Over the years, considerable emphasis has been placed on the development of lignite for power generation. Lignite production is likely to increase from 24.3 million tonnes in 2001-02 to 55.96 million tonnes in 2006-07.

Oil and Natural Gas

7.3.14 The latest estimates indicate that India has around 0.4 per cent of the world's proven reserves of crude oil. As against this, the domestic crude consumption is estimated at 2.8 per cent of the world's consumption. The balance of recoverable reserves as estimated in the beginning of 2001 is placed at 733.70 million tonnes (mt) of crude and 749.65 billion cubic meters (BCM) of natural gas. The share of hydrocarbons in the primary commercial energy consumption of the country has been increasing over the years and is presently estimated at 44.9 per cent (36.0 per cent for oil and 8.9 per cent for natural gas). The demand for oil is likely to increase further during the next two decades. The transportation sector will be the main driver for the projected increase in oil demand. Consequently import dependence for oil, which is presently about 70 per cent, is likely to increase further during the Tenth and Eleventh Plans.

7.3.15 India has about 0.4 per cent of world's natural gas reserves. Initially the gas reserves had been developed largely for use as petrochemical feedstock and in the production of fertilisers, but gas is increasingly being used for power generation,

industrial applications and more recently in the transport sector. Presently the share of power generation capacity based on gas is about 10 per cent of the total installed capacity. The India Hydrocarbon Vision 2025 of the Government identifies natural gas as the preferred fuel for the future and several options are being explored to increase its supply capacity including building facilities to handle imports of liquefied natural gas (LNG) and setting up of pipelines from major gas producing countries. India is also reported to have significant deposits of gas hydrates. However, the true extent of this resource and its potential for commercial exploitation is still being evaluated.

Hydro Electric Potential

7.3.16 The key advantage of hydroelectric power is the ability to store energy and the flexibility of its use during peak load periods. India is endowed with economically viable hydro potential. The Central Electricity Authority (CEA) has assessed India's hydro potential to be about 148,700 MW of installed capacity. The hydroelectric capacity currently under operation is about 26,000 MW and 16,083 MW is under various stages of development. The CEA has also identified 56 sites for pumped storage schemes with an estimated aggregate installed capacity of 94,000 MW. In addition, a potential of 15,000 MW in terms of installed capacity is estimated from small, mini and micro hydel schemes.

Nuclear Resources

7.3.17 Nuclear energy has the potential to meet the future needs of electricity demand in the country. The country has developed the capability to build and operate nuclear power plants observing

international standards of safety. The current installed capacity of nuclear power plants is 2,860 MW accounting for 2.8 per cent of the total installed capacity of the country. The Nuclear Power Corporation of India Ltd. (NPCIL) proposes to increase the installed capacity to 9,935 MW by 2011-12. The future strategies focus on a three-stage nuclear power programme for the optimal utilisation of the available nuclear energy resources. The first stage of 10,000 MW is based on pressurised heavy water reactor (PHWR) using indigenous natural uranium resources. The second stage is proposed to be based on fast breeder reactor (FBR) technology using plutonium extracted by reprocessing of the spent fuel from the first stage. In the third stage, the country's vast thorium resources will be utilised for power generation.

Renewable Sources of Energy

7.3.18 India is endowed with abundant natural and renewable resources of energy viz., sun, wind and biomass. The country has been able to achieve significant capacity addition of 1,367 MW through wind farms and ranks fifth in the world after Germany, United States, Spain and Denmark in the generation of wind energy. The available renewable resources need to be exploited by giving a commercial orientation, wherever possible. It may be necessary to continue with subsidies in the case of socially oriented programmes to meet the energy requirements of rural areas, particularly, remote villages, which may be difficult to service through the conventional power grid in the near future. Table 7.3.3 gives the available potential and the actual potential exploited till August 2001 for various renewable sources of energy.

Table 7.3.3
Renewable Energy Sources Potential

Source/Technology	Units	Potential/Availability	Potential Exploited
Biogas Plants	Million	12	3.22
Biomass-based power	MW	19,500	384
Efficient wood stoves	Million	120	33.86
Solar Energy	MW/Sq. Km	20	1.74
Small Hydro	MW	15,000	1,398
Wind Energy	MW	45,000	1,367
Energy Recovery from Wastes	MW	1,700	16.2

7.3.19 Apart from these resources, the country has significant potential for ocean thermal, sea wave power and tidal power.

TRENDS IN COMMERCIAL ENERGY PRODUCTION

7.3.20 The country has seen an expansion in total energy use during the last five decades, with a shift from non-commercial to commercial sources of energy. Accordingly, the production of commercial sources of energy has increased significantly. Table 7.3.4 indicates the trends in production of various primary commercial energy resources.

7.3.21 Coal production is likely to grow at an annual rate of 4.46 per cent in the Tenth Plan period (compared to 2.4 per cent annual growth rate during the Ninth Plan period) to touch 405 mt in the terminal year, 2007. As against this, the coal demand in that year is estimated at 460.50 mt. Part of the gap is proposed to be met through import of both coking and non-coking coal. About 70 per cent of the projected demand is for public sector utilities. A substantial expansion in the domestic coal production is, therefore, needed to meet the requirements of the targeted generating capacity additions envisaged during the Tenth and Eleventh Plans.

7.3.22 The current domestic production of crude oil caters to nearly 30 per cent of the demand and is likely to marginally increase from 32.03 mt in 2001-02 to 33.97 mt in 2006-07. As against this, the demand for petroleum products, projected as

99.13 mt in 2001-02, is estimated to grow at the rate of 5.7 per cent a year to touch 134.6 mt in the terminal year of the Tenth Plan and 172.5 mt in the terminal year of Eleventh Plan.

7.3.23 India's natural gas production reached a level of 29.69 BCM in 2001-02. The projected domestic production of natural gas in 2007 is 37.62 BCM. The country has been able to meet the demand with the available domestic production till recently. However, the demand is likely to grow rapidly in the near future. A number of projects for setting up of LNG terminals have been approved by the Government to bridge the demand-supply gap. Four LNG terminals at Dabhol, Dahej, Hazira and Cochin are in advanced stages of development and are likely to be completed by the end of the Tenth Plan.

7.3.24 Significant hydro and nuclear generation capacity is likely to be added during the Tenth Plan period. The capacity addition programme includes 16,083 MW from hydel power plants and 1,300 MW from nuclear power plants. In addition, 2,000 MW of energy is planned to be harnessed from wind farms.

7.3.25 Table 7.3.5 indicates the trends in primary commercial energy supply from various sources between 1953-54 and 2001-02. Though coal production increased about three times from 114 mt in 1980-81 to 325 mt in 2001-02, the share of coal in total energy supplies has declined from a level of 58.9 per cent to 51.1 per cent. This could be partly due to the increase in the share of inferior

Table 7.3.4
Trends in Commercial Energy Production

	Units	Production					
		1960-61	1970-71	1980-81	1990-91	2001-02*	2006-07**
Coal	mt	55.67	72.95	114.01	211.73	325.65	405.00
Lignite	mt	0.05	3.39	4.80	14.07	24.30	55.96
Crude Oil	mt	0.45	6.82	10.51	33.02	32.03	33.97
Natural Gas	BCM	-	1.44	2.35	1.79	29.69	37.62
Hydro Power	Bkwh	7.84	25.25	46.54	71.66	82.80	103.49
Nuclear Power	Bkwh	-	2.42	3.00	6.14	16.92	19.30
Wind Power	Bkwh	-	-	-	0.03	1.70	4.00

* Anticipated, ** Projections for the terminal year of the Tenth Plan

Table 7.3.5
Trends in Supply of Primary Commercial Energy

(MTOE)

	Supply					
	1953-54	1960-61	1970-71	1980-81	1990-91	2001-02*
Coal	23.62	35.64	36.48	56.96	94.68	133.89
Lignite	-	0.01	0.81	1.23	3.34	6.52
Crude Oil	0.19	0.46	7.01	10.79	33.92	32.03
Natural gas	-	-	0.60	1.41	11.73	26.72
Hydro Power	0.24	0.67	2.17	4.00	6.16	6.37
Nuclear Power	-	-	0.63	0.78	1.60	5.15
Wind Power	-	-	-	-	-	0.14
Total	24.05	36.78	47.67	75.19	151.43	210.82
Net Imports	2.20	6.04	12.66	24.63	31.69	87.85
Commercial Energy Supply	26.25	42.82	60.33	99.82	183.12	298.67
Primary Non-Commercial Energy Supply	64.13	74.38	86.72	108.48	122.07	139.02
Total Primary Energy Supply	90.38	117.20	147.05	208.30	305.19	437.69

* Provisional

grade coal in over-all coal production. The primary reason, however, is that the share of hydrocarbons in the total energy consumption of the country has been increasing over the years and is currently estimated at 44.9 per cent as compared to 37.2 per cent in 1980-81. Net energy related imports of 87.85 MTOE in 2001-02 include the import of 75.43 mt of crude and petroleum products, 19.60 mt of coal and 1.4 BKwh of electricity from Bhutan. The share of non-commercial sources in the total primary energy supply is 31.8 per cent in 2001-02, down from 53.1 per cent in 1980-81.

Energy Imports

7.3.26 India is emerging as a large importer of crude and is planning to import LNG during the Tenth Plan period. If the present trend continues, India's oil import dependency is likely to grow beyond the current level of 70 per cent. Future strategies should focus on increasing exploration activities to enhance the level of recoverable reserves of the country.

7.3.27 Coal imports account for only about 5.6 per cent of the total domestic consumption in the current year. The steel sector has been importing

coking coal mainly for blending with domestic coal to obtain the desired quality for steel production. The cement industry and coastal power stations are importing non-coking coal.

Table 7.3.6
Share of Net Energy Imports in Primary Commercial Energy Supply

(%)

Year	Coal	POL*	Electricity	Total
1980-81	0.25	25.45	-	25.70
1990-91	2.22	15.56	0.07	17.85
2001-02	4.12	25.25	0.04	29.41

* Petroleum oil and lubricants

7.3.28 The share of primary energy imports in the total commercial energy supply is currently estimated at 29.41 per cent (Table 7.3.6) and is likely to increase by the end of the Tenth Plan. This is a matter of concern from the point of view of energy security.

Energy Conservation

7.3.29 Energy efficiency or energy conservation is a multi-faceted activity involving four major sectors

of the economy - industry, transport, agriculture and domestic sectors. Although, energy conservation measures were initiated a decade back, they have not yielded the desired results due to lack of adequate focus on institutional arrangements to devise suitable incentives and disincentives backed by statutory power of enforcement.

7.3.30 During the Ninth Plan, a need was felt to have an Energy Conservation Act and to establish an apex institution to effectively implement a programme of energy conservation. Accordingly, the Energy Conservation Act, 2001 was passed which mandates the setting up of a Bureau of Energy Efficiency (BEE) that will introduce stringent energy conservation norms for energy generation, supply and consumption. However, the enforcement of penalties stipulated in the Act have been kept in abeyance for five years during which time people would be made aware of the economics and efficacy of the conservation of energy.

7.3.31 Appropriate supply side and demand side management strategies could achieve significant energy savings. Diffusion of new high efficiency technologies in major energy intensive industries, and in energy conversion, transmission and distribution can lead to a reduction in the energy intensity of the economy. For example, Integrated Gas Combined Cycle (IGCC) at 45 per cent efficiency replacing a conventional pulverised coal plant at 36 per cent efficiency will save around 0.5 Giga Joules (GJ) of primary energy for every one GJ of electricity generated. In addition, proper economic pricing of alternative energy sources can greatly influence the pattern of energy consumption and lead to energy efficiency. Efforts would be made to benchmark the efficiency parameters of the energy sub-sectors with the International Standards.

REFORMS IN THE ENERGY SECTOR

7.3.32 Reforms in the energy sector were initiated to supplement the Government's efforts in the development of the sector and to make it more efficient. The Government has been endeavouring to provide a policy environment that encourages free and fair competition in each element of the energy value chain and attracts capital from all sources - public and private, domestic and foreign.

Encouraging such capital formation is crucial for India to meet its energy needs. Significant progress has been made in establishing independent and transparent regulatory authorities in the power sector to facilitate the rationalisation of electricity tariff as well as to encourage competition while protecting the interests of all stakeholders. The Government also proposes to set up regulatory authorities for the coal and petroleum sector during the Tenth Plan period. There is a need to examine the issue of a single regulatory authority for the energy sector with a view to developing the desired fuel-mix and related issues, in close association with sub-sector regulatory authorities.

7.3.33 The thrust of the reforms has been to deregulate the prices of commercial energy resources (which, until recently, were entirely administered), increase competition through institutional, legislative and regulatory reforms and reduce subsidies. Although subsidies cannot be completely eliminated, greater transparency can be achieved by transferring all subsidies to central or state budgets and ensuring that the benefits of subsidies reach the targeted beneficiaries. Such an approach will facilitate optimal and economic resource allocation and avoid distorting market based pricing.

THE PATH AHEAD

- i) Create an Apex Committee on Energy (comprising the Ministers of Power, Coal, Petroleum and Natural Gas, Non-Conventional Energy Sources, Finance, External Affairs, Railways, the Department of Atomic Energy, Planning Commission and others as members) with a secretariat consisting of professionals/experts in energy/economics/finance/management/legal areas to approve policy guidelines and oversee implementation on regular basis. A key role of this committee should be to manage the trade-offs between the divergent objectives that could arise between the different sub-sectors, ensuring, at all times, consistency with the high-level policy goals. These policy goals concern economic efficiency, energy security, access, and the environment.

- ii) Accelerating the reform process in the energy sector through :
 - Restructuring and privatisation of public sector undertakings.
 - Tariff rationalisation in the power sector.
 - Phasing out of subsidies in the energy sector.
 - Moving subsidies that cannot be eliminated explicitly to central/state budgets.
- iii) Focussing on energy efficiency improvement through
 - International benchmarking of energy producing and consuming sectors
 - Demand side management
 - Develop a long-term (25 years) Technology Vision-2025 for identified priority areas and technologies. Actively promote R&D on Fast Breeder Reactor and thorium-based technologies for nuclear power, solar, gas hydrates, clean coal technologies, fuel cells etc.
- iv) Effective strategies to address the concern of energy supply security. Possible options include maximising domestic production, diversifying the fuel mix and the source of supply, investing in equity oil/gas, creating strategic domestic reserves and maintaining a manageable level of import dependence.
- v) Develop a national rehabilitation and resettlement policy to help accelerate the development of the hydro and coal sectors. A large number of hydro and coal projects have been facing implementation delays and cost overruns in the absence of such a policy. Both these sectors are vital to meeting the country's future energy needs.
- vi) Develop environmental standards and enact a transparent regulatory and legislative framework that allows easy enforcement of these standards.
- vii) Concerted efforts to meet the energy requirements of the rural areas at the lowest economic cost. The future policy initiatives, therefore, should focus on the development of the required infrastructure and continue to aim to provide universal access of commercial fuels at affordable prices.
- viii) Emphasis on preparing a time bound plan for people's participation through panchayats, cooperatives, non-government organisations (NGOs) and private entrepreneurs in planning, operation and maintenance, revenue collection and expansion of local energy supply options to ensure success.
- ix) Development of alternative fuels such as Coal Bed Methane, MS-Ethanol blend, HSD - Ethanol blend, gas hydrates and fuel cells.

PETROLEUM AND NATURAL GAS SECTOR

4.5.34. The world energy consumption pattern has been changing over the years. Presently, the share of oil in the world energy mix is 40 per cent and that of gas is 23 per cent. The international energy outlook projections indicate that the hydrocarbons will continue to cater to 68 per cent of the total commercial world energy demand over the next two decades. The share of oil may remain the same whereas that of natural gas may go up as the latter is emerging as the preferred feedstock and fuel since it is more environment friendly.

4.5.35 Against a 63 per cent supply of primary commercial energy through hydrocarbons in the world, in the case of India it is 44.9 per cent (36.0 per cent for oil and 8.9 per cent for natural gas). There is limited scope for the increased use of gas in India, unless some large reserves are discovered or there is large-scale import. The demand for oil in the country over the next five years is expected to grow at an annual average rate of 3.6 per cent which will be higher than the average growth of around 2 per cent in the world energy demand.

Table -7.3.7
Physical Performance

Programme	Eighth Plan	Ninth Plan	1997	1998	1999	2000	2001	Likely achievement 1997-02	% of target
	Actual	Target	-98 Actual	-99 Actual	-2000 Actual	-01 Actual	-02 Actual		
Demand / Consumption (mt)	79.16#	104.8 (2001-02)	84.29	90.56	97.09	100.08	100.43	...	...
Reserve Accretion (MTOE)*		865.00	62.8	163.6	176.8	165.8	244.0	813.0	94.0
Crude oil (mt)	154.28	180.82	33.86	32.70	31.93	32.47	32.03	162.99	90.1
Gas production (BCM)	101.71	144.53	26.40	27.43	28.52	28.88	29.69	140.92	97.5
Refining Capacity (mt)	61.55#	113.95@	62.24	95.60	112.54	112.54	116.07	116.07	101.9

figure for the terminal year (1996-97) @Target in the terminal year of the Ninth Plan

* Including private/joint venture contribution of 175 MTOE for five years

Table -7.3.8
Financial Performance (Outlays/Expenditure)

(Rs. Crore)

Ninth Plan Approved Outlay	1997-98 Actual	1998-99 Actual	1999-00 Actual	2000-01 Actual	2001-02 Actual	Likely investment 1997-02	% utilisation
74014.18	9677.08	11213.14	9948.21	9867.21	8702.13	49407.77	66.75
(74014.18)	(9083.90)	(9660.67)	(8253.72)	(7723.24)	(6456.06)	(41177.60)	(55.6)

Note: Figures in the bracket are at 1996-97 prices.

REVIEW OF THE NINTH PLAN

7.3.36 The Ninth Plan envisaged acceleration of exploration efforts, acquisition of acreage abroad for equity oil, deregulation/rationalisation of the Administered Pricing Mechanism (APM), import of natural gas in the form of LNG, creation of adequate refining capacity and setting up of regulatory mechanism etc. as the thrust areas.

7.3.37 The physical and financial performance of the energy sector during the Ninth Plan is presented in Tables-7.3.7 and 7.3.8.

Demand/Consumption of Petroleum Products

7.3.38. The demand for petroleum products was estimated at 104.80 mt during 2001-02 excluding the liquid fuel requirement for power generation. During the first four years of the Ninth Plan, the consumption of petroleum products grew at 5.8 per

cent. The consumption of petroleum products during 2001-02 is 100.43 million tonnes, thereby registering a growth of about 4.9 per cent during the Ninth Plan period as against the target of 5.77 per cent. The lower growth is mainly due to slowdown in the economy, improvement of roads (including construction of bridges and bypasses) and introduction of fuel-efficient vehicles.

Exploration and Development

7.3.39. Several measures were taken by the Government to intensify exploration and enhance hydrocarbon reserves. These included exploration and development of new fields, additional development of existing fields, implementation of enhanced/improved oil recovery schemes, induction of specialised technology, enlisting the services of international experts and encouraging participation of private and joint venture (JV) companies in the exploration programme, including the New

Exploration Licensing Policy (NELP). The NELP provided attractive incentives and a level playing field to private parties who bid for exploration blocks under an international competitive bidding process. In the first stage (NELP-I, January 1999), 48 blocks were offered for bidding. Out of these, 25 blocks were awarded. The Government has since signed production sharing contracts for 24 out of the 25 blocks with national and private oil companies. In the second round (NELP-II, December 2000) 25 blocks were offered for bidding and 23 blocks awarded to various companies. In the third round (NELP-III, March 2002) bids were invited for 27 blocks - nine in deep water, seven in shallow water and 11 in onland areas.

Hydrocarbon Reserves Accretion

7.3.40 During the Ninth Plan, considerable progress has been made in the area of exploration of hydrocarbon resources. The physical parameters achieved, such as seismic survey (2D and 3D) and exploratory drilling are higher than the original targets. However, the in-place hydrocarbon reserve for the Ninth Plan is likely to be about 780 MTOE of gas against the target of 865 MTOE. It was observed that the accretion of reserves was mainly from the existing and satellite discoveries. No new major discovery was made.

Crude Oil and Natural Gas Production

7.3.41 The main reasons for shortfall in oil production by the Oil and Natural Gas Corporation (ONGC) were the rescheduling of additional development plan, non-commensurate drilling results, delay in input mobilisation, and less than anticipated performance in a few fields. In the case of private/JV fields, the shortfall is due to delayed development of a few fields.

Refining Capacity

7.3.42. The refining capacity in the country was targeted to increase from 69.15 mt at the beginning of the Ninth Plan (1997-98) to 113.95 mt by the terminal year, 2001-02. It has touched 116.07 mt by the end of the Ninth Plan. Thus, the country has achieved self-sufficiency in refining capacity.

Imports of Crude Oil and Petroleum Products

7.3.43. The import of crude and petroleum products at the beginning of the Ninth Plan (1997-98) was to the tune of 34.49 mt and 18.6 mt respectively. This increased to 39.81 mt of crude and 18.09 mt of petroleum products in 1998-99 and further to 57.80 mt and 16.60 mt respectively during 1999-2000. The increase in crude oil imports is mainly due to the commissioning of a private sector refinery by Reliance Petroleum Ltd. The import of crude oil during 2001-02 was 78.71 mt. The net export of petroleum products in 2001-02 was 3.06 mt.

Dismantling of Administrative Price Mechanism (APM)

7.3.44 In November 1997, the timetable for the phased dismantling of APM was approved. Effective 1 April 1998, the retention pricing concept for the refineries was abolished and the refinery gate prices were fixed on import parity basis. The refining sector was delicensed in June 1998 and private and joint sector refineries were permitted to import crude oil for their own use.

7.3.45 Customs duty on crude oil was reduced from 27 per cent to 10 per cent and customs duty on products reduced from the maximum rate of 32 per cent to 20 per cent. Import and export of furnace oil and export of naphtha were decanalised in July 1998 and export of petrol, diesel and aviation turbine fuel (ATF) were decanalised in October 1999.

7.3.46 Subsidy on kerosene under public distribution system and LPG for domestic cooking was reduced in phases.

7.3.47 With the above-mentioned actions, reforms in the petroleum sector were carried forward as scheduled, which facilitated dismantling of the APM from 31 March 2002, opening the way for the entry of new players into marketing of transportation fuels.

Restructuring/Disinvestment

7.3.48. The Group on Hydrocarbon Vision -2025 recommended that the oil PSUs be restructured to have the required strength to compete with the

private sector firms, including multi national companies. In line with these recommendations, integration of stand-alone refining companies with the marketing companies was completed by 31 March, 2001 in the following manner:

- Chennai Petroleum Corporation Ltd. (CPCL) and Bongaigaon Refineries and Petrochemicals Ltd. (BRPL) were made subsidiaries of Indian Oil Corporation Ltd. (IOC).
- Kochi Refineries Ltd. (KRL) and Numaligarh Refinery Ltd. (NRL) were made subsidiaries of Bharat Petroleum Corporation Ltd. (BPCL).
- The entire Government shareholding in CPCL, BRPL and KRL, were divested in favour of IOC and BPCL respectively.
- In the case of NRL, the 19 per cent equity holding by IBP Co. Ltd. was divested to BPCL, Oil Industry Development Board (OIDB) and Oil India Limited (OIL) each acquiring 10 per cent.
- The Government completed the strategic sale of 33.58 per cent of equity in IBP Co. Ltd. to IOC.

Environmental Management

7.3.49. Oil companies have implemented major programmes for the upgradation of auto fuel (petrol and diesel) quality during the Ninth Plan. Lead has been removed from petrol in phases and from 1 February 2000, only unleaded petrol is being supplied in the entire country. Petrol octane number has been increased and sulphur content reduced from 0.20 per cent max. to 0.10 per cent max. in the entire country from 1 April 2000. In addition, the four metro towns and the National Capital Region (NCR) are being supplied petrol of 0.05 per cent max. sulphur content. The sulphur content in diesel has been reduced from 1.0 per cent max. to 0.25 per cent max. in the entire country during the period 1 April 1996 to 1 January 2000. In addition, in the four metro towns, sulphur content in diesel has been reduced to 0.05 per cent max. Diesel Cetane

number has been increased from 45 to 48 from 1 April 2000. Improvements have been done in the distillation specifications of diesel from 1 April 2000. The improvements in petrol and diesel quality has facilitated adoption of India 2000 (Euro-I equivalent) emission norms in the entire country and Bharat Stage-II (Euro-II equivalent) emission norms in the 4 metros. For this purpose, an amount of Rs. 10,000 crore was spent over the Plan period.

Ninth Plan Performance

- Reforms in petroleum sector were carried forward as scheduled with the dismantling of APM on 31 March 2002.
- Liberalisation of petroleum product marketing in the country was done by notifying guidelines for authorisation to market transportation fuels by private parties.
- Up to 100 per cent foreign direct investment (FDI) was permitted in the refining sector.
- Crude oil and natural gas production was short of target by 10 per cent and 2 per cent respectively.
- Secured equity oil abroad by participating in the oil and gas project in Vietnam and in Sakhalin (Russia) and signing an agreement with Iraq for oil exploration.
- Hydrocarbon reserves accretion was below target by 10 per cent.
- Significant discoveries of natural gas in the Krishna-Godavari deep-water area was made by ONGC and in the Cambay Offshore area by a joint venture consortium.
- Two rounds of offer of exploration blocks under NELP were completed in record time with 47 blocks awarded to parties.
- Under the CBM policy, six blocks were awarded for exploitation.

- Refining capacity targets were surpassed. At the same time, the import targets were exceeded.
- Petroleum products consumption was lower by 6 per cent than the demand forecasts.
- Drive for alternative fuels gathered momentum with the introduction of auto LPG and setting up of ethanol-petrol blending projects in selected states.
- Significant achievement was made in introducing cleaner fuels in major cities in line with international standards.
- Around 3,40,50,000 LPG enrolments were made, thereby liquidating the entire waiting list.
- Year-wise phasing out of subsidies was not in line with the Gazette notification.
- Lower Ninth Plan expenditure of Rs. 49,407.77 crore against the approved outlay of Rs. 74,014.18 crore.

Success Story in the Petroleum Sector

1. Dismantling of APM on 31 March, 2002 in line with Gazette notification.
2. Two rounds of NELP completed in record time.
3. Refining capacity targets surpassed.
4. Release of around 3.4 crore LPG connections, thereby liquidating the entire waiting list.
5. Secured equity oil abroad.
6. Introduction of auto LPG and setting up of MS-Ethanol blending projects in selected states.

Conservation of Petroleum Products

7.3.50. Upstream oil companies adopted various conservation methods. These include: reduction in

gas flaring by re-injection of gas to underground reservoirs, installation of waste heat recovery system, use of dual fuel/ natural gas engines to achieve substitution of diesel by low pressure associated natural gas, use of solar powered cathodic protection systems for pipelines and use of self loading types of skids for mounting rig equipment etc.

7.3.51. The oil refineries implemented energy conservation projects such as revamping and replacing low efficiency furnaces and boilers, various methods for improved energy efficiency such as enhanced heat transfer system, use of state-of-the-art equipment, pinch technology, gas turbine based co-generation systems, low heat recovery, stock monitoring systems to control flare losses, periodic energy audits, advanced process controls apart from operational improvements and better house-keeping practices.

7.3.52. Refineries produced and sold high-grade lubricants under a phased action plan and constantly upgraded lubricants in line with the international development to increase the life of engines and lower the frequency of lubricants replacement.

7.3.53. At the consumer end, the Petroleum Conservation Research Association (PCRA) undertook various sectoral programmes. These included the adoption of efficient engines and fuel efficient driving habits supplemented by training programmes in the transport sector; carrying out energy audits and fuel oil diagnostic studies in industries and promoting fuel-efficient practices in industry; standardisation of fuel-efficient irrigation pump-sets in the agricultural sector and development of fuel-efficient domestic appliances.

Ninth Plan Outlays

7.3.54. The petroleum sector outlay for the Ninth Plan was Rs. 74,014.18 crore. The estimated expenditure up to 2001-02 was Rs. 49,407.77 crore at prevailing prices during the various years and Rs. 41,177.60 crore at 1996-97 prices representing utilisation of 66.75 per cent and 55.6 per cent respectively. The shortfall is mainly on account of delays in taking up the joint venture refinery projects.

APPROACH TO TENTH PLAN

7.3.55. India's oil industry will have to play the role of a 'frontline' industry in the country's march towards becoming an economic super power. To successfully fulfill this role, the industry will have to become internationally competitive and endeavour to become a global player. This will ensure the country's sustained prosperity and economic security. The progress achieved so far provides the launching pad for gearing up the hydrocarbon sector to meet the new challenges. The key elements of the comprehensive approach approved by the National Development Council (NDC) for this sector are detailed below.

7.3.56 "India Hydrocarbon Vision-2025" lays down the framework of the approach and policies that shall guide this sector for the next 25 years. India's dependence on imported oil is increasing. It is also likely that the use of gas for power generation will increase rapidly in the coming years. Efforts should be made to increase the indigenous production of oil and gas.

7.3.57 The NDC recognised that arbitrary administrative restrictions on the consumption and imports of petroleum products are not the solution and will only affect economic development. The correct approach would be to allow the scarcity value of such exhaustible natural resources to be reflected in prices. This will create an incentive for conservation and efficient use of petroleum products. It envisaged that the APM for petroleum products would be dismantled and petroleum price determination will shift to market based pricing at the start of the Tenth Plan. Complete price deregulation and operation of efficient markets in the petroleum sector requires the establishment of prudential rules and regulations by a statutory regulatory authority. Therefore, the setting up of regulatory mechanisms needs to be expedited, so as to ensure smooth transition from the APM regime to a market-driven pricing mechanism.

7.3.58 At the same time, there is need to provide for oil security through strategic storage of crude oil and petroleum products, diversification of oil imports and investing in equity oil abroad. In view of the strategic importance of the oil sector in the

economy, oil PSUs need to be restructured so that they can compete with private and multinational companies. Following restructuring, disinvestment in or privatisation of some of these companies through a transparent process should also be undertaken in the course of the Tenth Plan.

Thrust Areas for Tenth Plan

7.3.59 Keeping in view the above approach, the following thrust areas have been identified for the Tenth Plan:

i) Oil Security:

- a) Acceleration of exploration efforts, especially in deep offshore and frontier areas
- b) Improved oil recovery (IOR) / Enhanced oil recovery (EOR)
- c) Equity oil and gas abroad
- d) Strategic storage of crude oil
- e) Alternate fuels

ii) Infrastructure Development:

- a) Refining capacity
- b) Regulatory mechanism to oversee consumer interests
- c) Marketing and distribution facilities commensurate with demand

iii) Efficiency Improvement:

- a) Benchmarking of the hydrocarbon sector with international standards
- b) Oil conservation
- c) Demand side management

iv) Environment and Quality Improvement:

v) Reforms:

- a) Dismantling of APM
- b) Restructuring/disinvestment

vi) Regulatory Mechanism:

vii) Plan Outlays:

The action plan for the above thrust areas is detailed below :

Demand of Petroleum Products

7.3.60. The demand of petroleum products in the terminal year of the Tenth Plan (2006-07), based on a gross domestic product (GDP) growth rate of 8 per cent, was projected by the Working Group on petroleum & Natural Gas as 134.6 mt. However, in view of the low demand of petroleum products in the last two years of Ninth Plan and the increasing share of the service sector especially information technology (IT) in GDP (with e-commerce reducing transportation requirements), the demand target may be 120.4 million tonnes for 2006-07, resulting in a CAGR of 3.7 per cent during the Plan period.

Production of Crude Oil and Natural Gas

7.3.61 The cumulative production of crude and natural gas are estimated at 169.38 mt and 177.48 BCM during the Tenth Plan. The oil and gas production profile for the Tenth Plan is based on the established reserve base and also considering key issues like the present status of different fields, the input implementation schedules and status of health of the reservoirs. The year-wise break-up is given in the Tables 7.3.9 and 7.3.10.

Table - 7.3.9
Crude Oil Production

Organi- sation	2002-03	2003-04	2004-05	2005-06	2006-07	Total
ONGC	25.90	25.99	26.38	26.19	25.56	130.02
OIL	3.50	3.60	3.75	3.85	4.00	18.70
Pvt./JVC	3.68	3.63	4.50	4.44	4.41	20.66
Total	33.08	33.22	34.63	34.48	33.97	169.38

(mt)

Table - 7.3.10
Natural Gas Production

Million Standard Cubic Meters per Day (MMSCMD)

Organisation	2002-03	2003-04	2004-05	2005-06	2006-07	Total (BCM)
ONGC	65.5	63.37	62.22	58.83	57.03	112.10
OIL	6.01	6.41	6.61	7.69	7.80	12.61
Pvt./JVC	15.05	20.76	35.01	35.47	38.25	52.77
Total	86.56	90.54	103.84	101.99	103.08	177.48

Imports of LNG/Natural Gas

7.3.62. Import of LNG is on open general licence (OGL). A number of projects for setting up of LNG terminals have been approved by the Government and three terminals are under construction. The fate of other terminals is uncertain because statutory clearances and other agreements/guarantees are yet to be finalised. Another terminal at Kochi may also mature during the tenth plan. Considering that four terminals will be commissioned during the Tenth Plan, the overall extent of imports by the terminal year could be in the range of 40-50 million standard cubic metres per day (MMSCMD).

7.3.63. Pipeline gas imports are economically superior to LNG imports. However, the success of transnational gas pipeline projects critically hinges on various geo-political considerations involving security of supply, transit and importing countries etc. Initiatives have been taken for pipeline gas imports from various countries and some gas supplies may commence in latter part of the Tenth Plan.

OIL SECURITY

7.3.64. The increasing imports of crude oil and the proposed LNG imports during the Tenth Plan, high price volatility in the international markets and disruption of supplies due to war etc. raise the issue of oil security. The strategy to address the oil security concerns involves diversification of sources for crude supplies, strategic storage and globalisation measures to bring equity oil and gas/LNG from abroad. In view of this, the following issues would be given priority during the Tenth Plan.

Acceleration of exploration efforts, especially in deep offshore and frontier areas.

7.3.65. The exploration programme for the Tenth Plan would be targeted to appraise Indian sedimentary basins to the extent of 35 per cent. The target for hydrocarbon in-place reserves accretion is 785-914 mt from domestic activities during the Tenth Plan. Additionally, 320 mt of reserve accretion is planned from overseas activities during this period. Since the present known oil and gas producing fields in the country have already reached the declining stage, new thrust would be given for exploration in deep waters as also in the other frontier areas. Further, the system of open acreage for exploration would be adopted after some NELP rounds.

Improved oil recovery (IOR)/Enhanced oil recovery (EOR)

7.3.66. The crude oil production target for the Tenth Plan is 169.38 mt consisting of 148.72 mt by the oil PSUs and the balance by private/JV companies. This is almost the same as the Ninth Plan anticipated production. This is mainly due to the absence of any significant new additions from new fields. A number of improved oil recovery projects and enhanced oil recovery projects are proposed to be taken up to maintain the current production level. However, the total investment of ONGC for implementing 19 IOR/EOR projects in their 16 major fields is envisaged to be about Rs. 12,000 crore.

Equity oil and gas abroad

7.3.67. In view of the stagnating domestic production of crude and the widening gap between demand and supply of oil and gas, there is a need to diversify oil supply sources, and acquire equity oil and gas abroad. This would be an important component of the strategy to achieve oil security. The Government would encourage oil PSUs/private sector companies to tap opportunities available abroad for acquiring exploration acreages, either on their own or through strategic alliances. During the Tenth plan, ONGC envisages 5.2 mt of oil and 4.94 BCM of gas production from Russia (Sakhalin-I) and Vietnam. The year-wise break-up is given below:

	2002 -03	2003 -04	2004 -05	2005 -06	2006 -07	2002-07 (Tenth Plan)
OIL (mt)	-	-	-	1.2	4.0	5.2
GAS (MMSCMD)	0.63	1.64	2.22	3.45	5.60	4.94 (BCM)

Strategic storage of crude oil

7.3.68. The need for strategic storage arises from the lack of self-sufficiency in meeting the crude oil requirements. Crude oil inventories in the country are low, and are expected to go down further in the competitive market regime.

7.3.69. Under the APM, the storage of crude oil and petroleum products and the strategic requirements were being taken care by the oil PSUs. However, in the deregulated scenario, the oil companies will optimise their inventories to meet their operating requirements in order to take advantage of competitive pricing and enhance their margins. Thus, a mechanism for creating strategic storage would need to be evolved in the Tenth Plan.

Alternate fuels

7.3.70. Another step towards ensuring oil security is development of non-conventional energy sources such as CBM and gas hydrates. Further, blending of ethanol with motor spirit and diesel is to be pursued.

Coal bed methane (CBM)

7.3.71. A programme for exploration and production of CBM was announced in April, 2001 under which companies would be required to bid for committed work programme and production-based payment to the Government. Five CBM blocks have been awarded in the first round of bidding and, two blocks already awarded to PSUs on nomination basis. As per the initial assessment, significant production potential for methane production can be expected from these blocks, some of which may materialise during the Tenth Plan period.

Ethanol - Motor spirit/HSD blend

7.3.72. On the basis of the positive feedback from the three pilot projects - two in Maharashtra and one in Uttar Pradesh, it has been decided to introduce mandatorily ethanol blended petrol (5 per cent gasohol) in the first phase in the eight sugar-producing states of Andhra Pradesh, Gujarat, Karnataka, Punjab, Haryana, Maharashtra, Tamil Nadu and Uttar Pradesh by the end of 2002 and in the rest of the country in the second phase. In addition, an Inter-Ministerial Task Force has been constituted to prepare a roadmap to switch over to Ethanol blending with diesel and also for 10 per cent blending of ethanol with petrol.

Gas hydrates

7.3.73. The National Gas Hydrate Programme (NGHP) roadmap is being finalised. The draft roadmap envisages a number of activities like geo-scientific works and studies, laboratory studies, formulation of drilling technology and undertaking drilling operations besides brainstorming for working out the most appropriate production technologies of gas from gas hydrates. All the activities connected with the NGHP are planned to be taken up concurrently and pilot studies for the production of gas from gas hydrate, if found feasible, are planned by the end of the Tenth Plan.

INFRASTRUCTURE DEVELOPMENT

Refining capacity

7.3.74. Since the refinery sector has been de-licensed, it is not possible to correctly assess the future plans of refining capacity additions. The projection of total refining capacity materialisation during the Tenth Plan would depend upon several factors including domestic demand, duty structure that would affect import and export possibilities and refining margins.

7.3.75. As to the actual materialisation of the refining capacity, based on the present indications, the following two scenarios are likely to emerge:

Scenario - I. Keeping in view the competitive environment in the deregulated scenario, current low

refining margins, the slow down of the product demand and the fact that the companies would need to make substantial investments in quality upgradation projects, only expansion projects under implementation may fructify during the Tenth Plan. Under this scenario, the refining capacity will increase to around 138 million tonnes per annum (mtpa).

Scenario - II. If the product demand grows at a higher rate, then in addition to the capacity expansion projects under implementation, one or two new grass-root projects may also get completed during the Tenth Plan, taking the refining capacity to around 155 mtpa at the end of the Plan period.

7.3.76. It is expected that the companies, based on the trend in the demand growth, will review the refinery projects and rework the project completion schedules.

Regulatory mechanism to oversee consumer interests

7.3.77. In the deregulated, market-determined pricing scenario, when private companies (both Indian and foreign) are allowed marketing of transportation fuels, the degree of competition, enhanced efficiency of individual players and the market location (urban, rural or remote) would set the consumer prices. The emergence of differential pricing across different locations based on the cost of storage and distribution would enhance allocation efficiency, and encourage the establishment of refineries in economic consumption zones. However, certain remote and inaccessible areas of the country would require special attention, as the higher prices of petroleum products in remote areas would be detrimental to the overall development of such regions. Hence, the Government would need to monitor the prices of petroleum products in the country in general and in the monopolistic markets in particular. For this purpose an independent statutory regulator for the downstream petroleum sector will be set up.

Marketing of products and distribution facilities

7.3.78 The Government decided, through a resolution dated 8 March 2002 to authorise the

private sector to market transportation fuels namely motor spirit, high speed diesel, and ATF. So far, only public sector oil marketing companies were having the authorisation to market transportation fuels. The guidelines approved by the Government, inter-alia, provide for authorisation to market transportation fuels, conditional to a company investing or proposing to invest Rs. 2,000 crore in exploration and production, refining of oil and gas, pipelines and terminals. Such investment should work towards additionality of assets, and in the form of equity, equity-like instruments or debt with recourse to the company.

EFFICIENCY IMPROVEMENT

Benchmarking of hydrocarbon sector

7.3.79 The hydrocarbon sector would be developed as a globally competitive industry which could be benchmarked against the best in the world through technology upgradation and capacity building in all facets of the industry.

Oil conservation

7.3.80 Oil conserved through efficient utilisation can be looked upon as a quicker, efficient and economic source of new energy. Any reduction in oil demand due to efficient utilisation would allow the diversion of this scarce resource to other pressing needs and new economic activities.

7.3.81 Pending development of new energy resources and technology, there are tremendous opportunities for improving efficiency by adopting more efficient technologies available around the world and also by using market-driven approaches, which have a powerful impact.

7.3.82 Thus, there is an urgent need to establish a system framework and approach to realise the overall conservation potential. However, the existence of market imperfections limit their effectiveness. This calls for a regulatory approach, which includes setting of minimum standards and the labeling for all types of efficient equipment and appliances.

Demand side management

7.3.83 In India, the emphasis has always been on supply side management. However, demand side management needs to be pursued so as to minimise the overall cost. Demand side management in the oil sector implies minimising the oil intensity of the economy without compromising on the pace of economic development.

7.3.84 The demand for petroleum products has increased rapidly during the last two decades. Since the transport sector consumes about 45 per cent of oil in the country, demand management measures should primarily be directed at this sector. These would involve shift of traffic from road to rail, introduction of mass transport and other public transport in metropolitan cities and mandating fuel efficiency levels in transport vehicles.

ENVIRONMENT AND QUALITY IMPROVEMENT

7.3.85 Presently, the product quality requirements in India are ahead of most of the countries in the Asia-Pacific and Middle East regions. In order to enable adoption of Bharat Stage-II vehicular emissions standards through out the country and Euro-III equivalent emission norms in seven mega cities from April 2005, the quality of petrol and diesel would need to be further improved. For this purpose, measures such as further reduction of sulphur content need to be taken in a time-bound manner. Accordingly, Indian refineries would need to invest in secondary and tertiary processing facilities to ensure that the quality of products conforms to the appropriate specifications.

REFORMS

Dismantling of APM

7.3.86 With the dismantling of APM from 1 April 2002, the prices of all petroleum products have become market determined, with subsidy on kerosene under public distribution and LPG for domestic cooking to be met from the fiscal budget. These subsidies, to be provided on a flat rate basis, will be phased out over three to five years during the Tenth Plan.

7.3.87 In the deregulated scenario, refineries will have to improve their efficiency to meet the challenges of the competitive scenario. The four refineries (Digboi, Guwahati, Numaligarh and Bongaigaon) in the North-Eastern region are of sub-economic size compared to present day minimum/threshold size of 9 mtpa. There is no scope for increasing their capacities due to low consumption of petroleum products in the region and non-availability of crude oil from the North-East.

THE PATH AHEAD

- Deregulation of the petroleum sector with dismantling of APM.
- Establishment of a regulatory authority for the petroleum sector, including natural gas.
- Restructuring/disinvestment of oil and gas PSUs on a selective basis.
- Oil security through accelerated exploration activities, diversification of sources, securing equity oil abroad and strategic storage of oil.
- Development of alternative fuels such as CBM, MS-Ethanol blend, and gas hydrates.
- Benchmarking of the hydrocarbon sector to international levels.
- Phasing out of subsidies. Subsidies, if any, to be routed through the Central Budget.
- Improvement of product quality in line with international standards.
- Emphasis on R&D for introduction of latest technology.
- Creating an enabling atmosphere for development of infrastructure facilities to achieve global competitiveness.
- To promote a greener and cleaner environment in the country by setting emission norms and product quality specifications.

Restructuring/Disinvestment

7.3.88 The disinvestment process will be carried forward in selected oil and gas PSUs during the Plan period to enhance competition and maximise shareholder value.

REGULATORY MECHANISM

7.3.89 With the dismantling of APM, a regulatory mechanism will be established for the downstream and natural gas sector. The regulatory mechanism will oversee the functioning of the industry to ensure just and fair competition that protects consumer interest.

PLAN OUTLAYS

7.3.90 A public sector outlay for the Tenth Plan has been fixed at Rs. 96,041.19 crore. This consists of Rs. 59,468.95 crore for exploration and production and Rs. 36,572.24 crore for the refining and marketing sector. The company-wise outlays are given in Annexure-7.3.1 and the project-wise break-up of the Tenth Plan outlay is given in the Appendix. In view of the low utilisation of plan funds in Ninth Plan, all efforts should be made to stick to the approved cost and time schedule for the projects through regular monitoring so as to fully utilise the outlay.

COAL

Role of Coal in Global Energy

7.3.91 Coal contributes to around 22 per cent of the total global primary energy consumption against 40 per cent from oil, 23 per cent from gas, 7 per cent from nuclear, 2 per cent from hydro and 6 per cent from renewables. Around 38 per cent of total world electricity generation is based on coal. In the case of India, the share of coal in the supply of primary commercial energy has been about 50 per cent. About 70 percent of the power generated in India is coal and lignite based. The global hard coal consumption in 2000 was 3,738 mt against production of 3,639 mt. Coal demand grew by about one bt between 1980 and 2000. China is the largest producer (1,171 mt) followed by the United States (899 mt) and India (310 mt). The major coal

exporters are Australia (186.8 mt), South Africa (70 mt), Indonesia (56.8 mt), China (55.1 mt) and United States (53 mt). The major coal importers are Japan (145.3 mt), Republic of South Korea (61.7 mt), Chinese Taipei (45.4 mt), India (24.5 mt) and United Kingdom (23.5 mt).

7.3.92 Coal is a diverse and abundant source of energy. Most of the coal is consumed domestically and only 12 per cent of the world production is traded internationally. Coal will continue to play a key role in the future global energy demand. Known coal reserves are spread over almost 100 countries and at current production levels, proven coal reserves are estimated to last for over 200 years. In contrast, proven oil and gas reserves are estimated to last around 40 and 60 years respectively at current production levels.

7.3.93 Although combustion of coal produces environmental pollutants, this can be mitigated to a large extent by the development/adoption of clean coal technologies as they can substantially reduce the level of carbon dioxide emissions per unit of energy output. A 5 per cent conversion efficiency improvement in a coal-fired power plant brings more than 10 per cent reduction in carbon dioxide emissions. A global response encouraging voluntary actions on the part of industry and cooperation between industry and Government on this issue is required.

7.3.94 Coal is a relatively inexpensive source of energy compared to other fuels and coal prices are more stable when compared to the more volatile prices of oil and gas. Coal is easy and safe to transport and offers enhanced security of supply due to different and varied sources of supply. Levels of energy conversion efficiency in modern coal plants can reach 45 per cent through the use of supercritical steam conditions. This improves fuel efficiency and effective cleaning of flue gases.

Coal's Role in India's Energy Needs

7.3.95 Coal remains India's principal source for meeting its primary and secondary commercial energy requirements. Of the 1,04,917.50 MW of overall installed power generation capacity in the

country (as on 31 March 2002), about 59,386 MW is coal based and 2,745 MW is lignite based, totaling to 62,131 MW or 59 per cent. In the 1970s, the coal sector was nationalised and emphasis was laid on coal-based thermal power generation as the backbone of India's energy economy. In the past two decades, coal consumption grew at an annual rate of 5.7 per cent while coal production has grown at 5.1 per cent annually. In 2000-01, coal production touched 313 mt (of which about 96 per cent is from public sector) from 114 mt in 1980-81 and lignite production reached 24.25 mt from 5.11 mt over the same period.

7.3.96 Indigenous coal is likely to remain the most stable and least cost option for the bulk of India's energy needs in the foreseeable future. This is so because coal based thermal power generation capacity has a shorter gestation period and lower specific investment costs when compared to other locally available commercial energy resources like nuclear or hydropower. Thus, there is need for concerted efforts for the overall development of the sector in future Plans. Energy security concerns underscore the need to further develop indigenous coal production in the foreseeable future.

ROLE OF COAL IN WORLD ENERGY

- Around 38 per cent of total world electricity generation is based on coal. In 1999, Indian coal's share in electricity generation was around 70 per cent against 56 per cent in the case of United States, 80 per cent in the case of China, 84 per cent in the case of Australia, 90 per cent in the case of South Africa, 51 per cent in the case of Germany and Poland at 96 per cent. Also, coal is a key input for the steel and cement industries.
- Coal will continue to play a key role in the future global energy demand.
- Indigenous coal will be the most stable and economical option for the bulk of India's energy needs in the foreseeable future.

REVIEW OF NINTH PLAN

7.3.97 The Ninth Plan envisaged augmenting domestic coal production with a long-term perspective in view of the sharply increasing demand for the power sector through improved productivity, capacity utilisation, technology adaptation, simplified project clearance procedures, improved project implementation, exploration, conservation etc. An important area of concern

related to restructuring the coal sector and facilitating private sector participation in commercial coal mining through necessary legislative amendments. The Plan laid emphasis on clean coal technologies, science and technology in the coal industry, development of CBM resources, and augmentation of port and rail infrastructure facilities for improved coal movement and development of lignite resources.

Ninth Plan Success Stories in the Coal Sector

- A total of 24 billion tonnes (bt) of incremental coal reserves and 25 bt of incremental lignite reserves have been established through regional/promotional exploration during the Plan.
- Forty-seven new projects for a coal production capacity of 21.62 mt and one new lignite project for a production capacity of 3 mtpa have been sanctioned during the Plan.
- The incremental coal production during the Plan has been about 36 mt.
- The incremental coal consumption during the Plan has been about 53 mt.
- The incremental coal-based generation during the Plan has been 77.67 billion units (bu).
- The incremental lignite production from Neyveli Lignite Corporation (NLC) during the Plan has been 1.05 mt.
- The incremental gross generation from NLC during the Plan has been 1.75 bu.
- The overall productivity in terms of Output per Manshift (OMS) increased from 1.86 tonne to 2.44 tonne in Coal India Ltd (CIL) and 1.34 tonne to 1.55 tonne in Singareni Collieries Company Ltd (SCCL) during the Plan.
- A voluntary retirement scheme (VRS) was introduced for rationalising manpower. A total of 37,380 employees availed VRS in Eastern Coalfields Ltd, Bharat Coking Coal Ltd, and Central Coalfields Ltd during the Plan and the funds were provided through the National Renewal Fund/domestic budgetary support.
- Under clean coal technologies, a demonstration project on Coal Bed Methane (CBM) extraction and utilisation has been taken up under coal sector S&T grants and UNDP/GEF funding.
- With deregulation of prices of remaining grades of coal with effect from 1 January 2000, the prices of all grades of coal stand decontrolled.
- Based on the recommendations of High Level Committee to look into the problems of subsidence and fire in Raniganj and Jharia coalfields, a Plan scheme, Rehabilitation, Control of Fire and Subsidence in Jharia and Raniganj Coalfields has been taken up for mitigation measures.
- In order to upgrade the proved coal reserves, particularly in the blocks outside the CIL command area, and to reduce time lag between allotment of coal mining blocks to the private entrepreneurs and the coal mining operations, a Plan scheme, Detailed Drilling in Non-CIL Blocks has been taken up with budgetary support. About 2 bt of coal reserves have been established under this scheme.
- The Government has allowed securitisation of outstanding coal and power sale dues from SEBs to coal companies. This is expected to yield results in the Tenth Plan.

Coal Demand

7.3.98 Sluggish economic growth and non-materialisation of new coal based thermal power generation capacity in the first two years of the Ninth Plan has adversely affected coal demand. Coal consumption registered a marginal growth of 2 per cent during this period against the initially envisaged annual demand growth of 6.85 per cent in the Ninth Plan. Thus, during the Mid-Term Appraisal of the Ninth Plan, coal demand in the terminal year of the Plan was revised downwards from 412.20 mt to 370.80 mt of raw coal implying an average annual compounded growth of 4.6 per cent. However, the anticipated coal consumption of 348.43 mt (excluding 4.93 mt of washery middlings) in 2001-02 would imply a growth of only 3.32 per cent per annum in coal consumption against the revised Ninth Plan target of 4.6 per cent. This shortfall has been mainly due to a 49 per cent slippage in addition of coal-based power generation capacity. As against a target of 15,102 MW of incremental coal-based generation capacity, only 7,680 MW (51 per cent) has been realised during the Ninth Plan.

7.3.99 Unlike earlier Plans, where the coal offtake mainly got affected due to transportation constraints, in the Ninth Plan, it was mainly affected due to financial constraints of state electricity boards (SEBs). The SEBs did not lift the linked quantities entirely and did not maintain the stipulated norms for stocks at thermal power stations. Despite the slower growth in coal offtake by power plants, coal-based generation registered a growth of 5.2 per cent during the Ninth Plan as a result of improved plant performance. Offtake was also adversely affected because of import of non-coking coal by cement producers and coastal power plants. Such imports became economical due to high railway freights for coal and incentives for cement exports. Besides, import of coking coal by the steel sector increased from 9.45 mt at the beginning of the Ninth Plan to about 11 mt in the terminal year because of the lack of local coal supplies to meet the demand.

Coal Production

7.3.100 The slump in coal offtake had its effect on coal production, which also suffered. The coal companies resorted to matching production to the

offtake to avoid piling up of pithead stocks. This, in turn, has necessitated downward revision of the coal production target in the terminal year of the Ninth Plan from 370.60 mt to 328.86 mt, implying an average annual compound growth of 2.86 per cent against the envisaged growth of 5.3 per cent. The anticipated coal production of 325.65 mt in 2001-02 implies an average annual compound growth of 2.4 per cent. It is to be noted that the anticipated coal production comprises of 4.10 mt from private sector mines in Meghalaya, which was not considered at the time of the formulation of the Ninth Plan.

7.3.101 Against an incremental coal production of 56.37 mt achieved in the Eighth Plan, the incremental coal production envisaged in the Ninth Plan was 84.94 mt. Of this, 60.04 mt was to come from new projects of PSUs [Coal India Ltd. (CIL)-55.71 mt and Singareni Collieries Co. Ltd. (SCCL)-4.33 mt] and 13 mt from new captive blocks. As against this, the anticipated incremental coal production during the Ninth Plan was only 36.36 mt. The capacity of the new projects sanctioned by CIL and SCCL till December 2000 was only 19.32 mt (CIL-17.06 mt; SCCL-2.26 mt). Production from the captive blocks yielded only 4 mt.

7.3.102 This slow rate of capacity addition is likely to affect the coal availability in the medium and long term. This shortfall is likely to become more acute as the gestation period for a coalmine is considerably longer than a power plant. Urgent steps are needed to develop all projects identified in the Ninth Plan and to invite private sector participation. Coal companies are reluctant to make investments in new projects in the absence of firm fuel supply agreements (FSAs). Augmentation of coal production capacity to meet the coal demand in the Tenth Plan and beyond is expected to be seriously impacted in the absence of immediate corrective actions.

4.5.103 The Ninth Plan physical and financial performance is given in Table- 7.3.11.

Ninth Plan At A Glance

- Lower than expected economic growth and non-materialisation of new coal-based

Table-7.3.11
Ninth Plan Physical & Financial Performance

Parameter	Ninth Plan (2001-02)				% ACGR		
	Original	Mid-Term Appraisal	Annual Plan Target	Anticipated	Original	Mid-Term Appraisal	Anticipated
I. Physical							
Coal Demand/Offtake (mt)	412.20 (7.70)	370.80 (7.70)	354.29 (4.83)	348.44 (4.93)	6.85	4.6	3.32
Coal Production (mt)	370.60	328.86	322.73	325.65	5.34	2.86	2.40
Lignite Production (mt)							
NLC	22.00	22.00	17.50	17.50	4.90	4.90	0.17
GMDC	10.00	NA	NA	6.55			
Rajasthan	13.00	NA	NA	0.25			
Total:	45.00			24.30			
Promotional Expl. Cumm. IX P (m)	7,75,000	7,20,000	NA	6,59,000			
Detailed Drilling Non-CIL cumm IX P (m)	3,75,000	3,63,000	NA	2,76,000			
II. Financial (1997-02) (Rs.Cr.)							
Coal & Lignite:	17575.23	17430.74		13130.31			
NLC (Power)	1866.36	1713.00		1257.41			
Total DOC:	19441.59	19143.74		14387.72			

Note:- NLC - Neyveli Lignite Corporation Ltd.; GMDC - Gujarat Mineral Development Corporation Ltd.

power generation capacity affected coal offtake and coal production.

- The slow rate of coal capacity addition during the Plan will adversely affect the domestic coal availability in case the coal demand for power picks up in the Tenth Plan and beyond.
- The Bill to amend the Coal Mines (Nationalisation) Act, 1973 allowing private sector in commercial coal mining is yet to be approved.
- The setting up of a regulatory authority and allocation of coal blocks for exploration and exploitation has not taken place.
- Restructuring of CIL as envisaged has not been done.
- Though decontrol of coal prices has improved the financial health of the coal

companies, the revival of loss-making coal companies has not taken place.

- Voluntary retirement scheme is being implemented in loss-making coal companies for rationalising the manpower and to improve their financial health.
- Detailed exploration in non-CIL blocks has been taken up to upgrade proven coal reserves.
- The extractable coal reserves stand at 18 bt only (21 per cent of the proved reserves of about 84 bt).
- Import dependence for coking coal in the case of steel sector is on increase, as the domestic supplies are not improving. Further, imports of non-coking coal are also on the rise, particularly in coastal regions, due to high domestic freight rates.

- Constraints of land acquisition, rehabilitation, forestry and environmental clearances, etc. continue to adversely affect implementation of coal projects.
- Unpaid dues from SEBs continue to rise and dent the financial health of the coal and lignite companies.
- Plan expenditure suffered as a result of shortfall in internal resource generation.

7.3.104 Presently, about 57 per cent of the total coking coal produced in the country is being used for metallurgical purposes and the rest for power and other industrial purposes. Though coking coal is meant for use in metallurgical purposes, the low utilisation of available production in India is because of the poor quality of the coal, which is not economical to wash. The existing coking coal washeries were designed to beneficiate coking coal of relatively easy to moderately difficult washability characteristics. Increased production from lower seams containing poor quality coal, increased production from mechanised opencast mines and increased proportion of fines below 0.5 mm with no proper facilities to process and handle are coming in the way of the performance of coking coal washeries.

7.3.105 The ash percentage in the washed coking coal is being maintained in the range of 18-20 per cent. The yield of washeries has deteriorated considerably declining from 51 per cent in the beginning of the Ninth Plan to about 43 per cent at the end of the Plan period. Against a planned supply of 12.26 mt of washed coking coal from CIL sources, the anticipated supply is only 5.19 mt. Some of the coking coal washeries of CIL have been converted for washing non-coking coal, but the results have been mixed and technical problems persist. Washeries have thus remained uneconomical.

7.3.106 The Ninth Plan laid emphasis on beneficiation of non-coking coal for supply to power plants located beyond 700 km from pitheads. Coal beneficiation was also emphasised to comply with the directive of the Ministry of Environment and Forests mandating use of coal containing not more than 34 per cent ash in thermal power stations

located 1,000 km from pitheads and those located in urban/sensitive/critically polluted areas, irrespective of their distance except the pithead plants. According to estimates by the Joint Apex Committee constituted by the Ministry of Power to consider the various aspects relating to the directive of the Ministry of Environment and Forests, about 90 mt is the requirement projected for such stations. However, the available capacity to wash non-coking coal in CIL is only about 10 mt from seven washeries. Though coal washing is open to private sector participation, there have not been any takers. This is mainly because washeries are not permitted to sell washed coal directly to the consumers. It has been proposed to supply blended coal to maintain 34 per cent ash level but even this is not happening. The need to create additional capacity for washing and coal beneficiation continues.

Demand Supply Gap

7.3.107 The assessed raw coal demand of 354.29 mt in 2001-02 was proposed to be met through a domestic production of 322.73 mt, a stock draw down of 1.5 mt from CIL and import of 15.97 mt of coking coal for steel. This left a gap of 14.09 mt, which was proposed to be met from CIL and SCCL should the demand pick up. As against this, the anticipated coal consumption/offtake of 348.43 mt in 2001-02 is proposed to be met through domestic production of 325.65 mt, likely coking coal imports of 10.80 mt with the balance being met through import of non-coking coal and stock draw down from CIL.

Productivity

7.3.108 To improve the overall productivity of men and machinery certain steps like rationalisation of manpower through implementation of voluntary retirement scheme (VRS), decommissioning of uneconomic mines, prioritising the investment programme, improving the utilisation of capital intensive heavy earth moving machinery (HEMM), etc have been taken up during the Ninth Plan. As a result, the overall productivity in CIL and SCCL, which was standing at 1.86 t [under ground (UG) - 0.57 t; open cast (OC) - 5.12 t] and 1.34 t (UG - 0.72 t; OC - 6.25 t) at the beginning of the Ninth Plan has improved to 2.44 t (UG - 0.66 t; OC - 6.41

t) and 1.55 t (UG - 0.81 t; OC - 7.00 t) respectively. The improvement in output per manshift (OMS) is primarily the result of improvements at opencast mines. The underground mines productivity needs to be further improved. In the case of HEMM, the norms prescribed earlier by the Central Mine Planning and Design Institute Ltd. (CMPDIL) are under review by a Committee of the Department of Coal whose report is awaited.

Lignite

7.3.109 The Ninth Plan laid emphasis on lignite development in the country. An incremental lignite-based generation capacity of 995 MW was envisaged in the beginning of the Plan. As against this, 535 MW (54 per cent) has been realised. In the Neyveli Lignite Corporation (NLC), a lignite production capacity of 4 mtpa through expansion of the existing Mine-I project for supplying lignite to the 2x210 MW TPS-I Expansion project has nearly been achieved and a new project, namely, Mine-1A for a capacity of 3 mtpa for supplying lignite to an independent power project of 250 MW has been taken up. The estimated demand for lignite in the terminal year of the Ninth Plan was 54.44 mt (Tamil Nadu 28.99 mt; Gujarat 9.50 mt; Rajasthan 14.90 mt; and other states 1.05 mt) with a corresponding production of 45 mt (NLC-22 mt; GMDC-10 mt; Rajasthan-13 mt). The anticipated lignite production from NLC in 2001-02 is 17.5 mt. The GMDC has achieved a production of 5.82 mt (2000-01) whereas the lignite production from Rajasthan has not taken off and is hovering around 0.25 mt only.

Exploration

7.3.110 Reserves of coal are classified into three categories, namely, 'proved', 'indicated' and 'inferred'. 'Regional exploration' is carried out for making a general assessment of the 'geological resources' of coal under the 'inferred' and 'indicated' categories. Following the regional exploration, 'detailed exploration' is carried out by the coal companies for upgradation of coal reserves into the 'proved' category by accurately delineating the geometry of coal seams and determining the quality or grade of coal in potential coal blocks. Based on the findings of detailed exploration, detailed geological reports and project reports for coalmines

are formulated. The Geological Survey of India (GSI), under the Department of Mines, carries out regional exploration from its own funds.

7.3.111 The GSI is not in a position to allocate sufficient funds for regional exploration for coal and lignite. In order to accelerate the pace of regional exploration, the subsequent detailed exploration for designing projects to exploit coal reserves to meet the demand for coal during the Seventh Plan and after, the Planning Commission set up a separate fund under a plan scheme, 'Regional/Promotional Exploration' within the budget of the Department of Coal, in 1989-90. The fund was initially for SCCL areas only, and was subsequently extended to CIL and NLC areas from 1991. The execution of exploration work was initially undertaken by Mineral Exploration Corporation Ltd. (MECL) and was extended to GSI from 1992-93. From September 1999, CMPDIL has also been inducted as the third agency for promotional exploration for coal.

7.3.112 CIL and CMPDIL have identified the blocks retained by CIL as 'CIL Blocks' and those not to be retained by CIL as 'Non-CIL Blocks'. Until 1997-98, the CIL's subsidiaries were funding detailed exploration in all the blocks. Due to paucity of funds, the coal companies are not willing to fund the detailed drilling in non-CIL blocks. Therefore, it was decided to fund this activity through budgetary support in order to reduce the time lag between allotment of mining blocks to private entrepreneurs and coal mining operations and thus to reduce the gap between the demand and availability of coal. The Ninth Plan exploration programme is given in Table-7.3.12.

7.3.113 As against the coal reserve inventory of 204.65 bt (bt) [proved - 72.73 bt; indicated - 89.84 bt; inferred - 42.08 bt] at the beginning of the Ninth Plan, the reserves of coal as on 1 January 2001 stand at 220.98 bt [proved - 84.4 bt or 38 per cent of total reserves; indicated - 98.5 bt (45 per cent); inferred - 38.00 bt (17 per cent)]. Of the 84.4 bt of proved coal reserves, the estimated extractable reserves are 17.96 bt (21 per cent) only. Similarly, the reserves of lignite in the country as on 1 January 2001 are estimated to be 34.61 bt against 27.45 bt during the beginning of the Ninth Plan.

Table-7.3.12
Ninth Plan Exploration Programme

Type of Exploration	Agency	Ninth Plan Drilling Programme		Reserves Established (billion tonnes)	
		Target (Lakh metres)	Anticipated (Lakh metres)		
I. Regional	GSI	Coal	2.25	1.10	1.38
		Lignite	-	0.11	-
		Sub-Total:	2.25	1.21	1.38
II. Regional/ Promotional	GSI	Coal	1.05	0.70	6.88
		Lignite	0.45	0.14	0.032
	MECL	Coal	2.25	2.81	14.41
		Lignite	4.00	2.57	25.41
	CMPDI	Coal	-	0.37	-
	Sub-Total:	Coal	3.30	3.88	24.00
		Lignite	4.45	2.71	25.44
III. Detailed Drilling-Non-CIL	CMPDI	Coal	-	1.36	0.80
	MECL	Coal	-	1.09	1.19
	Sub-Total:	Coal	3.63	2.45	1.99
IV. Detailed Drilling	CIL Areas	Coal	13.5	8.04	20.02
	SCCL Areas	Coal	2.80	1.68	0.826
	Others	Coal	2.50	0.16	-
	Sub-Total:	Coal	18.80	9.88	20.85

Project Implementation

7.3.114 Of the initially targeted coal production of 350 mt from the coal PSUs in the Ninth Plan, 60.04 mt was to come from new projects (CIL 55.71 mt; SCCL 4.33 mt) and the balance from existing mines and ongoing projects. A review of the actual performance reveals that a capacity of only 21.62 mt in new projects has been sanctioned in CIL and SCCL till December 2001. The production from captive blocks has been 4 mt against a target of 13 mt. This rate of capacity addition would affect coal availability in the Tenth Plan period and beyond. Land acquisition, forestry clearance, rehabilitation, equipment supplies, availability of funds, inadequate geological studies, improper project formulation, etc. continue to delay the implementation of coal projects, de-ration of capacity of some projects and some foreclosures. The decision of the Department of Coal to only undertake projects yielding an internal rate of return (IRR) of 16 per cent or more has also affected a number of technically viable coal projects. However, the

Department has reviewed this decision at the end of the Ninth Plan and lowered the IRR to 12 per cent.

7.3.115 There are several instances of projects, which are formulated with low initial specific investments only to be revised subsequently with significant cost overruns and delays. While this in itself is cause for concern, what is even more worrisome are repeated instances of a third level of revisions which essentially lower production estimates for varying technical and non-technical reasons resulting in even higher specific investment costs. This pattern appears consistently across projects promoted by Eastern Coalfields Ltd. (ECL) and Bharat Coking Coal Ltd. (BCCL) and hinders proper assessment and utilisation of limited resources. This establishes a need for reviewing project formulation practices of the coal companies.

7.3.116 The problems of mutation and transfer of land by state governments need to be addressed in the right perspective for meaningful implementation of coal projects. Similarly, grant/

renewal of lease by state governments also needed to be speeded up to reduce delays in the case of new projects. In spite of several recommendations that a single window system with specific time frames needs to be established for environmental and forestry clearances, it takes unduly long time for new projects to get clearances. Further, charging of the 'expectation value' towards forest land by the state governments is becoming a hurdle in project implementation and coal companies are being made to pay huge amounts in this regard adding to the cost of the projects over and above the cost of afforestation.

Movement

7.3.117 The movement of raw coal and coal products by rail from CIL and SCCL has increased from 165.07 mt (59 per cent of the total coal offtake) in 1996-97 to 181.33 mt (58 per cent of the total coal offtake) in 2001-02. The component of merry go round (MGR) movement has increased from 61.54 mt (22 per cent of the total coal offtake) in the beginning of the Ninth Plan to 77.76 mt (24.9 per cent of the total offtake) in the terminal year. Movement of coal by road in the beginning of the Plan was 50.90 mt (18.16 per cent of the total coal offtake) and has increased to 53.6 mt (17.2 per cent of the total coal offtake). Coastal shipment of coal has increased from 11.58 mt (4.1 per cent of the total coal offtake) in 1996-97 to 16.52 mt (5.3 per cent of the total coal offtake) in 2001-02.

7.3.118 The Ninth Plan identified certain critical rail links in potential coalfields and the Railways have taken up most of these for implementation. It was envisaged to strengthen the port infrastructural facilities in the Ninth Plan for facilitating coal imports. The capacity of coal handling at ports has increased from 8 mt at the beginning of the Ninth Plan to 44 mt in the terminal year.

Science And Technology

7.3.119 Though research and development (R&D) has been a thrust area in the Ninth Plan, not much of progress has taken place in this regard in the coal sector. As a result, the outlays provided remained largely unutilised. However, two important projects, namely, CBM extraction in collaboration

with the UNDP and GEF and washing of low volatile medium coking coal have been taken up for demonstration under the coal sector science and technology grants.

Environmental Measures

7.3.120 The Ninth Plan had proposed a renewed thrust on improving the environmental conditions in coal mining areas, particularly, to tackle fire and subsidence problems in the Jharia and Raniganj coalfields in Jharkhand and West Bengal respectively. As per the recommendations of a high powered committee of the Government of India, the Department of Coal has formulated a Master Plan under which a scheme 'Rehabilitation, Control of Fire and Subsidence in Jharia and Raniganj Coalfields' has been taken up for phased implementation.

Coal Bed Methane (CBM)

7.3.121 CBM is emerging as a new source of commercial energy in the country and a potential of about 1,000 billion cum of CBM is estimated. The Ninth Plan laid emphasis on the exploration and exploitation of CBM. The policy for exploration and exploitation of CBM was approved in July 1997 and steps taken to exploit CBM by awarding blocks to private parties. Further, a few companies have attempted pilot testing for CBM in the country. The ONGC has been working on CBM exploration as a research and development project since 1994 and has drilled six experimental wells - two in Durgapur in West Bengal and four in Jharia. The ONGC has been given a block in the North Raniganj area for CBM exploration on nomination basis. The Government has also approved exploration and exploitation of CBM in the Raniganj area by the Great Eastern Energy Corporation Ltd. OIL has also been awarded a block on nomination basis.

7.3.122 Further, in September 1999, the Government approved a demonstration project 'Coalbed Methane Recovery and Commercial Utilisation' under the science and technology plan of the Department of Coal. The project is being jointly funded by the GEF/UNDP and the Government of India. The duration of the project is five years and it is being implemented mainly by

CMDPIL with BCCL as the co-implementing agency on behalf of the Department. The project sites are Moonidih and Sudamdih mines in BCCL in Jharia coalfield.

Policy Measures

7.3.123 During the Ninth Plan, the recommendations of the Committee on 'Integrated Coal Policy', 1996 were implemented by the Government. Coal prices have been deregulated and the Coal Mines (Nationalisation) Amendment Bill, 2000 for permitting private sector in commercial coal mining is before the Parliament. However, implementation of the other recommendations with regard to setting up of an independent body for allocation of coal blocks for exploration and mining, establishing a regulatory authority etc. are contingent on the enactment of the Bill.

7.3.124 The Ninth Plan laid emphasis on making the coal sector competitive by restructuring the coal PSUs. It was proposed to give them more autonomy and to do away with the holding company structure. The capital restructuring of both CIL and SCCL was done at the beginning of the Ninth Plan and again during the Ninth Plan. Some coal PSUs have started posting profits and paying taxes and dividends to the Government. However, some inherently sick coal companies like ECL and BCCL could not be revived and are currently before the Bureau of Industrial and Financial Reconstruction (BIFR). More importantly, rationalisation of manpower has been taken up by implementing the VRS in these coal companies. Of late, Central Coalfields Ltd. (CCL) has also started posting losses and the VRS has been extended to it as well. The proposal of doing away with the holding company structure has not been implemented in this case.

7.3.125 Unlike the earlier Plans, the Ninth Plan started with a focus on reforms in the coal sector in line with the other sub-sectors of the energy sector. However, the delay in passing the Coal Mines (Nationalisation) Amendment Bill has negated the envisaged benefits of private participation in commercial coal mining. During the Plan period, coal producers and consumers have started entering into commercial coal supply agreements and a cash and carry system of coal trade has

emerged. The prices of all grades of coal are decontrolled and coal PSUs have been empowered to fix the price of coal. However, in view of the fact that coal still remains under the Essential Commodities Act, selling of coal by private parties is not permitted. Coal imports have been kept under OGL and import duties have been significantly pruned in the Ninth Plan. The royalty rate on lignite has been revised. Plans for reviving loss-making coal companies have been initiated and rationalisation of manpower is being done. The Government has amended the 1979 Mining Policy for Coal, which confined coal-bearing states to mining only non-coking coal in isolated patches. State governments can now mine either coking or non-coking coals through their undertakings/ companies on par with CIL.

Towards Reforms

During the Eighth Plan—

- Private sector was allowed in captive coal mining.
- Coal was put on OGL and import duties reduced significantly.
- Financial restructuring of coal PSUs took place for strengthening financial health and doing away with budgetary support.
- Switching over to fuel supply agreements (FSAs) between coal companies and consumers started.
- Partial disinvestment of NLC done.
- FDI permitted in coal mining.

During the Ninth Plan –

- Coal prices decontrolled totally from 1 January 2000.
- VRS introduced for rationalising manpower.
- Removal of overburden by hired HEMM in opencast mining projects taken up.
- The 1979 Mining Policy for coal and lignite was replaced. State governments of coal bearing states are now allowed to mine both coking and non-coking coal without any restriction through their undertakings/ companies on par with Coal India Ltd.
- Joint ventures are permitted for coal projects.
- Equipment manufacturers are involved in underground mining operations on production sharing basis.

Plan Expenditure

7.3.126 The approved Ninth Plan outlay for coal and lignite was Rs.17,575.23 crore excluding Rs.1,866.36 crore for the power component of NLC. However, during the Mid-Term Appraisal of the Ninth Plan, it was revised to Rs.17,430.74 crore for coal and lignite and Rs.1,713 crore for NLC (Power). This included enhanced outlays for the Regional/Promotional Exploration scheme and Detailed Drilling in Non-CIL Blocks scheme. The outlay for VRS was also included in this as it was taken out of National Renewal Fund (NRF). The outlays of CIL and SCCL have been revised downwards due to reduction in the coal production targets and the capital restructuring package of SCCL, which envisaged recourse to offloading of overburden removal operations in their open cast mines instead of doing the same by procuring HEMM departmentally. As a result, the capital cost of the major ongoing open cast projects has gone down significantly, bringing down the overall outlay of SCCL. The outlay for NLC (Mines) has slightly increased due to the committed expenditure for Mine-1A and expansion projects of Mine-I and TPS-I. On the whole, the anticipated Plan expenditure of coal and lignite is about 74 per cent of the Plan outlay and that of NLC (Power) is about 67 per cent.

7.3.127 CIL was not provided any domestic budgetary support from the beginning of the Plan as per the capital restructuring package. SCCL has also stopped getting domestic budgetary support from 2001-02 onwards consequent to its capital restructuring. CIL funded its investments mainly through their internal resources, a World Bank loan for the Coal Sector Rehabilitation Project (CSRP) and other extra budgetary resources. However, the World Bank loan was discontinued after availing part of it under Phase-I. NLC was provided domestic budgetary support for implementing the Mine-1A project, which is linked to an independent power project. Other schemes of the coal sector, which were exclusively supported through domestic budgetary support are Regional/Promotional Exploration, Science and Technology, Environmental Measures and Subsidence Control, Detailed Drilling in non-CIL Blocks, Rehabilitation Project, IT and VRS. The scheme of Regulatory Framework Review Project was taken up through

World Bank aid as a precondition for availing CSRP loan and has been completed.

APPROACH TO THE TENTH PLAN

7.3.128 Since coal will continue to remain the principal source of commercial energy in the country for the foreseeable future, all out efforts are needed for rapid development of coal resources. A substantial expansion in domestic coal production will be needed if the power sector is to expand to support the targeted 8 per cent GDP growth. Since the gestation period of a coal mine is considerably longer than that of power plants, planning for coal production should not only keep in mind the requirements of the Tenth Plan but also future Plans. In view of the significant role of coal in the energy security net of the country, it is important to bring out a long-term vision i.e. 'Vision 2025' for proper development of the coal sector. Approval of the Coal Mines (Nationalisation) Amendment Bill, 2000 by Parliament will expedite the reform process in the coal sector and help attract private investment in this area. Simultaneously, it is important to amend certain provisions of other statutes to overcome the hurdles in the way of private mining in notified tribal areas. The procedures for environmental clearance also need to be greatly simplified so that potential private investors have to deal with clear and transparent rules. Similarly, amendments to labour laws are equally important to offload certain mining activities.

Coal Demand

7.3.129 As against the anticipated coal offtake/consumption of 348.43 mt of raw coal excluding 4.93 mt of washery middlings during the terminal year of the Ninth Plan, the demand in the terminal year of the Tenth Plan has been estimated at 448.05 mt excluding 5.24 mt of middlings. The estimate has been worked out after discussions with major consuming sectors and with reference to the projected coal-based thermal generation capacity addition programme of 19,565 MW of the overall capacity addition programme of 46,565 MW envisaged in the Tenth Plan by the Ministry of Power. However, the Planning Commission has reviewed the situation and on the basis of most likely capacity addition, the overall capacity addition has been

revised downwards to 41,110 MW of which the coal-based capacity addition is envisaged to be 18,308 MW. Accordingly, the coal demand in 2006-07 has been revised to 460.50 mt excluding 5.24 mt of washery middlings. This implies a compound annual growth rate of 5.73 per cent for coal demand in the Tenth Plan against an anticipated growth of 3.32 per cent during the Ninth Plan. Of this

estimated demand, 37.21 mt (8.1 per cent) is of coking coal for the steel sector and 423.29 mt (91.9 per cent) is of non-coking coal. Sixty-nine per cent of the total estimated demand is for power sector utilities, 5.3 per cent for the cement sector, 6 per cent for captive power and the remaining 11.6 per cent is for other sectors. The sector-wise details of coal demand/offtake are given in Annexure-7.3.2.

Tenth Plan Thrust Areas

- Continuation of the reform process and facilitating private sector participation in commercial coal mining with a view to gaining access to latest technologies for coal exploration, production and utilisation and to raise competitiveness through competition.
- Restructuring of the coal sector by providing more autonomy to individual coal-producing companies for making them viable and enhancing their competitiveness.
- Setting up of a regulatory authority for resolving disputes and allocation of coal blocks both for exploration and exploitation.
- Rationalisation of rail freight rates for coal movement.
- Need for rationalising import duty on coal for improving competitiveness of the sector.
- Setting up a mechanism for expeditious clearance of dues from SEBs for improving the financial health of coal PSUs.
- Augmentation of the coal production capacity to meet the projected demand of the power sector in particular and other end use sectors in general.
- Intensification of exploration and upgradation of coal reserves to the proven and recoverable category in the context of the energy security.
- Improvement of environmental aspects and promotion of clean coal technologies – beneficiation of non-coking coal for power generation; development of CBM; carbon dioxide sequestration; coal gasification; integrated gas combined cycle (IGCC) and fluidised bed combustion (FBC) route of power generation, development of slurry transportation, etc.
- Promoting washed coking coal with the adoption of better technologies and making domestic products competitive for the steel sector with a view to reducing import dependence.
- Development of port and rail infrastructure for coal movement and reducing dependence on road transportation and promoting other modes of coal transportation.
- Rapid development and utilisation of lignite resources both for power generation and industrial purposes.
- Development of in-house research and development.
- Need for improving productivity and capacity utilisation.
- Pricing and grading of coal on gross calorific value (GCV).

7.3.130 The estimated demand for power is related to an incremental coal-based thermal power generation capacity addition programme of 18,308 MW and a coal-based generation programme of 452 billion units (BU) in 2006-07. Similarly, the estimated coal demand for captive power considered a capacity of 8,671 MW. Coal demand for steel is related to a hot metal production programme of 25.59 mt in 2006-07. The envisaged demand for cement is related to a cement production programme of 153.5 mt in 2006-07.

7.3.131 However, the estimated coal demand for power sector utilities will depend on various clearances for new power projects by the end of 2002-03, finalisation of fuel supply agreements with coal companies and achievement of financial closures by the proposed new power plants.

Coal Production

7.3.132 The coal production target in 2006-07 is set at 405 mt against an anticipated production of 325.65 mt in 2001-02 implying annual compound growth of 4.46 per cent in the Tenth Plan against 2.4 per cent likely to be achieved during the Ninth Plan. This comprises 350 mt from CIL, 36.13 mt from SCCL, 5.24 mt from Tata Iron and Steel Co. (TISCO now renamed Tata Steel), 2.4 mt from PSUs like Indian Iron and Steel Co. (IISCO), Damodar Valley Corporation (DVC), Bihar State Mineral Development Corporation Ltd. (BSMDCL) etc., 6.73 mt from captive block holders and 4.5 mt from the private sector in Meghalaya. The incremental coal production in the Tenth Plan is 79.35 mt against 39.56 mt in the Ninth Plan. This comprises of 71 mt from CIL, 5.13 mt from SCCL and 3.22 mt from others. Of CIL's 71 mt, the major incremental contribution is from South Eastern Coalfields Ltd. (SECL) - 21.55 mt, Mahanadi Coalfields Ltd. (MCL)

- 21.5 mt, Northern Coalfields Ltd. (NCL) - 8.5 mt and Central Coalfields Ltd. (CCL) - 10.3 mt. The category-wise coal production is given in Table-7.3.13.

7.3.133 Of the envisaged total coal production of 386.13 mt from CIL and SCCL, 83.12 mt (CIL 79.11 mt; SCCL 4.01 mt) or 22 per cent is to come from new mines to be taken up in the Tenth Plan (CIL will have 98 projects for a total capacity of 197.40 mt and with an estimated capital investment of Rs.23,159.24 crore while SCCL will implement 17 projects for a capacity of 4.13 mt and a capital investment of Rs.2,116.96 crore). Unless these projects come up, it will be difficult to meet the requirements from domestic sources and the preparedness of the coal companies in meeting this target needs to be ascertained. However, it will be prudent to concentrate on such projects where augmentation of coal production is feasible by means of marginal investments and within a shorter gestation period with the use of existing infrastructural facilities. The contribution from captive blocks is only 2 per cent of the total targeted production of 405 mt. This shows there is an urgent need to encourage private participation for augmenting coal production from domestic sources.

7.3.134 The share of underground and open cast production in CIL works out to 17 per cent and 83 per cent respectively and 46 per cent and 54 per cent respectively in the case of SCCL. Of CIL's projected underground production of 60.65 mt, 4.97 mt is from mechanised longwall faces and 34.13 mt from mechanised bord and pillar (B&P) workings. In SCCL, of the total 16.76 mt of projected underground production, 2.54 mt is planned from mechanised longwall faces and 3.12 mt from mechanised B&P workings. Although, the reserves amenable to open cast mining are being targeted

Table-7.3.13
Categorywise Coal Production (million tonnes)

Category	CIL	SCCL	TISCO/IISCO/DVC	Captive Blocks	Meghalaya	Total
Existing	25.50	3.87	7.55	4.00	4.10	45.02
Completed	200.81	19.03	-	-	-	219.84
Ongoing	44.59	9.22	-	-	-	53.81
New	79.11	4.01	0.09	2.73	0.40	86.34
TOTAL:	350.00	36.13	7.64	6.73	4.50	405.00

due to low cost of production, quality concerns are getting diluted. Open cast mines lead to degradation of the environment compared to underground mines and are not sustainable in the long run. The global trend is to opt for highly mechanised underground mines with economies of scale. In the long run, considering depletion of reserves amenable to open cast mining, environmental and quality considerations, economies of scale etc., coal companies need to plan for a suitable mix of open cast and underground mines. Coal sector policies and regulation will need to set up the right incentives under a deregulated environment for movement in this direction.

7.3.135 The production of CIL comprises 22.58 mt of coking coal (6.5 per cent of total production) and 327.32 mt of non-coking coal (93.5 per cent). Of the non-coking coal, 36 per cent is of superior grade and 64 per cent is of inferior grade. In absolute terms, the projected Tenth Plan target for CIL comprises 2.97 mt of incremental coking coal production, 14.9 mt of incremental superior grade non-coking coal production and 53.03 mt of incremental inferior grade non-coking coal production over the 2001-02 levels. In the case of SCCL, the projected production target comprises 55 per cent of superior grade non-coking coal and 45 per cent of inferior grade non-coking coal. SCCL's production of superior grade non-coking coal is expected to rise by 7.01 mt, while that of inferior grade non-coking coal is expected to decline by 1.88 mt over 2001-02 production levels. The details of company-wise coal production are given in Annexure-7.3.3.

7.3.136 As against the anticipated washed coking coal production of 5.19 mt from CIL in 2001-02, the target in 2006-07 is fixed at 5.96 mt. There is dire need to stem the declining production of washed coking coal from domestic sources by undertaking modernisation of all the coking coal washeries and converting them into multi-product washeries suiting the raw coal feed and specifications of the steel sector for improved financial viability. The financial implication of the proposed import of 20 mt of coking coal by the steel sector in 2006-07 at current prices (Rs. 3,000 per tonne) would be in the range of Rs. 5,000 crore to Rs. 6,000 crore in foreign exchange terms. Washing of low volatile medium coking

(LVMC) coals, as has been suggested by a number of committees, needs serious consideration in order to reduce import dependence of washed coking coal.

7.3.137 Sizing of coal has significant influence on maintaining quality. Uniformly-sized coal is being delivered wherever coal washing is taking place. However, for other stations where raw coal is being used, the size of coal being delivered is mostly (-) 200 mm. It is important to consider if coal grinding could be done at pitheads instead of the thermal power station end to avoid transportation of unwanted material etc. and thus improving the quality of coal being delivered in case of new thermal power stations. Further, in order to comply with the requirement of the Ministry of Environment and Forests directive relating to ash content of coal used in power generation, a number of non-coking coal washeries would need to be set up in the Tenth Plan.

Demand Supply

7.3.138 Since the domestic coal production in 2006-07 is expected to touch only 405 mt against an estimated coal demand of 460.50 mt excluding 5.24 mt of washery middlings, this will leave a gap of 55.50 mt. This is proposed to be met through import of 17.18 mt of coking coal for the steel sector and 3.3 mt of non-coking coal for the cement sector, which works out to 4.4 per cent of the estimated coal demand, 1.2 per cent less than imports in the Ninth Plan. However, that still leaves a gap of about 35.02 mt.

Coal Movement

7.3.139 Against an anticipated movement of 181.33 mt coal and products by rail from CIL and SCCL in 2001-02, the projected coal movement by rail in 2006-07 is 221.62 mt. This implies a wagon requirement of 25,789 four-wheeler wagons against 21,099 four-wheeler wagons in the Ninth Plan. This requirement is within the overall target of rail movement of 280 mt in 2006-07 envisaged by the Ministry of Railways. The coal movement by MGR is projected at 101.05 mt in the Tenth Plan against an anticipated movement of 77.76 mt in the Ninth Plan. Similarly the movement by road is estimated

at 67.34 mt against 53.6 mt in the Ninth Plan. Coastal shipment including rail-cum-sea route is projected to be 17.37 mt against 16.52 in the Ninth Plan.

Project Implementation

- Strengthen project formulation with firm geomining, technological and financial resources.
- Improve procedures for land acquisition, environment, forests, resettlement and rehabilitation.
- Depletion allowance for mines needs to be initiated.
- Financing of coal projects must be based on the strength of the cash flows of the projects instead of company's balance sheet.
- Technical auditing of coal and lignite reserves.

Infrastructure

7.3.140 In order to facilitate the smooth movement of coal in the Tenth Plan, certain critical rail links are required to be completed. These are: Talcher to Paradip, a new rail link between Korba and Pendra Road (SECL), rail link of Belpahar-Sardega and Talcher-Bimalgarh (MCL) and development of Tori-Shivpuri link in the North Karanpura Coalfield of CCL. To overcome the constraints of rail movement and to create competition in coal supplies, it is desirable to create new coal-based thermal generation capacity in coastal regions of the country. Similarly, the envisaged coal handling capacity at major ports in the Tenth Plan is 67.20 mt against a capacity of 48.20 mt in the Ninth Plan. This includes the Ninth Plan spillover capacity of 8.00 mt and a new capacity addition of 11.00 mt. The total projected land requirement for coal mining projects of CIL and SCCL in the Tenth Plan is 53,924 hectares (Ha) comprising 35,529 Ha of non-forest land (66 per cent) and 18,395 Ha of forest land (34 per cent). Availability of this land is critical for realising the projected coal production of 83.12 mt from new projects of CIL and SCCL in 2006-07.

The projected requirement of power in the Tenth Plan for CIL and SCCL is 1236.61 mega volt amperes (MVA).

Productivity

7.3.141 Salaries and wages comprise the single largest component of the unit cost of coal production. Unless concerted efforts are made to improve productivity, the unit cost of production cannot be brought down and competitiveness cannot be improved. There is a need for benchmarking the productivity with reference to international standards. The targeted OMS in 2006-07 for CIL is 3.55 t (UG - 0.88 t; OC - 9.25 t) and for SCCL 1.77 t (UG - 0.94 t; OC - 7.31 t). Some important steps to improve productivity and the system capacity utilisation of coal mines are: scheduled equipment maintenance programme, utilisation of skilled manpower, training personnel to handle capital-intensive equipment, offloading certain activities, mechanisation of UG operations, introduction of IT-based management information systems and opting higher capacity HEMM etc.

EXPLORATION

Regional Exploration

7.3.142 For regional exploration during the Tenth Plan, a drilling target of 1.83 lakh metres has been set for coal and 0.21 lakh metres for lignite, totaling 2.04 lakh metres. This regional exploration work will be carried out by GSI with funding from the Department of Mines. A total coal reserve of about 4.90 bt is envisaged to be established under this programme.

Promotional Exploration

7.3.143 For promotional exploration during the Tenth Plan, a drilling target of 6 lakh metres has been set comprising 3.3 lakh metres for coal and 2.7 lakh metres for lignite. About 994 sq. km. area will be covered for coal and a reserve of 6.68 bt of coal is planned to be established during the Tenth Plan. This work will be carried out by GSI, CMPDIL and MECL with funding from the Department of Coal.

Detailed Exploration

7.3.144 The mineable coal reserves required for meeting the Tenth Plan coal production programme have already been established. The present programme of detailed drilling to be carried out during the Tenth Plan will establish mineable coal reserves required for the coal production programme beyond the Eleventh Plan. In CIL areas, the target for detailed drilling programme for the Tenth Plan is set as 6.13 lakh metres and 2.7 lakh metres in SCCL areas. It is planned to establish 9.16 bt of coal in CIL areas through this. About 1.01 bt of coal reserves is expected to be established in SCCL areas. For lignite, a detailed drilling programme of 3.69 lakh metres has been planned for the Tenth Plan.

Detailed Exploration in Non-CIL Areas

7.3.145 For drilling in non-CIL areas, a target of 2.13 lakh metres has been set for the Tenth Plan which will lead to the establishment of 3.58 bt of coal reserves. This activity was taken up to explore the blocks away from the CIL command areas as to keep the geological reports ready for potential entrepreneurs.

Environmental Measures

7.3.146 Maintaining the environment in coalfields is critical for sustaining the projected coal production levels. The Tenth Plan will continue to lay emphasis on the implementation of environmental management measures for mitigating the adverse effects of coal mining like land degradation, mine effluents, sound and air pollution etc for sustainable development of coal resources. The age-old problems of subsidence and fires in the mined-out areas of Raniganj and Jharia have been addressed by taking up of a number of schemes under Environmental Measures and Subsidence Control. Besides, schemes to rehabilitate the affected mining areas and persons in these coalfields have also been taken up as per the recommendations of the High Level Committee of the Department of Coal. It has been decided to merge these schemes during the Tenth Plan for effective implementation. Cooperation of state governments is necessary for the proper implementation of these schemes.

7.3.147 The power grade coals are high in ash content and suitable measures need to be taken to deal with it both at the despatch end i.e. pit head and the utilisation end i.e. thermal power stations. Beneficiation of non-coking coal for power generation and measures for utilisation of fly ash would mitigate the adverse effects of the same on environment. As various sectors are involved in this area, it is desirable to constitute an Inter-Ministerial Group to look in to the aspects of fly ash utilisation in the country.

Science And Technology (Research And Development)

7.3.148 Research and development in the coal sector is carried out under four thrust areas - production, productivity and safety; coal beneficiation; coal utilisation; and environment & ecology. Formulation of schemes of science and technology needs to be more application-oriented rather than remaining confined to fundamental research. Close interaction between research institutions and industry is critical for the science and technology programme to be meaningful. The three-pronged approach envisaged in the Ninth Plan - coal science and technology programme under the standing scientific research committee (SSRC), in-house research and development programmes of coal companies and inter-sectoral research-technology advisory committee (IS-STAC), would continue in the Tenth Plan. The major thrust areas for the coal science and technology programme are - coal gasification, coal washing, beneficiation of low volatile coking coals, coal liquefaction, fluidised bed combustion, sequestration of carbon dioxide in the control of green house gas and extraction of CBM, etc.

Information Technology

7.3.149 Some of the important areas identified for the use of IT in the coal sector in the Tenth Plan are - introduction of Internet/Intranet technology, development of local area networks and wide area networks, development of a coal net project, introduction of geological information system (GIS) in selected mines, introduction of global positioning system (GPS) for improving the open cast project productivity, etc.

Voluntary Retirement Scheme

7.3.150 This scheme was introduced in the Ninth Plan for improving the financial health of loss-making coal companies by rationalising manpower through budgetary support. Initially, it was started in ECL and BCCL and was later extended to CCL. A total of 44,400 employees (ECL - 19,200, BCCL - 19,200, CCL - 6,000) were planned to be retired. Against this, 37,380 persons (85 per cent) were retired under this scheme during the Ninth Plan. The proposed target for Tenth Plan is retirement of 15,500 persons (ECL - 4,000; BCCL - 9,000; CCL - 2,500).

Lignite

7.3.151 The total reserves of lignite as on 1 January 2001 stood at 34.6 bt spread over the states of Tamil Nadu and Pondicherry (87.5 per cent), Rajasthan (6.9 per cent), Gujarat (4.95 per cent), Jammu & Kashmir (0.37 per cent) and Kerala (0.31 per cent). Some lignite occurrences have also been reported in Andhra Pradesh, Karnataka, Maharashtra and Orissa. The importance of lignite as a source of energy in the western and southern regions increases, as its occurrences are far away from the coalfields. Therefore, the development of the lignite resources needs to be continued vigorously as it can contribute to energy supply where rail-transported coal is difficult/expensive to be reached.

7.3.152 The projected demand of lignite in 2006-07 is 57.79 mt, of which the demand for power generation is 49.34 mt (85.4 per cent) and other sectors 8.45 mt (14.6 per cent). A lignite-based thermal generation capacity addition of 1,745 MW comprising Rajasthan Barsingsar TPS of 250 MW; Gujarat KLTPS Extension 75 MW; Akrimota 250 MW; Tamil Nadu-NLC TPS I Expansion 420 MW; TPS-II Expansion 500 MW and STCMS (Zero Unit) 250 MW has been envisaged in the Tenth Plan by the Ministry of Power. As against this, the projected lignite production is 55.96 mt (Tamil Nadu- NLC 27 mt, Jayamkondam 3.2 mt, Srimushnam 3.48 mt; Gujarat - 15.8 mt; Rajasthan - 6.48 mt). In NLC, it is proposed to expand the capacity of Mine-II from 10.5 mtpa to

15 mtpa for supplying lignite to the proposed expansion of TPS-II from 1,470 MW to 1,970 MW by adding one unit of 500 MW. Further, one new project namely Mine-III for a lignite production capacity of 8 mtpa for supplying lignite to TPS-III of 2x500 MW has also been proposed.

Coal Bed Methane (CBM)

7.3.153 The Tenth Plan will continue to lay emphasis on development of CBM in view of its immense potential as a domestic source of clean commercial energy. Further, carbon dioxide sequestration has been identified as an important area of development in the coal sector.

Outlay And Financing

7.3.154 An overall outlay of Rs. 31,591 crore has been provided for the coal sector in the Tenth Plan, including Rs. 8,007.64 crore for NLC (Power) comprising an internal and extra budgetary resources (IEBR) of Rs.30,541 crore and a gross budgetary support (GBS) of Rs.1,050 crore. This outlay is about 63 per cent more than the outlay provided in the Ninth Plan and about 120 per cent more than the anticipated expenditure during the Ninth Plan. However, the significant change in the Tenth Plan is that the domestic budgetary support (DBS), at Rs. 1,034.52 crore, is about 51 per cent less than the provision of Rs. 2,109.93 crore in the Ninth Plan. Including the component of externally aided projects of Rs.15.48 crore, the GBS provision is Rs. 1,050 crore, which is 57 per cent less than the provision in the Ninth Plan. The outlays required for the three PSUs under the Department of Coal are to be financed entirely through IEBR and DBS is not required. In the case of SCCL, the entire outlay is proposed to be met through internal resources. The DBS of Rs. 1,034.52 crore is exclusively meant for supporting Plan schemes of the Department of Coal. The outlay includes a requirement of Rs. 425.06 crore for implementation of VRS. The company-wise/scheme-wise outlays/expenditure is given in Table-7.3.14 and the year-wise details in Annexure-7.3.4. The schemewise break up of Tenth Plan outlay for Department of Coal is given in the Appendix.

Table-7.3.14
Company-wise/Scheme-wise Outlay & Expenditure (Rs. Crore)

Sl. No	PSUs/ Scheme	Ninth Plan				Tenth Plan		
		Approved Outlay	MTA Outlay	2001-02		Cumm. (1997-02) Prov	2002-07 Outlay	2002-03 BE
				BE	RE			
1	CIL	12401.00	12000.00	2309.90	1540.00	9025.50	14310.00	2190.00
2	SCCL	2235.00	1665.32	355.00	290.00	1043.87	2113.00	405.00
3	NLC (Min)	2581.80	2857.00	449.97	401.81	2121.25	6125.84	292.23
4	S&T	80.00	80.00	11.92	1.71	20.77	100.00	7.76
5	EMSC	79.00	79.00	12.17	5.41	34.26	163.00	34.65
6	Reg.Expl.	130.00	140.00	32.26	35.21	143.67	275.80	49.19
7	Det.Drill.	9.38	91.18	37.27	50.00	69.38	70.66	13.92
8	RFRP	8.05	8.05	0.00	0.00	6.28	0.00	0.00
9	Rehab.Proj	50.00	50.00	7.24	8.04	8.54	0.00	0.00
10	R&D Centre	1.00	1.00	0.00	0.00	0.00	0.00	0.00
11	IT	0.00	0.00	0.39	0.55	1.10	0.00	0.00
12	VRS	0.00	459.19	156.99	300.00	598.55	425.06	206.00
	Sub-Coal & Lignite:	17575.23	17430.74	3373.11	2632.73	13073.17	23583.36	3198.75
13	NLC (Power)	1866.36	1713.00	538.84	494.96	1257.41	8007.64	292.72
14	NEC	0.00	0.00	65.20	0.00	57.14	0.00	0.00
	Total DOC:	19441.59	19143.74	3977.15	3127.69	14387.72	31591.00	3491.47

Safety and Welfare

7.3.155 Successive Plans have emphasised the importance of safety and welfare of the coalmine workers. During the Ninth Plan, certain important areas for safety in coalmines had been identified and schemes relating to these are under implementation. Some of the major thrust areas identified for safety in coalmines for the Tenth Plan are - (i) installation of environmental tele-monitoring systems (ETMS) in mines; (ii) digitising mining plans at the area level for identification of water danger from adjoining mines, checking correlation survey and estimating thickness of barriers; (iii) replacement of timber support by steel support; (iv) improved self-rescuers; etc.

7.3.156 During the Tenth Plan, it is envisaged to increase the housing satisfaction in the coalfields and water supply facilities to cover the additional population.

THE PATH AHEAD

Reforms

7.3.157 Reforms initiated earlier need to be continued and intensified in the Tenth Plan. Expeditious passing of the pending Coal Mines (Nationalisation) Amendment Bill, 2000 for permitting private sector in non-captive coal mining, restructuring of coal PSUs by winding up the holding company, CIL, and making subsidiary coal companies independent in order to promote competition and improve performance are some of the steps that need to be taken. Other issues that need to be addressed are: setting up of an independent body for allocating coal blocks for both exploration and exploitation, installing a regulatory authority/mechanism and undertaking all the required legislative amendments including that of labour laws, land acquisition, etc.

Towards More Reforms

- Coal to be removed from the list of essential commodities in order to allow free sale and to withdraw Colliery Control Order 2000 along with the Coal Control Orders of the state governments.
- Amendments to the Coal Bearing Areas (Acquisition & Development) Act, 1957 to allow private sector rights for coal exploration and mining without taking permission from the state governments as has been done in the case of CIL.
- Amendments to the Contract Labour (Regulation & Abolition) Act 1970 for facilitating offloading of certain activities in coal mining.
- De-blocking of coal blocks held by CIL for offering to the private sector.
- Adopting gross calorific value (GCV) based grading and pricing of coal.
- Improved procedures for land acquisition, environmental and forest clearance and quick resettlement and rehabilitation.
- Need for rationalising import duty on coal for improving competitiveness of the sector.

Tenth Plan Outlay - Petroleum & Natural Gas Sector

Rs. Crore

Name of the Company	Tenth Plan Outlay
A. Exploration & Production	
1. Oil & Natural Gas Corporation Ltd.(ONGC)	46,968.95
2. Oil India Limited (OIL)	5,000.00
3. Gas Authority of India Ltd. (GAIL)	7,500.00
Sub-Total (A)	59,468.95
B. Refining & Marketing	
1. Indian Oil Corporation (IOC)	18,001.44
2. Chennai Petroleum Corporation Ltd. (CPCL)	2,400.00
3. Bongaigaon Refinery & Petro Chemicals Ltd (BRPL)	100.00
4. Hindustan Petroleum Corporation Ltd. (HPCL)	7,500.00
5. Bharat Petroleum Corporation Limited (BPCL)	3,998.80
6. Kochi Refinery Limited (KRL)	2,500.00
7. Numaligarh Refinery Limited (NRL)	310.00
8. Indo-Burma Petroleum Ltd. (IBP)	1,762.00
Sub Total (B)	36,572.24
Total	96,041.19

TENTH PLAN 2002-07 & ANNUAL PLAN 2002-03 - SECTORAL COAL DEMAND/OFFTAKE

Sl. Sector No.	VIII PLAN		Ninth Plan					Tenth Plan		% ACGR	
	1996-97	1997-98	1998-99	1999-00	2000-01	2001-02		2002-03	2006-07	IX Plan 2001-02/1996-97	X Plan 2006-07/2001-02
	Actual	Actual	Actual	Actual	Prov. Proj.	Original Proj.	MTA Proj.	AP Target	Anticipated Target	Projected	Projected
I Coking Coal											
1 Steel	34.52	31.99	29.92	28.76	49.60	44.60	32.21	29.75	32.90	35.32	
2 Coke Ovens	0.84	0.90	0.96	0.50	2.00	2.00	1.91	0.66	1.50	1.89	
Sub-Total Coking:	35.00	32.89	30.88	29.26	51.60	46.60	34.12	30.41	34.40	37.21	-2.77
II Non-Coking											
3 Power Utilities	199.00 (2.58)	214.05 (3.62)	205.38 (3.02)	222.85 (2.11)	237.03 (2.49)	262.00 (5.00)	241.54 (2.78)	241.19 (3.27)	249.50 (3.275)	317.14 (3.74)	3.92
4 Cement	11.34	13.73	13.47	15.54	14.68	21.40	17.00	15.00	17.10	24.56	5.75
5 Steel DR	1.96	2.62	2.46	2.99	3.72	6.10	3.48	5.16	4.00	7.00	21.36
6 Railways	0.13	0.05	0.03	0.01	0.01	0.00	0.01	0.00	-	-	-
7 Fertilisers	4.38	4.64	4.11	3.37 (0.02)	3.18	3.80	3.50	3.10	3.50	4.18	-6.68
8 LTC/Soft Coke	0.09	0.04	-	0.04	-	3.00	*	*	0.20	0.20	
9 Cokeries/Coke oven (NLW)	-	1.53	1.24	1.20	1.40	1.40	1.40	*	1.50	1.50	
10 Export	0.13	0.06	0.04	0.06	0.04	1.00	0.07	0.02	0.05	0.10	
11 Captive Power	15.3 (1.62)	16.22 (1.58)	15.93 (1.40)	16.90 (1.30)	16.03 (1.28)	25.80 (2.70)	21.11 (1.35)	18.39 (1.45)	21.15 (1.55)	28.26 (1.40)	3.75
12 BRK & Others	25.19 (0.53)	25.41 (0.60)	29.96 (0.59)	30.89 (0.82)	33.00 (0.77)	33.50	29.56 (0.70)	33.00 (0.22)	31.10 (0.10)	37.85 (0.10)	5.55
13 Colly. Consumpt.	3.39	3.07	2.89	2.50	2.19	4.00	2.50	2.17	2.50	2.50	-8.54
Sub-Total NonCoking:	260.91 (4.73)	281.42 (5.80)	275.51 (5.01)	296.35 (4.25)	311.28 (4.53)	360.60 (7.70)	320.17 (4.83)	318.03 (4.93)	328.90 (4.925)	423.29 (5.24)	4.04
Grand Total (+II):	295.91 (4.73)	316.78 (5.80)	308.40 (5.01)	327.23 (4.25)	340.54 (4.53)	412.20 (7.70)	354.29 (4.83)	348.44 (4.93)	363.30 (4.925)	460.50 (5.24)	3.32
Note: 1. Figures in brackets are washery middlings and are not included in totals. (ii) * Included in BRK & Others.											
Details of imports included in the sectoral demand/offtake.											
Import of Coking Coal	10.62	11.75	10.02	10.99	11.06	19.00	15.97	10.80	16.78	17.18	
Import of Non-Coking Coal											
Power Sector	2.67	3.49	2.67	4.87				2.50	3.13	-	
Cement Sector	2.03	3.02	6.04	5.00				6.30	3.20	3.30	
Sub-Total Non-Coking Coal:	2.56	4.70	6.51	8.71	9.87			8.80	6.33	3.30	
Total Imports :	13.18	16.45	16.53	19.70	20.93			19.60	23.11	20.48	

Contd....

Annexure 7.3.2 (Contd.)

Sl. Sector No.	VIII PLAN		Ninth Plan				Tenth Plan		% ACGR	
	1996-97	1997-98	1998-99	1999-00	2000-01	2001-02	2002-03	2006-07	IX Plan 2001-02/1996-97	X Plan 2006-07/2001-02
	Actual	Actual	Actual	Actual	Prov. Proj.	Original Proj.	MTA Proj.	AP Target	Anticipated Target	Projected
SECTORAL PHYSICAL TARGETS										
	1996-97 Actual	1997-98 Actual	1998-99 Actual	1999-2000 Actual	2000-01 Actual		2001-02 BE	2001-02 RE	2002-03 BE	2006-07 Proj.
Coal Based Power gen. (BU)	265.50	276.58	286.53	310.89	330.79		345.00	345.00	353.52	452.00
Cement Production (MT)	76.20	82.10	88.00	100.00	102.00		115.00	115.00	121.00	153.50
Hot Metal Prodn. (MT)	18.84	20.70	19.65	21.06	23.11		21.86	21.86	24.31	25.59

TENTH PLAN 2002-07 & ANNUAL PLAN 2002-03 - COMPANYWISE COAL PRODUCTION

Million tonnes

Sl. No.	Company	VIII PLAN		Ninth Plan						Tenth Plan		% ACGR				
		1996-97	Actual	1997-98	1998-99	1999-00	2000-01	2001-02		2002-03	2006-07	IX Plan	X Plan			
		Target	Actual	Target	Actual	Target	Actual	Original Proj.	MTA Proj.	AP Target	Anticipated	Target	2001-02/1996-97	2006-07/2001-02		
CIL:																
1	ECL	29.65	27.43	32.00	27.16	29.00	25.12	28.00	28.03	37.00	29.50	28.50	29.00	31.00	-0.79	1.70
2	BCCL	27.13	30.70	32.30	27.17	27.50	27.90	29.50	25.97	34.00	30.00	27.50	28.00	33.00	0.27	3.71
3	CCL	32.18	34.00	33.07	35.00	33.50	32.40	34.00	31.75	41.30	36.00	33.00	34.25	43.30	0.50	5.58
4	NCL	37.01	37.00	37.12	37.00	36.52	37.50	38.43	39.00	41.40	45.85	41.00	44.00	52.00	3.28	3.63
5	WCL	31.23	30.50	32.52	32.00	31.75	32.00	33.86	33.00	35.20	34.70	34.60	37.00	37.50	3.17	0.54
6	SECL	55.3	55.50	56.63	58.70	57.56	58.00	60.33	60.00	68.90	66.00	63.00	65.25	84.55	2.64	6.06
7	MCL	37.37	39.50	42.17	41.00	43.51	41.00	43.55	43.00	44.80	51.25	44.50	48.00	68.00	4.47	7.90
8	NEC	0.75	0.80	0.69	0.85	0.64	0.60	0.57	0.50	0.66	1.00	0.50	0.50	0.65	-7.79	5.39
	Sub-Total CIL:	250.62	260.50	260.55	268.85	256.48	259.10	260.58	267.00	268.14	314.00	285.00	279.00	350.00	2.17	4.64
Category:																
	Existing Mines	33.16	32.90	33.87	31.36	32.45	30.94	32.75	29.64	30.11	31.64	29.11	29.46	25.50	-1.91	-3.27
	Completed Projects	170.59	163.52	193.06	157.94	184.22	176.29	197.13	177.79	214.71	118.57	182.27	217.90	200.80	5.21	-1.80
	Ongoing Projects	46.03	62.68	33.62	76.86	39.81	51.83	30.70	59.35	22.61	108.08	70.33	31.63	44.59	-9.74	10.09
	New Projects	0.84	1.4	0.00	2.69	0.00	0.04	0.00	0.22	0.71	55.71	3.29	7.01	79.11	10.44	124.73
	Total:	250.62	260.50	260.55	268.85	256.48	259.10	260.58	267.00	268.14	314.00	285.00	279.00	350.00	2.17	4.64
9	SCCL	28.73	31.00	28.94	31.00	27.33	31.00	29.56	31.67	30.27	36.00	34.00	32.50	36.13	1.53	3.11
Category:																
	Existing Mines	5.16	4.90	4.85	4.59	4.7	4.13	4.45	4.18	4.79	4.15	4.14	4.30	3.87	-2.83	-2.84
	Completed Projects	21.36	22.60	21.90	19.76	22.25	22.30	22.68	22.56	19.15	19.56	21.33	21.55	19.03	-0.03	-2.26
	Ongoing Projects	2.21	3.50	2.19	4.51	2.87	4.62	2.81	4.81	2.92	8.37	5.87	6.55	9.22	18.66	12.14
	New Projects	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.33	4.43	0.10	4.01		
	Total:	28.73	31.00	28.94	31.00	27.33	31.00	29.56	31.67	30.27	36.00	34.00	32.50	36.13	1.53	3.11
10	TISCO/IISCO/DVC	6.73	6.50	6.51	6.65	6.63	6.80	6.96	7.40	7.33	7.60	7.60	7.60	7.64	2.33	0.24
11	Captive		0.71		1.83		2.95	2.00	3.83	13.00	2.26	3.75	5.50	6.73	10.97	
12	Others	3.21	3.23	4.24		4.06	NA	4.07		4.10	4.10	4.50	4.50	5.02	1.88	
	All India Total:	289.29	298.00	299.94	306.50	296.51	296.90	304.11	308.07	313.64	370.60	328.86	322.73	405.00	2.40	4.46

Ninth Plan Outlay & Expenditure & Tenth Plan Proposed Outlay - DOC (Current & Constant Prices)

Rs.Crore

Sl. No.	PSU/Scheme	IX Plan Outlay (1997-2002)		1997-98		1998-99		1999-00		2000-01		2001-02		Cumulative (Provl.) IX Plan		X Plan (2002-07)	Annual Plan 2002-03
		Approved	MTA	Outlay	Expenditure	Outlay	Expenditure	Outlay	Expenditure	Outlay	Expenditure	Outlay	RE	Expenditure	% Utilisation	Outlay	BE
0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1	Coal India Ltd.-Curr.-Constant	12401.00	12000.00	2269.95	1824.55	2517.00	1831.97	2556.00	2769.66	2790.32	1059.32	2309.90	1540.00	9025.50	75.21	14310.00	2190.00
2	SCCL - Current -Constant	2235.00	1665.32	502.75	208.48	331.57	206.09	227.19	145.20	327.82	194.10	355.00	290.00	1043.87	62.68	2113.00	405.00
3	NLC (Mines)-Curr.-Constant	2581.80	2857.00	334.96	149.34	776.59	457.13	575.98	521.44	609.80	591.53	449.97	401.81	2121.25	74.25	6125.84	292.23
4	S&T-Current -Constant	80.00	80.00	10.00	8.61	33.56	5.14	20.71	5.15	13.50	0.16	11.92	1.71	20.77	25.96	100.00	7.76
5	EMSC-Current -Constant	79.00	79.00	5.00	0.85	20.00	10.00	20.00	8.00	13.52	10.00	12.17	5.41	34.26	43.37	163.00	34.65
6	Regional Expi.-Curr.-Constant	130.00	140.00	20.00	20.95	24.58	21.18	27.01	32.56	30.37	30.37	32.26	35.21	143.67	102.62	275.80	49.19
7	Detailed Drill.-Curr. (Non-CIL) - Constant	9.38	91.18	0.00	0.00	9.38	4.00	5.38	4.46	23.10	7.83	27.65	37.09	69.38	76.09	70.66	13.92
8	RFRP-Current -Constant	8.05	8.05	0.00	0.00	4.61	1.22	3.89	5.06	0.00	0.00	0.00	0.00	6.28	78.01	0.00	0.00
9	Rehab. Proj.-Current -Constant	50.00	50.00	0.00	0.00	3.97	1.05	3.23	4.20	0.00	0.00	7.24	8.04	8.54	17.08	0.00	0.00
10	R&D Centre-Curr.-Constant	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	IT-Current -Constant	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.22	0.33	0.33	0.39	0.55	1.10	-	0.00	0.00
12	VRS *-Current -Constant	0.00	459.19	0.00	0.00	0.00	0.00	160.00	158.52	180.00	140.03	156.99	300.00	598.55	130.35	425.06	206.00
	Total Coal & Lignite:-Constant	17575.23	17430.74	3142.66	2212.78	3717.29	2540.13	3601.71	3651.19	4001.86	2036.34	3373.11	2632.73	13073.17	75.00	23583.36	3198.75
	NLC (Power)-Curr.-Constant	1866.36	1713.00	249.81	37.00	335.46	124.80	296.64	131.16	558.65	469.49	538.84	494.96	1257.41	73.40	8007.64	292.72
	NEC Component-Cur.-Constant	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	87.30	57.14	65.20	0.00	57.14	-	0.00	0.00
	TOTAL DOC-Curr.:-Constant	19441.59	19143.74	3392.47	2249.78	4052.75	2664.93	3898.35	3782.35	4647.81	2562.97	3977.15	3127.69	14387.72	75.16	31591.00	3491.47
	TOTAL DOC-Curr.:-Constant	3184.52	2111.87	3491.64	2295.97	3234.34	3138.10	3637.92	2006.08	2950.63	2320.42	11872.44	62.02				

Note:- Deflators: 1996-97- 1.00; 1997-98 - 1.0653; 1998-99 - 1.1607; 1999-2000 - 1.2053; 2000-01 - 1.2776; 2001-02 - 1.3479

* The outlay for VRS excludes Rs.400 crore provided under NRF initially. Against this Rs.240 crore was made available to DOC in the first two years of the Plan. However, expenditure doesnot include this.

Later on the outlay for VRS was made available through the DBS available to DOC for IX Plan.

@ The percentage is against MTA outlay. The percentage as per approved outlay is 74% on current price basis and 61.06% on constant price basis.

CHAPTER 7.4

INFORMATION TECHNOLOGY

7.4.1 Over the last decade, India has developed into a major and credible information technology (IT) outsourcing centre. The IT sector is one of the fastest growing segments of Indian industry, growing from Rs. 13,200 crore in 1992-93 to Rs. 80,884 crore in 2001-02. Sixty per cent (Rs. 48,134 crore in 2001-02) is accounted for by software and the remaining 40 per cent (Rs. 32,750 crore) by hardware. The sector has performed exceedingly well on the export front. Exports grew from Rs. 1,454 crore in 1991-92 to Rs. 42,371 crore in 2001-02. Again software comprises the bulk of the exports. Software exports of Rs. 36,500 crore accounts for 86 per cent of total IT exports. Hardware exports of Rs. 5,871 crore account for only 14 per cent. The major achievements of the sector include the development and tremendous success of the software industry, large-scale computerisation and Internet usage, IT-based automation in various industries, development of supercomputer technology etc.

7.4.2 The growth of the sector has led to tremendous pay-offs in terms of wealth creation and generation of high quality employment. IT is an area where the country has a competitive edge and

can establish global dominance. Advancements in IT have a profound impact on the economy and the quality of human life. The increasing convergence of technologies and content has created tremendous opportunities as well as challenges for both developed and developing countries.

7.4.3 The Government, while recognising IT as a thrust area for growth, has taken a number of initiatives to promote it (Box 7.4.1). A major effort to promote the sector is proposed in the Tenth Plan. The main objectives are: ensuring the sustained growth of software and IT-enabled services and increase India's share in the global IT market as well as expanding the domestic market; putting in place a policy framework to make India a major force in the hardware manufacturing sector; greater use of IT in governance; bridging the digital divide; promoting the development of software in Indian languages; and improving the quality of manpower, skills and research and development in the sector.

REVIEW OF THE NINTH PLAN

7.4.4 During the Ninth Plan, The IT industry achieved a compound annual growth rate (CAGR)

Table 7.4.1
Production of the IT industry in the Ninth Plan

Item	1997-98	1998-99	1999-2000	2000-01	2001-02
IT Hardware	22,100	25,250	28,100	30,700	32,750
Software Exports	6,500	10,940	17,150	28,350	36,500
Domestic Software	3,470	4,950	7,200	9,400	11,634
Total	32,070	41,140	52,450	68,450	80,884

(Rs. crore)

Box 7.4.1**Major Government Initiatives in the IT Sector**

- Setting up of a new Ministry of Information Technology in October 1999, which was re-christened as Ministry of Communication and Information Technology in September 2001 given the increasing convergence between communication and IT.
- Setting up of National Task Force on Human Resources Development in IT in July 2000. The report of the Task Force is before the Government.
- Creation of an IT Venture Capital Fund of Rs. 100 crore in 1999.
- Upgradation of the Education and Research Network (ERNET) connecting various universities and regional engineering colleges (RECs) through a high speed network.
- Upgrading all RECs to the level of National Institutes of Technology.
- Enactment of a comprehensive law called the Information Technology (IT) Act, 2000, which provides legal recognition for transactions through electronic data interchange.
- Lowering custom duties on IT products, allowing 100 per cent foreign direct investment (FDI) in the sector, raising the limit on the issue of American Depository Receipts/Global Depository Receipts (ADR/GDR) by stock swap from \$50 million to \$100 million or up to ten times the company's export earnings in the previous year.
- Computerisation of government departments by spending up to 3 per cent of the budget on IT. Many e-governance applications were initiated. A number of government portals were hosted. Technology development and content creation in Indian languages were promoted.
- The Government initiated moves to set up 487 Community Information Centres at the block headquarters in the northeastern states and Sikkim for bridging the digital divide.
- The Media Lab Asia project was initiated in 2001 for taking IT to masses.
- Human resource development (HRD) for the IT sector was promoted through a multi-pronged approach to IT education revolving around increasing the availability and improving the quality of education. Many states set up Indian Institutes of Information Technology (IIITs) as centres of excellence.
- Research and development (R&D) in the emerging areas of technology and supercomputing are being pursued.

of 25 per cent in production and 46.5 per cent in exports. While software sector registered an impressive CAGR of 50 per cent, the growth in the hardware sector lagged at 10 per cent. The performance of the industry during Ninth Plan period is given in Table 7.4.1.

STRATEGY FOR THE TENTH PLAN**Hardware Development**

7.4.5 The major reasons for the stagnant growth in IT hardware production are distorted tariff

structure, poor infrastructure, high cost of finance and stiff competition from multinational corporations (MNCs). This sector is likely to face even harder competition after 2005 when the zero duty regime comes into place in line with the Information Technology Agreement of the World Trade Organisation (ITA-WTO). Although under this regime, import duty on finished products would come down to zero, it is unlikely that duties on various inputs such as chemicals and metals used in hardware production would also be brought down to zero. In such a scenario, the viability of domestic manufacturing will be adversely affected. A comprehensive package

of measures, both short term as well as long term, needs to be put in place to ensure accelerated development of the sector. The most important long-term measure is to evolve a well thought-out hardware policy suited to our requirements. The highlights of any strategy to promote the hardware sector should be:

- Formulate a national hardware development policy by December 2002 in line with the relevant recommendations of the second and third reports of the National Task Force On IT and Software Development.
- Undertake a comprehensive rationalization of the tariff structure, especially for raw materials, to cope with the zero duty regime from 2005.
- Identify global hardware majors through trade delegations and encourage them to set up manufacturing units in India.
- Work out a specific action plan to ensure the development of world class products at competitive prices. This should include promoting international specific alliances, dedicated R&D, targeting new overseas markets, continuous product improvement etc. Existing Indian companies have to play a major role in this regard.
- Strengthen quality certification programmes and encourage the establishment of test laboratories for international certification in order to generate greater confidence in suppliers from India.
- Promote HRD and skills development in key technologies like embedded systems, VLSI (Very Large-Scale Integrated Circuit) design, blue tooth technologies etc. The industry needs to set up contract design centres and spend 5 per cent of revenues on R&D.

Software Development and Marketing

7.4.6 The total global software and IT services market is estimated to be about \$ 1.2 trillion of which

India's share is 2 per cent. The Indian software industry is under threat from emerging competitors like China, the Philippines, countries of the Commonwealth of Independent States (CIS), South Korea etc. Strategies would, therefore, have to be re-oriented for sustained growth. The domestic market also needs to be developed. The experience of countries like China which have a very strong and vibrant domestic market, needs to be studied when developing our long term strategy. Major initiatives that require immediate action in the software sector are:

- The software industry needs to move up the value chain by developing high value products through R&D. Software firms need to tie up with the extensive R&D network that exist in the country.
- To ensure long-term sustained domestic growth and exports, the software industry needs to move from being software solutions providers to manufacturers of packaged products.
- Continuous improvement in productivity will hold the key to maintaining our competitive edge in the global market. Three vital inputs are need for this: sustained improvement in the quality of products and services, availability of high quality manpower and strong R&D support.
- For building brand equity and positioning the India brand abroad, large investments in marketing and brand building would be required. The United States would continue to receive priority attention for software exports. Other elements of the marketing strategy should be strengthening marketing channels globally, expanding the focus to emerging markets in Europe, the United Kingdom, Asia-Pacific, Japan etc., and entering into agreements with end-user countries for executing large projects.
- Industry associations like the National Association of Software and Service Companies (NASSCOM), Manufacturers Association of Information Technology

- (MAIT), Electronics and Computer Software Exports Promotion Council (ESC) etc., need to assist the small and medium enterprises (SMEs) in their export efforts through effective networking and one-on-one meetings with potential customers in developed countries.
- Priority attention needs to be given to the development and promotion of software in Indian languages and meeting local requirements in order to expand the domestic market.

Human Resources Development

7.4.7 In order to achieve sustained growth in the IT sector and maintain India's competitive edge in the field, high quality professionals in adequate numbers are required. According to a McKinsey-NASSCOM study, India would require 2.2 million IT professionals by 2008 – 1.1 million in the hardcore IT sector and an equal number for IT-enabled services. The country needs to ensure the right mix of technical, business and functional skills in the workforce to meet the needs of individual business segments and customer markets. Educational and training institutions need to match the demands of the industry. The major initiatives required in this regard are:

- Continuous upgradation of standards at the school level with emphasis on physics, mathematics and English.
- Make microelectronics and biology the new focus areas in tertiary education.
- Updating the syllabus of computer engineering, electronics and IT in various technical institutions in line with the demands of the industry. The curriculum in other branches of engineering should also be reoriented and broad based to include IT subjects.
- Postgraduate engineering education and innovative research in IT are imperative in order to maintain quality and facing new challenges in this dynamic sector.

- Ensuring a continuous upgrading of teaching faculties and introduction of teaching aids like computers, access to Internet, videos etc.
- Augmenting and upgrading facilities in existing RECs and engineering colleges under deemed universities to Indian Institute of Technology (IIT) level so that the country has at least 100 such institutions by the end of the Tenth Plan to meet the requirements of quality manpower.
- Recognizing, without further delay, the 'C'-level course of the Department of Electronics Accredited Computer Courses (DOEACC) as equivalent to M.Tech in computer engineering for all purposes.

Legal and Regulatory Issues

7.4.8 The Information Technology (IT) Act, 2000 provides the basic regulatory framework for the domestic IT industry. The Communication Convergence Bill (CCB), 2000, which has been introduced in Parliament, needs to be enacted and operationalised at the earliest to provide the required institutional framework for ensuring convergence of services i.e. telecom, IT and media. However, several related issues need to be sorted out effectively to ensure optimum growth of the IT sector. Some of these are:

- The issue of software piracy needs to be tackled through suitable legal and other provisions of the IT Act.
- Growth of e-commerce would also depend to a great extent on effective IT security systems for which necessary technological and legal provisions need to be put in place and strengthened constantly.
- The IT Act does not clarify all the issues regarding taxation of electronic transactions, especially indirect taxation for goods/services delivered electronically.
- The Act is silent on the issue of protection of intellectual property rights (IPR).

- The issue of controlling cyber crime has not been comprehensively addressed by the IT Act since the offences defined in the Act are not exhaustive.
- Law enforcing agencies are not fully equipped and trained to deal with cyber crime.
- Safeguards to protect the privacy of personal and business data collected over the Internet need to be put in place.

considering it a tangible asset for collateral purposes.

- Evolve norms to finance the working capital needs of the IT software sector by considering the intellectual brain-ware also a tangible asset for collateral purposes.

Financial Issues

7.4.9 The domestic hardware industry in general, and electronic components manufacturing units in particular, are charged high interest rates when borrowing money. Fast obsolescence, weak R&D base, poor infrastructure etc., have resulted in a situation where there have been no new investments in the hardware sector during the Ninth Plan. It has, on the other hand, resulted in the closure of some existing units. The Tenth Plan Working Group on IT has recommended the creation of an Electronic Component Development Fund with a corpus of about Rs. 100 crore. An appropriate quantum of capital, depending on the criticality of the components, could be made available out of this Fund at a subsidised rate of interest to credible entrepreneurs.

7.4.10 Advanced IT skills in the Indian software industry is limited to a few leading companies which contribute about 65 per cent to the total software exports. The SMEs, which are larger in number, contribute about 35 per cent to software exports. Unless the SMEs are promoted through suitable policies, including fiscal incentives, it may be difficult to achieve the Tenth Plan target of \$ 50 billion software exports. Some measures that need to be taken to address financial needs of the IT industry are:

- Developing confidence among financial institutions about the potential for the growth of the IT sector.
- Evolving special norms to finance operations to augment bandwidth by

Convergence

7.4.11 The unprecedented growth of innovative services and technologies are challenging the demarcation of various services, service providers, users and government regulations in the communication and information technology industry. The success of the convergence regime would lie in ensuring a seamless transition to the new services and information delivery systems. The single biggest area of convergence could be the integration of the Internet with the broadcast sector. The Communication Convergence Bill, envisages a unified regulatory regime to address the convergence of telecommunications, data communications, Internet, satellite and terrestrial broadcasting, cable television, audio broadcasting, software and content creation.

E-governance

7.4.12 The delivery of government services has become very inefficient because of too much discretion at every level, lack of transparency and cumbersome record management. E-governance denotes the application of IT to government processes in order to bring about Simple, Moral, Accountable, Responsive and Transparent (SMART) governance.

7.4.13 Though the central and several state governments have taken some initiatives in e-governance during the Ninth Plan, these efforts have yet to take the shape of a systematic national programme. Actions and programmes have been driven primarily by individual initiatives rather than institutional thrusts. Different levels of development, computerisation and political will necessitate the adoption of some standardised, uniform pattern in order to avoid the emergence of a digital divide.

7.4.14 So far, the programme of e-governance has largely been restricted to the efforts of the National Informatics Centre (NIC) and a few individual organisations. The emphasis has been on providing connectivity, networking, technology upgradation, selective delivery systems for information and services and a package of software solutions. It is now necessary to look seriously at the re-engineering of procedures and rules which form the core of any effective programme of e-governance. This, perhaps, is the most difficult part of the entire exercise and requires priority attention at all levels. Keeping all this in view, the master plan of e-governance in the Tenth Plan has to be guided by the following principles:

- A clearly focused vision of the objective of introducing e-governance.
- The range and standards of delivery of information and services to the people must be defined, with time frames within which they are to be attained.
- Any plan or scheme for e-governance should be sustainable and should not be a passing fad.
- Standardisation of technologies without any delay. Otherwise, the ensuing confusion will negate the advantages of use of IT.
- Areas of public and private funding should be clearly spelt out.
- State-specific plans and schemes must be drawn up, keeping in mind the situation in different states.
- All schemes must be interactive, otherwise they will only be labour-saving devices for government functionaries.
- Government to government (G2G), government to citizen (G2C) and government to business (G2B) modalities have to be developed. E-governance also covers local government as well as private corporate bodies, For e-governance to be effective, it is necessary to draw up the architecture of the whole system.

Box 7.4.2

Successful E-governance Initiatives in States

Several state governments have taken steps to promote e-governance. Andhra Pradesh, Madhya Pradesh and Rajasthan have launched the Chief Minister's Information System to monitor a range of activities from developmental programmes to redressal of public grievances. The Andhra Pradesh Development Monitoring System has a database (with spatial as well as non-spatial parameters) of the entire 75 million population. APSWAN (Andhra Pradesh State Wide Area Network), a state-wide network for voice, data and video communication, is the basic information highway for improving government-citizen and government-industry interface. The state's Secretariat Knowledge Information Management System (SKIMS) efficiently manages information in the Secretariat. Rajasthan's *Vikas Darpan* envisages a geographical information system (GIS)-based planning and decision support system. The Disaster Management System in Gujarat maintains communication during natural disasters. The state's VIDYUTNET, India's first VSAT-based communication network, supports real-time data applications for power generation and distribution. In Karnataka, computerisation of treasuries has helped capture every transaction at all district and taluka (sub-district) treasuries. Kerala has introduced the Rural Development Net (RD Net) project to connect the state's 152 block offices with a view to transforming local bodies into genuine institutions of self-governance. Besides, the Office of Controller of Entrance Examinations has been automated to bring about transparency in the allocation of colleges to successful students.

Andhra Pradesh, Kerala, Maharashtra, Rajasthan and Tamil Nadu provide online registration of property transactions. Other areas where IT has been used to improve services to the public are: registration of vehicles and issue of driving licenses in Andhra Pradesh, Delhi, Gujarat and Tamil Nadu; land records in Andhra Pradesh and Tamil Nadu; and single-window/one-stop delivery

of public services in Andhra Pradesh, Kerala, Madhya Pradesh, Maharashtra and Tamil Nadu.

The use of IT in the delivery of public services has several success stories. Andhra Pradesh's TWINS project enables the citizens of the twin cities of Hyderabad and Secunderabad to access 18 services of six departments through a single window. Under the *Warana* project of the NIC in Maharashtra, facilitation booths in the rural areas provide information about employment and agricultural schemes and government procedures, automated assistance in completing applications for government certificates, crop information, information on bus and railway services, medical facilities, water supply etc. Similarly, the *Gyandoot* project of Madhya Pradesh, which won the Stockholm Challenge IT Award 2000, provides information regarding market rates of grains and vegetables; dispenses land records; and issues income, domicile and caste certificates. The smart card-based driving licence project of Gujarat has equipped all the Regional Transport Offices with state-of-the-art enrolment and issuance centres. The Bhubaneswar Development Authority in Orissa has set up kiosks that map the city using GIS. Citizens can now check on the status of existing schemes for housing, commercial and industrial projects without depending on middlemen. Tamil Nadu's tele-medicine project allows doctors in remote areas to consult experts on special cases or for referral purposes through a direct ISDN link. The West Bengal Electronics Industry Development Corporation has implemented a map-based GIS project for one-stop access to all information pertaining to a municipal area. The state government has also designed a web and kiosk-based education information system to help students with career counseling and selection of educational institutes. Given the country's linguistic diversity, special mention needs to be made of the Tamil Internet Research Centre, which has been set up for funding projects promoting the use of Tamil on the Internet in order to maximize access for citizens.

Computer Penetration, Affordability and Digital Divide

7.4.15 The reach of the basic IT infrastructure is still limited and not affordable for the common man. The high cost of personal computers (PC) is one of the major factors for low PC penetration in the country. Development and production of mass-friendly and affordable devices would, therefore, need to be given high priority in the Tenth Plan. Development of low-cost PCs to suit domestic needs is central to any strategy in this regard. Development of inter-lingua software with visual feature applications will have to be the other important element of the strategy to increase PC penetration.

7.4.16 Innovative and cost-effective solutions have to be found to make the required bandwidth available in remote and rural areas. Innovations like small electronic devices fitted in a PC having the capacity to disseminate a bandwidth of about 11 mbps (megabits per second) around a four to ten km radius would need to be encouraged to make broad-band connectivity available all around in the country. This innovative technology has tremendous significance in the case of the postal sector. The existing 1.55 lakh post offices can become radial points for dissemination of bandwidth. Since Internet telephony has now been allowed, the existing STD/PCOs need to be upgraded with Internet facilities to expand Internet connectivity throughout the country. Rural post offices should also be modernised this way.

7.4.17 The digital divide is one of the major issues facing the IT sector. The disparities between different sections of the society and different regions must also to be bridged. Special programmes may have to be designed for IT-enabled services in rural areas. Panchayati raj institutions (PRIs) and non-government organisations (NGOs) have to be effectively involved in this programme.

Successful Indian IT Companies

7.4.18 The Indian IT industry has already created a brand image in the global market. A large number

of Indian software and IT services companies have acquired international quality certification. Out of top 400 companies, more than 250 have acquired ISO 9000 certification.

(i) Infosys Technologies Limited : Infosys is an end-to-end IT consulting and services provider helping global corporations to successfully transform their businesses. The company has been awarded SEI CMM Level 5 quality certification. It earned a revenue of Rs. 1900.60 crore in 2000-01 and is listed on major stock exchanges like the National Stock Exchange (NSE), Bombay Stock Exchange (BSE) and NASDAQ. The Infosys portfolio of services includes e-strategy consulting and solutions, large application development and enterprise integration services. It also has product co-development initiatives with numerous communication and Internet infrastructure companies that are creating the building blocks for the digital economy. The company has marketing channels in the United States, United Kingdom, Australia, Belgium, Canada, France, Germany, Singapore, Japan etc.

(ii) Wipro Technologies : Wipro Technologies, the first CMM Level 5 and SEI CMM level certified IT services company globally, provides comprehensive IT solutions and services to companies globally and within India. This includes systems integration, information systems outsourcing, package implementation, software application development and maintenance and R&D services. The company earned revenue of Rs.2642.92 crore in 2000-01.

(iii) Tata Consultancy Services (TCS) : TCS offers end-to-end strategy consulting and system integration services to help organisations build their business in the global economy. TCS employs more than 16,000 consultants across 50 countries and its solutions are backed by 60,000 person-years of experience, cutting-edge R&D, world-class training and software development facilities. Thirteen of its centres function at SEI CMM Level 5, and four of its centres have People-

CMM Level 4 assessments, the highest quality assessment levels in the world. Seven out of the US Fortune Top 10 companies are TCS clients. TCS earned a revenue of Rs. 3,142 crore in 2000-01.

(iv) Satyam Computer Services Limited: Satyam Computer Services Limited, is a multi-faceted end-to-end IT solutions provider. It offers a range of expertise that includes software development services, embedded systems, systems integration, ERP solutions, enterprise application integration, customer relationship management, supply chain management, product development, e-commerce, consulting etc. Satyam, an SEI CMM Level 5 company, operates in 35 countries and has over 300 global clients, including 40 Fortune 500 corporations. Over 10,600 highly skilled IT professionals at Satyam and its associated companies provide customised IT solutions from development centres in India, United States, United Kingdom, West Asia, Japan and Singapore. The company earned a revenue of Rs. 1,220 crore in 2000-01.

(v) HCL Technologies Limited : HCL Technologies provides a broad range of services to clients worldwide, including technology development, software product engineering, networking and application services. The company focuses on technology as well as R&D outsourcing and delivers these services through an extensive offshore software development infrastructure in India and a vast global marketing and project network. Its offshore model involves delivery of outsourcing services to clients abroad by technical professionals located in India and may also include onsite work on a short-term project-by-project basis. Two of the company's centres have been awarded SEI CMM Level 5 international quality certification. The company, which is doing business in the United States, United Kingdom, Japan, Germany, Sweden, France, Netherlands, Italy, Australia, Hong Kong etc., has five major international collaborations, and earned a revenue of Rs. 1,405.10 crore in 2000-01.

- (vi) **I-flex Solutions Limited** : i-flex solutions, a SEI CMM Level 5 company, is a leading provider of software solutions and services to the banking and financial services sector. Its flagship product 'FLEXCUBE', a universal banking solution, is among the top two companies selling solutions worldwide for two consecutive years — 1999 and 2001. Apart from India, I-flex has representative offices in the United States, Argentina, the United Kingdom, the Netherlands, Kenya, Nigeria, Singapore and earned Rs.308.58 crore revenue in 2000-01.
- (vii) **Mahindra – British Telecom Limited (MBT)**: MBT is focused on the growing global telecom industry. It offers software solutions and systems integration services to telecom operators, mobile operators, telecom equipment manufacturers and technology suppliers. MBT has 21 marketing offices and development centres worldwide and earned revenue of Rs.387.39 crore in 2000-01.
- (viii) **NIIT Limited** : NIIT, a global IT solutions and training company, operates in 38 countries with regional headquarters in the United States, Japan and several other countries in Europe and Southeast Asia. NIIT's strength lies in the unique synergy of its businesses — IT software and IT training. This enables NIIT to provide a steady stream of software professionals for offering solutions in state-of-the-art technologies with high levels of scalability across domains. NIIT's software business has been assessed at SEI-CMM Level-5 and also has an ISO 9001 certification. It has earned revenue of Rs. 682.80 crore in 2000-01.
- (ix) **Patni Computer Systems Limited (PCS)**: PCS is a leading global services organisation focussing on providing integrated software and project solutions to clients in a wide range of technology environments. The breadth and scope of its technology skills, applications expertise and experience allows it offer full service support and single window software outsourcing opportunities to its customers. The company earned revenue of Rs. 518 crore in 2000-01.
- (x) **Pentamedia Graphics Limited**: Pentamedia Graphics is one of the world's biggest entertainment graphics player, focussing on animation and special effects for big, small and personal screens. The company extends its expertise into core areas of films/broadcasting, video, compact disks/digital versatile disks (CD/DVD) and entertainment, including studio entertainment, media entertainment, web entertainment, and sports entertainment. The company has markets in the United States, United Kingdom, Singapore, Japan, Malaysia, Australia, West Asia etc., and has alliances with IBM, Silicon Graphics, Softimage and Eastman Kodak. It earned revenue of Rs. 552.38 crore in 2000-01.
- (xi) **Silverline Technologies Limited** : Silverline Technologies is an international software solutions provider with over 2,300 software professionals globally. With SEI CMM Level 4 certification, Silverline has a track record of delivery on time and within budget of state-of-the-art IT solutions, besides a comprehensive set of e-business consulting and IT services. The company earned a revenue of Rs. 707 crore in the year 2000-01.

APPROACH IN THE TENTH PLAN

7.4.19 The Government's hitherto hands-off policy with regard to the IT sector would continue in the Tenth Plan. It will confine itself to being a facilitator and a catalyst for accelerated growth of the sector. It plans to take major initiatives in the area of e-governance with a view to ensuring balanced and orderly growth. The major objectives envisaged for the IT sector in the Tenth Plan are:

- To ensure the sustained growth of software and IT-enabled services and increase India's share in the global market.
- To put in place the basic policy framework for making India a major force in the hardware-manufacturing sector.

- To devise appropriate policy interventions for the greater use of IT for promoting more efficient, transparent and responsive governance.
- To promote the development and use of software in Indian languages to meet local requirements and expand the domestic market.
- To take necessary steps for taking IT to the masses by making it affordable, easy to use and useful in day-to-day life.
- To put in place the required policy framework to improve the quality of manpower, skills and R&D in IT.

Targets For the Tenth Plan

7.4.20 Based on the recommendations of the Tenth Plan Working Group on IT and information available from other sources, the following projections have been made:

- i) The IT industry is envisaged to achieve a production target of Rs. 2,82,000 crore by the terminal year of Tenth Plan (2006-07), with the software sector accounting for Rs. 2,13,000 crore and hardware production Rs. 69,000 crore.
- ii) Against the current level of \$ 8 billion, software and IT services exports are expected to grow to \$ 87 billion by 2008. While the software export target is set at \$ 50 billion, the target for export of hardware has been kept at \$ 10 billion by 2008.
- iii) Keeping the above growth potential in mind, IT exports are likely to constitute 35 per cent of India's total exports in 2008 against the present level of 14 per cent. The software and IT services industry is likely to contribute 7.7 per cent of gross domestic product (GDP) in 2008 against the present level of 1.7 per cent.
- iv) India's share in the overall global software market is expected to increase from the present 2 per cent to 6 per cent by the terminal year of the Tenth Plan. The United States and Europe are expected to continue to be the major

markets for software in the future. In the Asian region, China, the Philippines, the CIS countries and South Korea are emerging as new centres of software excellence. Japan has also shown keen interest in outsourcing software requirements to India.

- v) Domestic IT spending in the US and western Europe is expected to touch \$ 634 billion and \$ 424 billion respectively by 2004. IT spending in the Asian region is expected to go up to \$ 200 billion in 2002 from \$ 152 billion in 1999. The Asia-Pacific region is likely to account for IT spending worth \$ 240 billion by 2004.
- vi) India's IT spending is about 0.7 per cent of GDP, as compared to 1.3 per cent in Malaysia and 2.5 per cent in Singapore. India is almost five years behind China in terms of the number of PCs, Internet users, cable TV subscribers, fixed telephones etc.
- vii) The Internet subscribers base is expected to cross 35 million by 2007 from the present level of four million.
- viii) The IT industry is projected to generate seven million jobs by 2008. The hardware sector is expected to provide employment to 4.8 million persons while the software sector and IT-enabled services would account for the remaining 2.2 million jobs.
- ix) PC penetration is expected to become 20 per thousand by 2008 against 5.8 at present.

Thrust Areas in Tenth Plan

7.4.21 The Department of Information Technology (DIT) is meant to act as a nodal institution for the promotion of the sector, facilitating and coordinating the various initiatives of the central and state governments and the private sector. A list of Plan schemes of the DIT indicating Tenth Plan outlays is given in the Appendix. Keeping in view the basic approach, objectives and targets envisaged for the sector in the Tenth Plan, the major thrust areas are:

- Software development and exports and IT-enabled services. New markets for software exports would be developed.

- Priority will be given to e-governance, development of software in Indian languages, IT for masses, distance education, e-commerce, cyber security and HRD.
- Postgraduate education and research in IT would be pursued as will R&D in the emerging areas of bluetooth technology, e-commerce, nano-technology and bio-informatics solutions.
- Foreign investment in the sector will be encouraged by further simplifying policies and strengthening and upgrading tele-communication and IT infrastructure.

Major Initiatives/Projects in the Tenth Plan

7.4.22 The major projects proposed to be pursued in the Tenth Plan period are:

Software Technology Parks

7.4.23 As the existing 35 government software technology parks (STPs) and 25 private STPs have made significant contributions to national software exports, the Government would encourage the setting up of new STPs in private sector.

Community Information Centres

7.4.24 The Government has taken up an ambitious project for setting up Community Information Centres (CICs) in 487 blocks in the northeast and Sikkim at an estimated cost of Rs. 242 crore to provide connectivity at the block level. The project is aimed at development of IT infrastructure in the region and to promote applications of IT in health-care, distance education, HRD, e-governance, data transmission, documentation, connectivity for management of national calamities, disaster management, etc.

Indian Languages Interfaces to Computers and IT for Masses

7.4.25 While the English-speaking population has easy and adequate access to IT services, the real challenge lies in the creation of software for

establishing an interface of computers with diverse Indian languages. The endeavor will be to develop suitable software and technologies to enable the people to use computers in local languages. Attempts to take IT to the masses will be accelerated by promoting Internet accessibility, content creation in local languages, IT applications for various disabilities, empowerment of the masses with special thrust on women and children, rural health-care systems, digital library in order to preserve the country's cultural heritage and social identity.

E-commerce

7.4.26 E-commerce has proven its efficiency in supply chain management in the business to business (B2B) segment and enhanced customer relationship management (CRM) in business to consumer (B2C) transactions, apart from benefits like just-in-time (JIT) management. Various technology development and regulatory initiatives taken in the Ninth Plan for the promotion of e-commerce would be pursued in the Tenth Plan. These include: strengthening the information and communication infrastructure, establishment of a legal and regulatory framework, technology development and implementation of IT security. Apart from technological and other constraints, e-commerce could not grow as expected in India due to insecurity and non-transparency in financial dealings. The DIT has worked out a scheme on E-commerce and Information Security in the Tenth Plan to address issues relating to this.

E-governance

7.4.27 E-governance would be encouraged in a major way by the central and state governments and public utility service organisations for improving efficiency and transparency. The major thrust of initiatives in this field would be to put in place the required institutional framework and create the necessary infrastructure. The major schemes envisaged include Support for Multi-functional Application Community Centres, a National Institute of SMART Governance, Creating Citizen Databases through ID/SMART Cards and Development of Local Language Tools and Content.

Media Lab Asia

7.4.28 The Media Lab Asia project has been taken up by DIT in collaboration with the Massachusetts Institute of Technology. The objective of the project is to bridge the digital divide through development of state-of-the-art Information and communication technologies and deploying these technologies for the benefit of the citizens, especially those in the rural areas, and empowering them by creating business opportunities. The thrust areas to be taken up in the project are health, education/learning, employment and micro-entrepreneurship.

IT Security

7.4.29 As the country moves towards becoming a vibrant information society, it is necessary to protect important resources from any kind of threat. Indian companies, government agencies etc., will have to be trained in IT security and specialised institutions need to be developed to address this issue. Also, research will have to be undertaken in the area of cryptography.

Human Resource Development

7.4.30 The availability of qualified human resources in adequate numbers at various levels is vital to meet the Tenth Plan targets. With the mushrooming of engineering colleges in the private sector, quality concerns in technical education have taken a back seat. Steps would be taken to address the issue of lack of qualified faculty and poor infrastructure in these institutions. Promotion of distance education, emphasis on postgraduate and continuing education and research would also receive adequate attention.

Vidya Vahini and Gyan Vahini Programmes

7.4.31 These two programmes would be initiated on a pilot basis for providing connectivity to Government Senior Secondary Schools (Vidya Vahini) and upgradation of IT infrastructure in the higher learning institutions (Gyan Vahini) during the Tenth Plan.

Strategy For Critical Electronic Materials

7.4.32 The advances in electronic materials have opened up new frontiers in the area of IT and communication, nuclear, space and other technologies. New advanced materials also play an important role in the miniaturisation of electronic components and devices. There is a major gap in the indigenous availability of professional grade components for use in high quality manufacturing of electronic equipment. This can, to some extent, be attributed to the non-availability of a wide variety of electronic materials meeting the required specifications at competitive rates. The competitiveness and growth of the component technology sector is dictated by the capability of the domestic manufacturers of electronics materials. Some critical electronic materials like pure gallium, tellurium, cadmium, tantalum powder, tantalum pentoxide, thick film pastes, alumina substrate, ceramic composites etc., have been identified for production in the Tenth Plan. The Centre for Electronic Materials for Electronics Technology (C-MET), Pune, under the DIT has done excellent work in the development of electronic materials, successfully transferring technologies to industry for commercial production. It is expected that critical materials would be produced through this alliance during the Tenth Plan as well.

INFORMATION TECHNOLOGY-ENABLED SERVICES

7.4.33 The Internet and other advances in IT have ushered India into an era where various services can now be delivered remotely. Time and distance barriers have been dismantled as software companies provide customer interaction services, help desks, medical transcription, translation, localisation services, data digitisation, legal databases, data processing, back office operations, digital content development, remote network management and specialised knowledge services to both domestic and foreign customers.

7.4.34 IT-enabled services or remote processing services are today being considered a major growth

market for the Indian software and services industry and are expected to generate significant employment opportunities in the future. According to an estimate, by 2008, IT-enabled services activities globally will be to the tune of \$ 50 billion. The two most promising segments in IT-enabled services are customer interaction services, including call centres and content development and animation.

7.4.35 India is a preferred outsourcing destination and enjoys the confidence of global corporations because it offers innovations as well as competitiveness in terms of cost and quality. This has been made possible due to some favourable factors:

- The availability of abundant talent.
- Software exports to over 165 countries.
- The presence of a mature IT industry with world-class systems.
- India accounts for 69 of the 122 IT companies in the world having the prestigious CMM 4 and 5 level quality certification. India will soon have the highest number of ISO certified companies in the world.
- IT-enabled services hubs such as Ireland and Singapore are increasingly back-ending their operations in India, since skilled professionals are becoming a scarce resource in these countries.
- The telecom infrastructure is becoming competitive in India. With the active support of the Government, India is emerging as a preferred global hub.
- India offers favourable time zone differences and is able to provide round-the-clock services.
- India has state-of-the-art technologies for providing total solutions to outsource turnkey projects.

7.4.36 The Tenth Plan Working Group on IT has projected that IT-enabled services would generate revenues of Rs. 81,000 crore and provide employment for 11,00,000 people in India in the next eight

years. The current status and growth potential for remote processing services are:

- The revenues of IT-enabled services jumped from Rs. 2,400 crore in 1999-2000 to Rs. 4,100 crore in 2000-01.
- This segment employed 70,000 people and accounted for 10.6 per cent of the total IT software revenues in 2000-01.
- In 2001-02, the sector is expected to show a high growth of 54 per cent, well above the industry average. Revenues during the year for IT-enabled services are expected to touch Rs. 6,300 crore.
- A large number of players are already operating in this market and this includes key multinational corporations that have set up their call centres to cater to the requirements of both the overseas and domestic markets.
- Other IT-enabled services activities that have witnessed a rise over the last two years include medical transcription, and back-end processing operations.
- The offshore economics of IT-enabled services is as good as those of IT services. The revenue per employee for many areas of IT-enabled services are comparable to those of other IT services.

Opportunities in major segments of IT-enabled services

7.4.37 The spectrum of IT-enabled services is wide. Some of the popular services with substantial wealth and employment generating potential are:

Call Centres/Customer Interaction Services

7.4.38 These services rely heavily on state-of-the-art communications and information technologies. The centre is used for a number of functions like marketing, selling, information dispensing, advice, technical support and e-commerce. There are more than 100,000 call centres worldwide and this number is expected to

grow to 300,000 by the end of 2002, resulting in employment for approximately 18 million people. By 2003, around \$ 60 billion is expected to be spent on call centre services.

Business Process Outsourcing (BPO)/Back Office Operations

7.4.39 The potential for business process outsourcing (BPO) in India is projected to grow from the present level of \$1.49 billion in 2001-02 to \$ 21 billion by 2008. India can tap this potential through aggressive marketing, strengthening IT infrastructure and by creating specialised training facilities. Banks and airlines require large-scale data processing for their management and decision-making. Such organisations, with extensive data turnover and customer interface, send raw data over high speed communication links to remote locations for data entry, processing and necessary reconciliation etc., enabling them to save costs and resources. Such centres are basically the offshore extensions of existing information and back-office operations. There has been a growing trend to outsource these services to major IT-enabled service providers. India stands to gain from such a trend, as the Indian IT industry has been able to make a mark in this field. It also has access to a huge pool of skilled as well as semi-skilled professionals and offers relative cost advantage.

Insurance Claims Processing

7.4.40 Large insurance companies can get the claims of their clients processed anywhere, as long as a large number of graduates proficient in English, a few doctors and a few accountants are available. Apart from processing, a large amount of logistic support is also required. The guidelines to the process are well established and hence can be easily performed at remote locations. To save costs, large insurance companies in the United States are now outsourcing a lot of such work, which can prove to be another good opportunity for India to tap.

Medical Transcription

7.4.41 Medical transcription is a time and cost saving process for transcribing medical records

dictated by doctors and other healthcare professionals. In countries like the United States, doctors' time is at a premium and they simply record their findings on a Dictaphone. The recordings are then sent through datacom lines to overseas companies, which transcribe these recordings into reports and send them back electronically. Turnaround time is often as low as two hours and, therefore, this process is often better than what the hospital may have achieved if it had done all of it in-house.

Legal Databases

7.4.42 Many legal firms in the United States and other developed countries have started to outsource their database work to organisations having a large, cost-competitive, English-speaking workforce of trained lawyers. The job involves creating a database of the firm's existing records, indexing on the basis of various useful and commonly understood criterion, keeping track of new documents being created and incorporating them into database as per well established parameters. Lawyers can then simply use their computers to draw up a history of similar cases and draw a clear plan of action.

Digital Content Development

7.4.43 Digital content development is emerging as one of the fastest growing service segments in the global IT-enabled services industry. It caters to the needs of website management, production of content for new media such as CD/DVD and products of convergent technologies such as Internet-enabled television. It offers a large emerging potential as more and more students, professionals, individuals and offices realise the need to have easy access to information that can also be suitably fused with other media.

Online Education

7.4.44 The online education market is booming the world over. The global online education and e-learning market is projected at \$ 11.4 billion in 2003. More than 1,600 companies, including nearly half the *Fortune 500* firms, have built corporate universities. Nearly all of them offer some classes online

primarily through the Web, via video-conferencing, CD-ROMs and other technologies. The online education market in India is showing significant growth potential and the sector is expected to be a significant revenue earner for the industry.

Data Digitisation/GIS

7.4.45 Digitisation is a labour-intensive process by which physical or manual records such as text, images, video and audio are converted into digital forms. Data digitisation services offer a very good opportunity for India, due to the relatively lower costs and the technical skills available. GIS is a collection of tools and methods that are used in a digital environment for the study of spatial information. IT-enabled services in GIS offer business opportunities from Europe and the United States. Many multinational companies have set up centres providing GIS services in India.

Payroll / HR Services

7.4.46 HR services is another area that has immense potential in the field of IT-enabled services. HR service components include recruitment screening, administration and relocation services, payroll processing, compensation administration, benefit planning, and administration.

Web Services

7.4.47 Internet and the wide use of the Web has accelerated the growth of remote services and created opportunities of its own. Some of the Web services include e-mail management, Internet security, web page designing and updating, managing of Internet commerce, exchange of data, payment and clearance, electronic data interchange, supply chain management and Internet data centres etc.

Action Plan for the promotion of IT-enabled services

7.4.48 Since the Indian IT industry has matured enough, the IT-enabled services are expected to grow through private initiatives in the Tenth Plan.

The Government has already provided income tax exemption to most of the IT-enabled services. Further initiatives that need to be taken for making India a sustainable hub for these services include:

- Support from local authorities and state governments for IT-enabled services units in order to ensure ease of operations and start-up assistance.
- Setting up of training infrastructure for IT-enabled services and the involvement of Industrial Training Institutes (ITIs) and Polytechnics for call centre management and degree-level courses for the industry.
- Flexibility to call centres to merge domestic and international business in the same facility.
- Creation of an 'India Brand' marketing fund for promoting India as a preferred destination for the IT-enabled services sector.
- Special incentives to promote entrepreneurship and tele-working for women in the IT-enabled service sector.

THE PATH AHEAD

- Encourage global hardware majors to set up their manufacturing units in India.
- A comprehensive rationalisation of tariff structure to cope with the zero duty regime on finished products that will come into place after 2005.
- Formulate a national hardware development policy by December 2002 by including relevant recommendations of the second and third reports of the National Task Force on IT and Software Development.
- Encourage the setting up STPs by the private sector.
- The software industry needs to move up in the value chain by developing high value products through regular R&D.

- The focus of Indian industry needs to shift from providing software solutions to becoming manufacturers of packaged products.
- Make large investments in building brand equity and positioning the India brand abroad.
- Industry associations like NASSCOM, MAIT, ESC etc. must help SMEs in their export efforts through effective networking and meetings with potential customers.
- Promotion of software in Indian languages to increase IT penetration in the domestic market.
- Updating the syllabus of computer engineering, electronics and IT in various technical institutions in keeping with the industry's requirements. The curriculum in other branches of engineering should also be expanded to include IT subjects. Emphasis must be laid on postgraduate engineering education.
- Facilities in existing RECs and engineering colleges under deemed universities must be upgraded to IIT level so that there are at least 100 such institutions by the end of the Tenth Plan.
- 'C'-level course of DOEACC must be recognised as equivalent to M.Tech in computer engineering for all purposes.
- IT-enabled services must be encouraged in order to create employment opportunities.
- E-governance has to be a priority area in the Tenth Plan and a clear roadmap to make it a national programme must be formulated without any delay.
- An action plan needs to be formulated to take up R&D in the emerging areas like bio-informatics and nano-technologies.
- The Communication Convergence Bill must be enacted soon and digital signatures must be allowed at the earliest as per the IT Act, 2000.
- Enforcement of the IT Act to deal with cyber crimes and training law-enforcing agencies to handle such crimes.

CHAPTER 7.5

TOURISM

7.5.1 The travel and tourism sector creates more jobs per million rupees of investment than any other sector of the economy and is capable of providing employment to a wide spectrum of job seekers from the unskilled to the specialised, even in the remote parts of the country.

7.5.2 The Tenth Plan approach towards tourism signifies a distinct shift from the approach adopted in earlier Plans. Apart from acknowledging the well-accepted advantages of developing tourism for the promotion of national integration, international understanding and earning foreign exchange, the Tenth Plan recognises the vast employment generating potential of tourism and the role it can play in furthering the socio-economic objectives of the Plan. In order to create a supportive environment for the promotion of tourism, the New Tourism Policy, 2002, that is to be implemented during the Tenth Plan, will generate awareness about the benefits of tourism for the host population. It will mobilise state governments to use tourism as a means for achieving their socio-economic objectives, encourage the private sector to enhance investment in tourism and provide legislative and regulatory support for sustainable tourism and to protect the interests of the industry and the consumer. The policy envisages involving the rural sector in the promotion of rural, heritage, adventure and eco-tourism and will promote the development of competitive high quality products and destinations. Most importantly, it will remove the barriers to growth and resolve contradictions in policy to achieve inter-sectoral convergence of activities that help the growth of tourism.

7.5.3 The initiatives taken by the state so far have not yielded the desired result and India's tourism performance has failed to match its potential even as countries not blessed with its

natural and cultural endowments have taken the lead in reaping the benefits of tourism development for their people. The reasons for this poor performance need to be speedily addressed to enable tourism to make an appropriate contribution to national development.

7.5.4 As observed in the Planning Commission Report of the National Committee on Tourism (1988), the public sector made a significant contribution to the growth of tourism in the initial stages of planned development by providing a reasonable infrastructure base. During the Ninth Plan it was recognised that a reappraisal of the role of the State in tourism development and the extent of its participation was needed as it is neither necessary nor feasible for the State to make large investments in areas that are best left to the initiative of the private sector. The state can contribute through infrastructure development, the planning of broad development strategies, the provision of fiscal and monetary incentives to catalyse private sector investment and devise an effective regulatory and supervisory mechanism to protect the interests of the industry and the consumer. The acceptance of this view also led to the commencement of the process of disinvestment in 18 hotels of the India Tourism Development Corporation (ITDC) hotels.

7.5.5 The ITDC will have to redefine its role in the Tenth Plan. The State can also play an effective role in ensuring that tourism development does not harm the environment. The interaction between tourism and environmental pollution requires sensitive handling. There is complementarity, not conflict, between the high quality environmental requirements of tourism and the imperatives of maintaining the ecological balance.

Global Status and Trends

7.5.6 Although global recession and the September 11, 2001, events are estimated to have resulted in a temporary decline in travel and tourism demand in 2001-02, international and domestic tourism is expected to boom over the next two decades. The World Travel and Tourism Council (WTTTC) estimates a 4.5 per cent per annum increase in the total amount of travel and tourism economic activity between 2002 and 2012. This is largely attributed to a rise in global wealth, liberalisation of international airspace, cheaper flights and the use of the Internet as a travel tool. The earnings from tourism have made it one of the world's largest industries and the fastest growing sectors of global trade accounting for 10.7 per cent of global gross domestic product (GDP), 12.8 per cent of global exports, 8.2 per cent of global employment (or one in every 12.2 jobs), and 9.4 per cent of global capital investment.

7.5.7 Tourism in the least developed countries is growing faster than the world average, holding the promise of prosperity for many. International tourist arrivals worldwide reached 698 million in 2000, generating \$ 595 billion revenues. International tourism flows are expected to reach 1.5 billion by 2020 and revenue estimated to cross \$ 2000 billion. Today, only 3.5 per cent of the world population travels internationally but the number of Asian, particularly Chinese, tourists is predicted to grow enormously as the region becomes more

integrated with the global economy.

7.5.8 The scale of world domestic tourism, on the other hand, exceeds world international tourism by a ratio of 10:1. In India, for every international tourist, there are 80 domestic tourists. Domestic tourism can form the basis of a viable and sustainable tourism industry in India.

Global Market Trends

7.5.9 Consumer trends in tourism are gradually changing and require an appropriate response in terms of both policy formulation and investment. Current market trends indicate that:

- **Long haul travel** will grow faster than intra-regional travel. A growth of 24 per cent is expected by 2020.
- People with less time for leisure are likely to take more frequent but shorter trips nearer home, opening up opportunities for **'neighbouring country' tourism**.
- The experienced traveller wants authentic, off-the-beaten-track vacations in remote and less well-known places as against luxurious five-star vacations, leading to an interest in **rural** and ethnic **tourism**.
- The increase in the number of people with lots of money but little leisure time has resulted in a growing emphasis on rest and relaxation, and **'wellness'** and **'health' holidays**.

Table - 7.5.1

Contribution of Travel and Tourism to GDP and Employment

	World Average(%)	India (%)	World Rank
Contribution of Tourism and Travel Economy to GDP	10.7	5.3	140
Contribution of Tourism and Travel Industry to GDP	4.2	2.5	124
Contribution of Travel and Tourism Economy Employment	8	5.6	140
Contribution of Travel and Tourism Industry Employment	3.1	2.9	111

Source : WTTTC, Department of Tourism, Government of India.

- The elderly population in key tourism-generating markets has shown a preference for **cultural tourism** against sun-and-sand vacations.
- There is notable and increasing interest in **spiritualism**.
- The demand for **eco-tourism** and nature-based holidays is expected to double and even triple in the next 20 years.
- **Sports and adventure** holidays continue to be popular with the young.

7.5.10 The interest in cultural tourism, spiritualism, 'wellness' holidays, eco-tourism and rural tourism would tend to favour India, provided the country can avail of the opportunities offered to maximise its natural advantages in these areas. The development of new tourism products and destinations during the Tenth Plan must be based on market research and demand, keeping the source markets and the age groups of the tourists in mind. At the same time, the Government must develop new source markets nearer home and make India a safer destination for women tourists and family holidays.

India's Place In World Tourism

7.5.11 The World Tourism Organisation forecast indicates an increasing tourism preference towards East Asia, the Pacific, West Asia and South Asia, although Europe and America still remain the world's foremost tourism destinations commanding 77 per cent of the global market. East Asia/Pacific achieved the highest rate of growth of 14.5 per cent in tourism and travel in 2000 followed by West Asia and South Asia (Table 7.5.2).

7.5.12 With this gradual shift in focus, the outlook for the growth of tourism in the region is promising. In Asia, China has emerged as a leading tourist destination and is poised to become the world's top tourist destination by 2020.

7.5.13 The WTTC has identified India as one of the world's foremost tourist growth centres in the coming decade. After Turkey, India is expected to achieve the fastest rate of growth of the total amount of economic activity likely to be generated by travel and tourism, at 9.7 per cent over the next 10 years. Also, the largest employment creation after China is expected to take place in India over the same period. The growth in 'visitor exports' or spending by international tourists, is likely to be the fastest in India at 14.3 per cent per annum over the next decade. On the whole, the WTTC forecast for India is promising, subject to key policy issues that affect the growth of the

Table – 7.5.2
International Tourist Arrivals

	Million		Growth Rate (%)		Market Share (%)	
	1999	2000*	1999/1998	2000*/1999	1999	2000*
World	650.0	698.3	3.8	7.4	100	100
Africa	26.5	26.9	6.1	1.5	4.1	3.8
America	122.3	130.2	2.3	6.5	18.8	18.6
East Asia/Pacific	97.6	111.7	10.8	14.5	15.0	16.0
Europe	379.8	403.3	1.7	6.2	58.4	57.8
Middle East	18.1	20.0	18.1	10.2	2.8	2.9
South Asia	5.8	6.3	10.7	9.0	0.9	0.9

Source: World Tourism Organisation

*As collected from WTO database in January 2001

Table - 7.5.3
Contribution of Travel and Tourism to Exports and Receipts

	Per cent		
	World average	India	World Rank
Total tourism exports as percentage of total exports	12.15	9.5	31
Tourism Receipts	5.2	11.8	29

Source : WTTC, Department of Tourism, Government of India

Contribution of Travel and Tourism to Employment

	(Figures in million)		
	World	India	Rank
Numbers Employed	207.1 million	25 million	2 nd

Source : WTTC, Department of Tourism, Government of India

sector being addressed.

7.5.14 If India is to realise its enormous potential in tourism it must provide exclusive world-class tourism products and destinations to compete successfully for a larger share of the Asian tourism market. Today, outbound tourism from India far exceeds visitor traffic to the country partly because

will have to be broadened in the Tenth Plan through the development of competitive destinations that match international standards in terms of price and quality and also satisfy the international traveller. India's international arrival figures have not been able to keep pace with neighbouring countries and have been exceeded by Thailand, Malaysia, Indonesia, Dubai and the Maldives. Since 1995, India's share of the world market has remained virtually stagnant at 0.38 per cent, while domestic tourism has grown at a phenomenal rate and India now accounts for 4.6 per cent share of domestic tourism worldwide. In terms of tourism receipts, India has shown relative buoyancy because of the interest shown by visitors in traditional handicraft items and particularly in diamonds. The Tenth Plan visualises a mutually supportive role for tourism and handicrafts by encouraging haats and shilpgrams and recognising shopping as an integral part of the tourism experience to promote the 'Made in India' brand.

India's Tourist Profile

7.5.15 India receives the largest number of overseas tourists from the United Kingdom, which is its largest source market, followed by the United States, Sri Lanka, France, Germany, Canada, Japan, Australia and Singapore. Of the tourists coming to India, 27.5 per cent are in the age group

Table - 7.5.4
International and Domestic Tourism

	World	India	Percentage share of India
International Arrivals	698 million	2.64 million	0.38%
Tourism Receipts	\$ 595 billion	\$ 3.2 billion	0.69%
Domestic tourism worldwide	6,980 million	210 million	4.6%

there is a lack of world-class destinations within the country and partly because the domestic tourism policy has been largely directed towards those in the lower end of the spending spectrum. The high spender from India prefers to visit neighbouring countries as he gets better value for money. The scope and reach of domestic tourism

of 35-44 years, 23.4 per cent in the age group of 25-35 years and 20.8 per cent in the age group of 45-54 years. Women constitute only 30.5 per cent of India's total international arrivals. Repeat visitors account for 44.9 per cent of the overseas visitors. A substantial number of these may be non-resident Indians, as hotel reservations do not correspond to

the number of international arrivals in the country. The average length of stay of foreign tourists in the country in 1998 was 31.2 days. Domestic tourism, on the other hand, is largely pilgrimage-oriented and requires improvement in travel facilities and pilgrim destinations.

TENTH PLAN OBJECTIVE

7.5.16 Tourism in India has tended to be regarded as an elitist activity conducted primarily for the purpose of earning foreign exchange. Its vast potential as an engine of growth and employment generator has remained largely untapped. Although, with 25 million jobs, India ranks second in terms of number of persons employed in travel and tourism, yet the contribution of the sector as a percentage share of all employment is amongst the lowest in the world. The Tenth Plan objective is to integrate tourism with the socio-economic objectives of the Plan by creating 3.6 million jobs a year through the promotion of domestic and international tourism and to enhance India's share of international arrivals from 0.38 per cent to at least 0.62 per cent by 2007.

Role of the Department of Tourism

7.5.17 Being the nodal agency for the development of tourism in the country, the department of tourism needs to make greater efforts to co-ordinate and integrate the policies of central ministries that have an impact on the development of tourism and to mobilise state governments and the private sector to develop unique and competitive tourism products and destinations. Crucial decisions affecting tourism are taken by other ministries viz. the Ministries of Finance, Home, Civil Aviation, Surface Transport, Environment and Forests, Urban Development, Rural Development, Ocean Development etc. The Department of Tourism has tended to concentrate largely on its role as the promoter of international tourism and generator of foreign exchange earnings while paying relatively less attention to inter-sectoral policy co-ordination and the all-important development of tourism infrastructure and product quality. In the Tenth Plan, the Department will

redefine and expand its role and work towards inter-sectoral convergence and policy integration to remove the barriers to the growth of tourism.

Barriers To Growth

7.5.18 There are several factors that are responsible for the inadequate growth of the tourism sector in India. These are: barriers related

Approach-Related Barriers

- Absence of consensus on role of tourism
- Lack of priority to tourism on account of unappreciated potential
- Relatively low levels of investment.
- Lack of interest on the part of the state governments – the primary players.
- An unprofessional ad hoc approach.

to approach, barriers that discourage private investment, factors that affect competitiveness and factors that affect the long-term sustainability of tourism. The effective and early removal of these barriers during the Tenth Plan is an essential determinant for the success of the New Tourism Policy. The need for a national consensus on the role and level of tourism development in the country has been voiced repeatedly but a concerted effort to achieve a consensus has not been made. Tourism should not be limited by state or regional boundaries if distortions in policies are to be avoided. It is important that a consensus among all states is evolved through the National Development Council (NDC) and the barriers to the growth of tourism removed.

7.5.19 Tourism has been denied the priority it deserves over successive Plan periods because its potential as an engine of economic growth has not been appreciated. This is visible in the low allocation of resources. Allocation to tourism has averaged 0.16 per cent of the total Plan outlay from the Third Plan to the Ninth Plan. In the Tenth Plan, it is likely to receive an allocation of 0.72 per cent. According to the WTTC, India is one of the lowest spenders on

tourism - 153rd out of 160 countries - while its neighbouring competitors and China invest far more: Malaysia (5.1 per cent), Nepal (5 per cent), Indonesia (8.4 per cent), Maldives (15.7 per cent), China (3.8 per cent). The growing domestic and international demand, which is set to boom, reinforces the need for higher investment. Failure to measure up to additional investment demand for domestic tourism is likely to lead to the over-exploitation of existing facilities, discouraging foreign visitors while leading to an increase in the outflow of high-spending domestic tourists from the country.

7.5.20 Most State Governments give scant importance to tourism even though they virtually control the tourism product located within their boundaries. They are responsible, inter alia, for local infrastructure, transport systems, sanitation and hygiene, leisure and recreation, law and order, the upkeep of local monuments and the general well-being of the tourist. Their support and participation is essential for tourism to succeed and spread its benefits among the host population. Their lack of interest has resulted in an unprofessional ad hoc approach that acts as a deterrent to the growth of tourism. The approach of the state governments needs to be focused, highly professional and result-oriented if India is to avail of the opportunity that the currently favourable market trends have to offer.

7.5.21 Apart from the State Governments, the private sector plays a vital role in the growth and development of tourism. Although the Central Government and certain state governments have, from time to time, announced incentives to involve

Barriers that discourage private investment

- Absence of legislative support
- Lack of policy integration and co-ordination
- Lack of long-term investor-friendly policies.
- Heavy and multiple taxes, restrictive aviation
- and land policies.

the private sector in tourism development, the results achieved have fallen short of expectations. To provide a conducive environment for private sector investment, it is important to realise that the travel and tourism sector is adversely affected by the lack of synergy in inter-sectoral policies. The growth of the sector requires well-integrated and co-ordinated policies and stability in approach. Contradictions and arbitrary changes in policy send confused signals to the investor. Unless infirmities in policy are expeditiously removed well before the end of the Tenth Plan period, the New Tourism Policy is unlikely to succeed.

7.5.22 Being a long haul destination, India is more conveniently accessible by air and cannot be easily reached by rail or road. A restrictive air transport policy has a very deleterious effect on tourist traffic. There are insufficient connections to most tourism destinations. The situation could be eased if the large number of regional airports could open up as international airports. The existing international and national airports also require improvement. The price of aviation turbine fuel needs to be lowered to make air transport competitive and affordable. Today, it is cheaper to travel by air to neighbouring countries from India than to travel to certain parts of India itself. A more liberal aviation bilaterals regime and a new aviation policy to benefit the economy of the country as a whole rather than the national carriers alone would greatly aid the development of tourism. Central and state governments need to evolve a taxation regime,

Factors that affect competitiveness

- Lack of concern for competitiveness
- Complex visa procedures
- Inadequate facilitation services
- Lack of quality infrastructure
- Lack of emphasis on product quality
- Lack of training at the 'cutting edge'
- Lack of hygiene
- Low utilisation of modern marketing and publicity tools.

which is revenue generating without being burdensome. Accommodation and transport taxes tend to be very heavy in certain states while the excise policy in others is extremely harsh. The land policy in some states makes the setting up of a hotel a formidable exercise and as many as 48 clearances are required for the construction and running of a hotel. Such policies deter private sector investment. The importance of protecting private investment in tourism must also be appreciated and activities such as mining, unauthorised construction, encroachments and haphazard development around tourist resorts must be prevented through appropriate legislation and public support.

7.5.23 As tourism is a highly competitive industry; the traveller has a wide range of choices and looks for good value for money. The lack of quality infrastructure, uncompetitive rates, indifferent or poor product quality, difficulty in getting access to information on travel and tourist destinations, untrained service providers, and above all, the lack of hygiene, have an enormously negative effect on the competitiveness of the tourism product. A world class destination requires professional planning to prevent haphazard, uncontrolled growth, spatial and land use planning, strict architectural controls, sewerage infrastructure and water treatment plants. It requires improvement of entry points and appropriate facilitation services. The lack of a visa-on-arrival regime on account of security considerations places India at a disadvantage vis-à-vis its competitors. It is necessary that India strikes a balance between security considerations and the need for tourism development and reviews its visa policy to permit tourists from its major source markets to obtain visas on arrival. Equally important is the behaviour of the host population. Training programmes are required not only for hotel managers but also for tourist guides, taxi-drivers, staff at eating places, porters etc., as the manner in which they conduct themselves affects the tourist's experience of the country. Important do's and don'ts in terms of a code of ethics need to be inculcated among the service providers. During the Tenth Plan, the Department of Tourism will organise capacity-building programmes for service providers through mobile training units.

Factors affecting the long-term interest of tourism

- Lack of community participation and awareness of benefits.
- Lack of involvement of the rural sector
- Lack of concern for sustainability.

7.5.24 A major impediment to the growth of tourism in India has been the lack of awareness about the benefits that it can bestow upon the host population. Unless the host population, both in the rural and urban areas, is supportive of tourism, it cannot become a vibrant economic force. The rural sector, in particular, has been largely ignored in tourism development and has consequently been deprived of the benefits of employment and income generation accruing from tourism. The Tenth Plan will seek to rectify this, particularly in view of the world-wide interest in rural tourism. While an awareness campaign that elicits local support for travel and tourism is essential for the long-term growth of the sector, it is also important to create awareness about the environmental impact of tourism by generating respect for the carrying capacities of tourist destinations. This is imperative as excessive exposure of ecologically fragile areas to human interference can lead to irreparable environmental degradation. As the demand for eco-tourism is expected to grow enormously in the next decade, it is important to have regulations in place to prevent such damage. The local population must be convinced of the need to support such regulations in the interest of long-term sustainability. India's hill resorts have already suffered seriously from a lack of concern for their carrying capacities and the unchecked influx of tourists during the summer months. If India's forest sanctuaries and pristine beaches are not to suffer the same fate, attention will have to be paid during the Tenth Plan to obtaining regulatory and public support for sustainability concerns.

THE TENTH PLAN STRATEGY

Major components of the Tenth Plan strategy

- To develop a national consensus on the role of tourism in the development agenda of the nation through the National Development Council.
- To enhance the effectiveness of public sector investment through the inter-sectoral convergence and prioritisation of tourism-related infrastructure programmes in other sectors like special tourist trains, rail and aviation links, rural roads etc..
- To remove the barriers to growth to leverage private sector investment.
- To mobilise the support of the primary players, viz. the State Governments, in tourism development.
- To mobilise public support by creating awareness of the socio-economic benefits of tourism for the host community.
- To provide legislative and regulatory support to protect the tourism industry, the consumer and the environment.
- To involve the rural sector in tourism and start mobile training units for service providers in rural areas identified for the development of tourism.
- To augment training facilities in hotel management and food craft and build the capacity of service providers at the cutting edge.
- To create world class circuits and destinations, eschew haphazard development.

7.5.25 The Tenth Plan strategy is to work towards a national consensus on the role of tourism in national development and to focus on the removal of barriers that hamper its growth. To make public sector investment more effective, it is necessary to work towards the inter-sectoral convergence of policies and programmes that could benefit tourism. The New Tourism Policy envisages a framework, which is Government-led, private sector driven and oriented towards community welfare, with the Government creating the legislative framework and basic infrastructure for tourism development, the private sector providing the quality product and the community providing active support. The overall vision of the development of tourism embodied in the new policy will be achieved through five key strategic objectives. These are:

- (i) Positioning tourism as a national priority.
- (ii) Enhancing India's competitiveness as a tourist destination.
- (iii) Improving and expanding product development.

(iv) Creation of world class infrastructure.

(v) Effective marketing plans and programmes.

Positioning Tourism As A National Priority

7.5.26 A concerted effort will be made, through the NDC, to arrive at a consensus on the role of tourism in the development agenda of the nation. Inclusion of tourism in the Concurrent List of the Constitution will provide constitutional recognition to the tourism sector and enable the central government to legislate for tourism development. A proposal to this effect has been circulated by the Department of Tourism to the state governments for comments and has also been discussed at a Chief Ministers' conference and a majority of the states have agreed to the proposal. Other initiatives include the setting up of Tourism Advisory Council with key stakeholders functioning as a think tank and the constitution of a Group of Ministers on Tourism to improve policy integration and co-ordination. The adoption of a tourism satellite accounting system is underway to gauge more precisely the contribution of tourism to

General Inter-sectoral Support

- Indian Railway Catering and Tourism Development Corporation Limited becomes functional in 1999.
- Railways to run tourist trains on nominated sectors in association with Government/private enterprise.
- Competition introduced in telecom service segments, improving communication links.
- Work on the Golden Quadrilateral highway project and North-South and East-West corridors in progress.
- Delhi, Mumbai, Chennai and Kolkata airports to be modernised.
- New airports proposed to be set up in Bangalore, Hyderabad and Goa.
- Integrated development of mega cities and small and medium towns under way
- Pradhan Mantri Gram Sadak Yojana (PMGSY) launched to provide connectivity to rural areas announced in 2000

Source: Economic Survey – 2001-02

Issues taken up by the Department of Tourism with the Ministry of Finance

- Reduction of expenditure tax.
- Rationalisation of service tax.
- Incentives under the Income Tax Act for the tourism industry.
- Reduction of levies on aviation turbine fuel (ATF).
- Waiver of inland air travel tax.
- Rural tourism to get the same benefits as agriculture.
- Part refund of excise duty for luxury buses.

(Source: Department of Tourism, GOI)

destinations would significantly benefit the national economy and provide a major impetus to tourism. Improvement in the standard of facilities and services at the international and national airports will need to be speeded up by employing professional management agencies and by privatising and leasing out airports.

the national economy. A national awareness campaign in order to create a popular movement in favour of tourism is being planned through a professionally managed communication strategy. Most importantly, the efficiency of public investment in tourism supporting activities will be improved through effective inter-sectoral coordination and prioritisation.

Enhancing India's Competitiveness As A Tourist Destination

7.5.27 As air capacity available to India is woefully short during the peak travel months, ranging from October to March, especially for the main tourism originating regions such as North America, Western Europe and South Asia, it is necessary to open India's skies to increase capacity and help enhance tourism. Additional seat capacity from the major tourism generating

7.5.28 To enhance India's competitiveness as a tourist destination, it is proposed to simplify the visa procedures and consider strategies for the speedy issue of visas including electronic visas and visas on arrival. An attempt will be made, through a consensus, to reduce the heavy and multiple taxes that reduce the competitiveness of the Indian tourism product. Special tourism police will be deployed at major tourist destinations during the Tenth Plan to provide security to travellers and promote India as a safe destination.

Improving And Expanding Product Development

7.5.29 Product development strategy during the Tenth Plan will be related to the special interests of tourist target markets.

- **Cultural and heritage tourism** will be expanded. India has a vast array of protected

monuments with 22 world heritage sites, 16 of which are monuments. The integrated development of areas around these monuments provides an opportunity for the development of cultural tourism in India.

- For the development of **beach and coastal tourism**, a number of sites on the west coast of India will be identified for the development as beach resorts by the private sector. The sites will be offered on long term lease at preferential terms. These sites will primarily be on the beaches of Goa, Kerala, and North Karnataka because of easier access by air. During the Tenth Plan Kochi in Kerala and the Andaman and Nicobar Islands will be developed as **international cruise destinations** because of their proximity to international cruise routes and their exotic appeal.
- India's unmatched **variety of cuisine** is becoming increasingly popular in the world and will be developed as a special attraction. It is proposed to create a highly skilled workforce of culinary professionals through an innovative incentive scheme not only for India but also to promote Indian cuisine internationally.
- **Village tourism** will be promoted as the primary tourism product of India to spread tourism and its socio-economic benefits to rural areas.
- India's great wildlife variety has not been developed as a tourist attraction. Wildlife sanctuaries and national parks will become an integral part of the Indian tourism product. Priority will be given to the preparation of site and visitor management plans for key parks. The quality of tourist facilities available at the parks will be enhanced after a prioritisation of parks. Tentatively these will be: Corbett National Park, Kanha National Park, Bandhav Garh National Park, Kaziranga, Madhumali, Bharatpur, Periyar, Ranthambore, Little Rann of Kutch, Chilka, and the Sunderbans.
- India has the greatest **adventure tourism** assets in the world in the Himalayas and its rivers. Mountain-based adventure activities will be developed and promoted. Regulations and certification for adventure tourism operators will be introduced so that the minimum standards of safety and conservation are met.
- India receives only a minuscule proportion of the global meetings, conventions and exhibition market. It is important that India develops a world class international convention city not just for the sake of tourism development but also for international and domestic trade and commerce..
- India's most unique tourism product during the Tenth Plan will be **holistic healing** and rejuvenation packages. In focussing on this, it will capture the essence of Indian culture for international and Indian visitors alike.
- India's **fairs and festivals**, some of which are already well established such as the Pushkar mela, the Desert Festival at Jaisalmer, the Kumbh Mela etc. will be promoted as unique products of India. The Festivals of India programme will be re-introduced in the top 12 future markets for India - initially with an annual event in the United Kingdom and the United States, to be followed by triennial events in the other markets.
- Shopping will be recognised as an integral part of tourism. The development of **dedicated shopping centres** for traditional crafts designed along the lines of **village haats** such as Dilli Haat and Shilpgram will be encouraged and information on where to procure specific crafts made available through shopping guides.
- **Delhi** will be positioned as the cultural capital of India supported by an ongoing and vibrant calendar of cultural events. The development of such a niche-based special interest product-mix will position India as a unique and competitive destination.

Creation Of World Class Infrastructure

7.5.30 The need for physical infrastructure for tourism ranges from ports of entry to modes of transport to destinations (airways, roadways, railways or waterways), to urban infrastructure such as access roads, power, water supply, sewerage and telecommunication. This underscores the need

for inter-sectoral convergence of infrastructural schemes and programmes that could support tourist destinations.

7.5.31 The road network is vital for tourism as almost 70 per cent of passengers in India travel by road. Many tourist circuits are entirely dependent on roads. The current government plan for the road system in the country covering both inter-state highways and improvements to rural roads directly supports tourism development. There is urgent need to construct and improve highways linking the 22 world heritage sites and places of tourist significance. The Ministry of Road Transport and National Highways will collaborate with the Ministry of Tourism in this effort.

7.5.32 The Indian railway system can also become an enormous asset to the development of the tourism and hospitality industry in the country. The railways hold a special fascination for foreign tourists who wish to travel the country. For the vast majority of domestic tourists also, the railways is the most affordable means of travel linking the length and breadth of the country. Introduction of special tourist trains with pre-set itineraries and private sector participation will be encouraged.

7.5.33 The Indian Railways plan to establish 100 hotels at railway stations to serve specific tourist centres. The private sector will be given incentives to operate these hotels on long-term leases. These hotels will provide clean and inexpensive accommodation for budget tourists. The Indian Railways also owns a number of heritage structures, which, if effectively maintained and marketed, could serve, both as railway stations and places of tourist interest. India has five hill railways, which compare with the best hill railway systems in the world. The enormous tourist potential of these products will be tapped during the Tenth Plan. As steam-hauled trains like the Royal Orient, Buddha Parikrama, Palace-On-Wheels and Fairy Queen are extremely popular with tourists, steam traction for special tourist segments will be continued. Trains like the Shatabdi and the Rajdhani with a special tourism and hospitality focus will be planned both for foreign and domestic tourists.

7.5.34 India's 7,000-km coastline and her mighty rivers will be tapped for the promotion of cruises. Care will be taken to develop world class tourism products. As the Ministry of Tourism's financial assistance to the states has not been able to have the desired impact in terms of creating of world class tourism infrastructure, the emphasis must shift to the development of specific travel circuits as internationally competitive destinations and the convergence of resources and expertise for these circuits.

7.5.35 The availability of trained manpower is essential to achieve excellence in the tourism sector. At present, there are 21 Institutes of Hotel Management and Catering Technology (IHM&TC) and 13 Food Craft Institutes in the country. In addition, a good number of accredited institutes also cater to the growing demand in the service sector. It is estimated that only 50 per cent of the requirement of the market is met by these institutes. Five new Institutes of hotel management would be set up in the Tenth Plan – three in the newly created states of Uttaranchal, Jharkhand and Chhattisgarh and two in the northeast. In addition, 15 more Food Craft Institutes will be set up in the Tenth Plan, and efforts will be made to take culinary crafts and training to the rural areas through mobile training units. A new scheme on capacity building to train service providers in the unorganised sector such as small hotels, dhabas, restaurants and other eating joints is also proposed.

Strategy For Effective Marketing

7.5.36 As there is fierce competition for tourists from India's source markets, India needs to change its traditional marketing approach to one that is more competitive and modern. It needs to develop a unique market position, image and brand, which cannot be held by any other competitor. India's positioning statement will capture the essence of its tourism product to convey an 'image' of the product to a potential customer. This image will be related not only to its ancient Vedic civilisation with a cultural heritage that continues to thrive especially in its rural areas but also to its essentially secular

nature.

7.5.37 In the Tenth Plan, an extensive market research programme will be launched in the target source markets and tourism products developed to cater to the interests of each source market. An effective and ongoing market representation presence will be established with the travel trade in each source market and an Internet portal set up in various languages to provide information, a description of the product and the product requirements of the target market segments. The Internet has a great impact on the marketing of travel and tourism. It has already established itself as a channel through which tourism organisations can promote their destinations and products. Indian tourism will utilise both the Internet and other emerging interactive technologies to avail of the benefits to be gained.

THE PATH AHEAD

7.5.38 The tourism sector needs a national consensus on the role and place of tourism in national development and the early removal of

impediments that have hitherto handicapped its growth. The Tenth Plan target of the creation of 18 million jobs through tourism requires a substantial investment of Rs. 38,800 crore at the rate of 47 jobs per one million rupees of investment, both from the public and the private sector. The central sector outlay for tourism during the 10th Five Year Plan is Rs. 2,900 Crores, the schemewise break-up of which is given in the Appendix.

7.5.39 Public sector investment, though limited, can be made more efficient through the inter-sectoral convergence of policies and programmes supportive of tourism. An integrated inter-sectoral investment plan that provides effective infra-structural support to tourism through the Ministries of Railways, Surface Transport, Shipping, Civil Aviation, Urban Development, Rural Development and Environment and Forests etc. can be achieved through the preparation of a tourism component plan. Private sector investment can be enhanced by removing the barriers to growth and expediting critical policies that are being evolved. Public and legislative support will be essential for the sustainable development of the sector.

7.5.40 The success of the New Tourism Policy 2002 will be largely determined by the success achieved on all these fronts.

CHAPTER 7.6

REAL ESTATE

7.6.1 The term 'real estate' is defined as land, including the air above it and the ground below it, and any buildings or structures on it. It is also referred to as realty. It covers residential housing, commercial offices, trading spaces such as theatres, hotels and restaurants, retail outlets, industrial buildings such as factories and government buildings. Real estate involves the purchase, sale, and development of land, residential and non-residential buildings. The main players in the real estate market are the landlords, developers, builders, real estate agents, tenants, buyers etc. The activities of the real estate sector encompass the housing and construction sectors also.

7.6.2 The real estate sector in India has assumed growing importance with the liberalisation of the economy. The consequent increase in business opportunities and migration of the labour force has, in turn, increased the demand for commercial and housing space, especially rental housing. Developments in the real estate sector are being influenced by the developments in the retail, hospitality and entertainment (e.g., hotels, resorts, cinema theatres) industries, economic services (e.g., hospitals, schools) and information technology (IT)-enabled services (like call centres) etc. and vice versa.

7.6.3 The real estate sector is a major employment driver, being the second largest employer next only to agriculture. This is because of the chain of backward and forward linkages that the sector has with the other sectors of the economy, especially with the housing and construction sector. About 250 ancillary industries such as cement, steel, brick, timber, building materials etc. are dependent on the real estate industry.

CURRENT SCENARIO

7.6.4 It is difficult to estimate the exact contribution of the real estate sector to gross domestic product (GDP) as it appears in a disaggregated and dispersed form in the National Accounts Statistics. Residential housing and real estate services (activities of all types of dealers such as operators, developers and agents connected with real estate) is covered under the category 'real estate, ownership of dwellings, business and legal services'. The gross value added in the ownership of dwellings is equivalent to gross rental of the residential dwellings less cost of repairs and maintenance. Gross rental is estimated as a product of average gross rental per dwelling and the number of census dwellings and includes imputed rent of owner-occupied houses.

7.6.5 The rentals of the industrial/trading establishments are deductible expenses from the profits of these establishments but appear as profits of the business or company renting out the premises. Similarly, implicit rents on self-owned real estate is accrued as profits from business and is difficult to separate from non-real estate profits. The addition to the stock of real assets with these businesses appears in the business accounts as capital addition. In the national accounts it would appear under the head 'gross fixed capital formation – construction'. Value of construction output is the additions made to the stock of real estate assets in the public, private and household sectors. The contribution of 'construction' to GDP is the estimate of value added derived from the corresponding estimates of this value of construction output.

7.6.6 Further, current data on the sectors such as ownership of dwellings, real estate services,

Table 7.6.1
Gross Domestic Product: Housing, Real Estate Services and Construction
 (at 1993-94 prices)

Figures In Rs Crore

Year	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99	1999-2000
Housing	43,507	44,706	45,958	47,252	48,585	49,968	51,391
Real Estate Services	317	333	351	370	390	413	437
Construction	40,593	42,830	45,496	46,452	51,195	54,342	58,728
Total	84,417	87,869	91,805	94,074	1,00,170	1,04,723	1,10,556

Table 7.6.2
Gross Domestic Product : Housing, Real Estate Services and Construction
 (at 1993-94 prices)

(Share in Per Cent)

Year	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99	1999-2000
Housing	5.6	5.3	5.1	4.9	4.8	4.6	4.5
Real Estate Services	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Construction	5.2	5.1	5.1	4.8	5.0	5.0	5.1
Total	10.8	10.5	10.2	9.7	9.9	9.7	9.6

Source : National Accounts Statistics 2001

construction are mostly not available and estimates for the benchmark year is prepared on the basis of base year data and projected for other years with the help of relevant indicators.¹

7.6.7 To get an idea of the contribution of the real estate sector to GDP, an attempt is made to factor in the value added to ownership of dwellings, which constitute housing, real estate services and construction.

7.6.8 During the period 1994-95 to 1999-2000 the real estate services, housing and construction sector grew by 4.6 per cent. The housing sector grew by 2.8 per cent only while the construction sector grew by 6.4 per cent. Table 7.6.2 indicates that the share of real estate services, housing and construction in GDP declined steadily from 1993-94 to 1999-2000.

REFORM ISSUES

7.6.9 The Indian real estate market is still in its infancy, largely unorganised and dominated by a large number of small players, with very few corporates or large players having national presence. The Indian real estate market, as compared to the other more developed Asian and Western markets is characterised by smaller size, lower availability of good quality space and higher prices. Supply of urban land is largely controlled by state-owned development bodies like the Delhi Development Authority (DDA) and Housing Boards leaving very limited developed space free, which is controlled by a few major players in each city.

7.6.10 Restrictive legislations and lack of transparency in transactions are other main impediments to the growth of this sector. Limited investment from

organised sector has also hindered the growth of this sector. There is a thriving parallel economy in real estate, involving large amounts of undeclared transactions, mainly due to high stamp duty rates. The current legislative framework also leads to substantial losses to the Government. Some of these issues are:

LEGISLATIVE ISSUES

7.6.11 Much of the over 100 laws governing various aspects of real estate dates back to the 19th century. Despite the plethora of laws, the situation appears to be far from satisfactory and major amendments to existing laws are required to make them relevant to modern day requirements. The Central laws governing real estate include:

Indian Contract Act, 1872

7.6.12 This legislation specifies when a party can be said to have the capacity to contract. A contract pertaining to realty can be entered into, among others, by an individual (who is not a minor or of unsound mind), partners of a firm, a corporate body, a trust, a sole corporation, the manager of an undivided family, and a foreigner. All the requirements of a valid contract, i.e. consideration, intention to contract and validity under the law of the land must be satisfied.

Transfer of Property Act, 1882

7.6.13 This lays down the general principles of realty, like part-performance and has provisions for dealing with property through sale, exchange, mortgage, lease, lien and gift. A person acquiring immovable property or any share/interest in it is presumed to have notice of the title of any other person who was in actual possession of such property.

Registration Act, 1908

7.6.14 The purpose of this Act is the conservation of evidence, assurances, title, publication of documents and prevention of fraud. It details the formalities for registering an instrument. Instruments which it is mandatory to register include:

- (a) Instruments of gift of immovable property;
- (b) other non-testamentary instruments which purport or operate to create, declare, assign, limit or extinguish, whether in present or in future, any right, title or interest, whether vested or contingent, to or in immovable property;
- (c) non-testamentary instruments which acknowledge the receipt or payment of any consideration on account of instruments in (2) above.
- (d) leases of immovable property from year to year, or for any term exceeding one year, or reserving a yearly rent

7.6.15 Sales, mortgages (other than by way of deposit of title deeds) and exchanges of immovable property are required to be registered by virtue of the Transfer of Property Act. Evidently, therefore, all the above documents have to be in writing. Section 17 of the Act provides for optional registration. An unregistered document will not affect the property comprised in it, nor be received as evidence of any transaction affecting such property (except as evidence of a contract in a suit for specific performance or as evidence of part-performance under the Transfer of Property Act or as collateral), unless it has been registered. Thus the doctrine of part performance dealt with under Section 53 A of the Transfer of Property Act and the provision of Section 49 of the Registration Act (which provide that an unregistered document cannot be admissible as evidence in a court of law except as secondary evidence under the Indian Evidence Act) together protect the buyer in possession of an unregistered sale deed and cannot be dispossessed. The net effect has been that a large number of property transactions have been accomplished without proper registration. Further other instruments such as Agreement to Sell, General Power of Attorney and Will have been indiscriminately used to effect change of ownership.

Special Relief Act, 1963

7.6.16 This Act is only to enforce individual civil rights. A person dispossessed of immovable

property without his consent (other than in due course of law) can recover possession by a suit filed within six months from the date of dispossession. Unless the contrary is proved, in a suit for specific performance of a contract, the Court shall presume that a contract to transfer immovable property is one in which monetary compensation for its non-performance would not afford adequate relief. The Court could also grant a permanent/mandatory injunction preventing the breach of such contract and award damages.

Urban Land (Ceiling And Regulation) Act (ULCRA), 1976

7.6.17 This legislation fixed a ceiling on the vacant urban land that a 'person' in urban agglomerations can acquire and hold. A person is defined to include an individual, a family, a firm, a company, or an association or body of individuals, whether incorporated or not. This ceiling limit ranges from 500-2,000 square metres (sq. m). Excess vacant land is either to be surrendered to the Competent Authority appointed under the Act for a small compensation, or to be developed by its holder only for specified purposes. The Act provides for appropriate documents to show that the provisions of this Act are not attracted or should be produced to the Registering officer before registering instruments compulsorily registrable under the Registration Act.

7.6.18 The objective of acquiring the excess vacant land could not be achieved because of intrinsic deficiencies in the legislation itself. The provisions under Sections 19, 20 and 21 of the Act have together proved counter-productive to the objectives of the legislation. So far, only 19,020 hectares could be taken possession of by State Governments and Union Territories and the remaining land was locked up in various litigations². This has only helped push up land prices to unconscionable levels and practically brought the housing industry to a stop.

7.6.19 This legislation was repealed by the Centre in 1999. The Repeal Act, however, shall not affect the vesting of the vacant land, which has already been taken possession by the State

Government or any person duly authorised by the State Government in this regard under the provisions of ULCRA. The repeal of the Act, it is believed, has eliminated the large amount of litigation and released huge chunks of land into the market. However the repeal of the Act has not been carried out in all states. Initially the repeal Act was applicable in Haryana, Punjab and all the Union Territories. Subsequently, it has been adopted by the State Governments of Uttar Pradesh, Gujarat, Karnataka, Madhya Pradesh and Rajasthan. Andhra Pradesh, Assam, Bihar, Maharashtra, Orissa and West Bengal have not adopted the Repeal Act so far.

Land Acquisition Act, 1894

7.6.20 This Act authorises governments to acquire land for public purposes such as planned development, provisions for town or rural planning, provision for residential purpose to the poor or landless and for carrying out any education, housing or health scheme of the Government. In its present form, the Act hinders speedy acquisition of land at reasonable prices, resulting in cost overruns.

The Indian Evidence Act, 1872

7.6.21 Under the Act, whenever the status of any person as the owner of a piece of immovable property of which he is shown to be in possession is questioned, the burden of proving that he is not the owner lies on the person who asserts that he is not the owner.

State laws governing real estate

7.6.22 While each state has its own set of laws, which govern planned development, rules for construction and floor-area-ratio (FAR) or floor-space-index (FSI) and formation of societies and condominiums, two laws that exist in every state, are the stamp duty and rent laws. Stamp Duty is being covered in a later section.

Rent Control Act

7.6.23 Rent legislation in India has been in existence for a very long time. Rent control by the

government initially came as a temporary measure to protect the exploitation of tenants by landlords after the Second World War. However these rent control acts became almost a permanent feature. Rent legislation provides payment of fair rent to landlords and protection of tenants against eviction. Besides, it effectively allows the tenant to alienate rented property. Tenants occupying properties since 1947 continue to pay rents fixed then, regardless of inflation and the realty boom. Some of the adverse impacts of the Rent Control Act are:

- Negative effect on investment in housing for rental purposes.
- Withdrawal of existing housing stock from the rental market.
- Accelerated deterioration of the physical condition of the housing stock.
- Stagnation of municipal property tax revenue, as it is based on the rent.
- Resultant deterioration in the provision of civic services.
- Increase in litigation between landlords and tenants.

7.6.24 The Rent Control Act, in fact, is the single most important reason for the proliferation of slums in India by creating a serious shortage of affordable housing for the low income families. Low and middle-income families typically live in rented accommodation all over the world and the need for such accommodation in our cities will only increase as the economy modernises, labour mobility increases and urbanisation takes place. It is, therefore, necessary to increase the stock of rental housing. Promotion of rental housing can have a significant impact on the economy in many ways:

- It reduces shortage of housing for a large section of the population who cannot afford ownership.
- Housing construction being a labour-intensive activity, investment in housing generates employment for both skilled and unskilled labour.

- Housing has backward and forward linkages with many other industries.
- Rental housing helps in stabilising real estate prices and checking speculation and, thus, makes housing affordable for the weaker sections.
- It helps check proliferation of slums.

7.6.25 In the absence of rent control, dilapidated urban housing would be periodically pulled down and replaced by modern apartment buildings and other complexes leading to more rational use of prime locations and also creating a continuous process of urban renewal. This has not happened in India because rent control combined with security of tenure provides no incentive for house owners to undertake renovation work. This explains the run down appearance of many of our buildings in prime locations, which gives Indian cities a much more shabby appearance than their counterparts in other developing countries. Repeal of the Rent Control Act could unleash a construction boom as has happened in many major cities all over the world. This is not only necessary to meet the growing unmet demand for housing but it would also have a highly favourable effect on employment generation.

7.6.26 In 1992, the Central Government proposed a model rent control legislation, which was circulated to all states. The model Act proposed modification of some of the existing provisions regarding inheritance of tenancy and also defined a rent level beyond which rent control could not apply. A new Delhi Rent Control Act based on this model law was passed in 1997 but it has not been notified to date because of resistance from traders who are sitting tenants. Only a few states have introduced the model Act.

TAXES AND STAMP DUTY RATES

Stamp Duty

7.6.27 There is a direct link between Registration Act and Stamp Act. Stamp duty needs to be paid on all documents which are registered and the rate varies from state to state. With stamp duty rates of

13 per cent in Delhi, 14.5 per cent in Uttar Pradesh and 12.5 per cent in Haryana, India has perhaps one of the highest levels of stamp duty. Some states even have double stamp incidence, first on land and then on its development. In contrast the maximum rate levied in most developed markets whether in Singapore or Europe is in the range of 1-2 per cent. Even the National Housing and Habitat Policy, 1998, recommended a stamp duty rate of 2-3 per cent. Most of the methods to avoid registration are basically to avoid payment of high stamp duty.

7.6.28 Another fallout of high stamp duty rates is the understatement of the proceeds of a sale. This is also linked to payment of income tax and capital gains tax. When registration has not been effected, a transfer is not deemed to have taken place and hence capital gains tax can be totally avoided. Thus, the present provisions in various laws and their poor implementation have led to a situation where there is considerable financial loss to the exchequer on account of understatement of sale proceeds, non-registration and consequent non-payment of stamp duty and avoidance of capital gains tax.

Property Tax

7.6.29 Property tax is a levy charged by the municipal authorities for the upkeep of basic civic services in the city. In India it is the owners of property who are liable for the payment of municipal taxes whereas in countries like the United Kingdom, the occupier is liable. Generally, the property tax is levied on the basis of reasonable rent at which the property might be let from year to year. The reasonable rent can be actual rent if it is found to be fair and reasonable. In the case of un-let properties, the rental value is to be estimated on the basis of letting rates in the locality. In the case of special class of properties like cinema theatres, it is estimated by adopting the accountancy method under which the rent is a certain percentage of the total average turnover during the year, i.e. actual receipts of the sale of tickets (excluding entertainment duty).

7.6.30 However, some cities follow a different system for the levy of property tax. In Patna, local properties have been categorised into three groups,

(i) reinforced cement concrete (RCC) buildings; (ii) pucca building; and (iii) pucca buildings with A.C or C.I. sheet roof. The rental value per sq.m. for every building has been fixed according to their status, location, type of construction and user etc. This system has been upheld by the Supreme Court and has been appreciated by international bodies. In Delhi, property tax of un-let properties is based on rental value, which is arrived at on the basis of capital investment in land and buildings. In the case of rented properties, the rent recovered is taken as the base.

7.6.31 The rental value system has its own disadvantages. There is lot of discretion with the assessing officer. There is no buoyancy of revenues because of the restrictions imposed by the Rent Control Act. As a result, the rateable value of the properties increases only on account of alterations to or extension of the existing properties or on account of construction of new properties. As a result of the Rent Control Act, the income of the municipal corporations has become static. The municipal corporations are, therefore, in favour of an alternative method of levying of property tax which will de-link it from rent.

7.6.32 The Municipal Corporation of Greater Mumbai commissioned the Tata Institute of Social Sciences to undertake a study to recommend an alternate system for levy of property tax. The study has recommended a capital value based system of taxation. The advantages of this system are:

- (i) It results in revenue buoyancy, i.e. tax revenue can keep pace with inflation and cost of living since capital value can be revised after five years based on the market value of the residential properties given in the Government ready reckoner for stamp duty.
- (ii) The system is transparent and simple.
- (iii) It is objective and eliminates/reduces the element of discretion.
- (iv) It provides equitable assessment among different property owners.

7.6.33 The study has also developed a formula to work out the capital value and amount of tax:

Capital Value= Market value (MV) * Carpet area of the property * Weight for type of construction * Weight for age.

Tax= Capital Value * tax rate * weight for user category.

7.6.34 While assigning weights, concessions have been given to buildings like chawls, semi-permanent structures, those constructed prior to 1985 and those falling in the category of tenements having less than 225 square feet carpet area and belonging to the economically weaker sections. Similarly, weights have also been assigned to the user category in a progressive manner. The details of the weights assigned to each category may be seen at Annexure-7.6.1.

Entertainment Tax

7.6.35 The tax rates in the entertainment industry are among the highest in the world. Though some State Governments are waiving entertainment tax on multiplex theatres for periods ranging from three to ten years, on the whole tax on film theatres continues to be high. Lowering of these rates will not only benefit the entertainment industry, which has an annual turnover of Rs. 400 crore, but will also promote real estate development in the form of theatres in cities, towns and even villages.

LAND MARKET ISSUES

7.6.36 It is estimated that removing land market barriers can contribute an additional 1 per cent to India's GDP growth rate.³

Titles and Records

7.6.37 Another important issue in real estate development is that of title to property. In India, the State does not certify a title to housing or land property. The revenue records are not documents of title, and ownership is established only by the sequence of earlier transfers. Thus, the fundamental question of title has often led to enormous litigation. At present there are three legislations

which have a bearing on property transactions involving transfer of ownership of proprietary interest. These are the Transfer of Property Act, the Indian Registration Act and the Indian Evidence Act.

7.6.38 An examination of the provisions of these Acts reveals a number of inadequacies. Most of the sale transactions are done through the power of attorney route to evade transaction costs like registration, stamp duties, property tax etc. The system, as it exists, imposes a responsibility on the part of the purchaser with regard to the inspection of the title. The result is tenuous titles to land and non-transparency in property transactions, thereby hampering large-scale real estate development.

7.6.39 Titles to land have become necessary for more efficient handling of land title documents, to provide greater security of tenure for those in occupation of land, to keep pace with the greater demand for re-conveyancing, for better support for mortgaging and investment, to face the steady increase in the number of private and public users who make routine enquiries about land ownership.

7.6.40 There is an urgent need to ensure compulsory registration of land deeds and also to computerise such records so as to create a database. The Andhra Pradesh experience is a good example to begin with where registration of sale of land/property is achieved within a month. The Tenth Plan Working Group on Information Technology for Masses has recommended computerisation of land records all over the country with computerised land/property documents being available to the public at all levels, including in villages, by 2005. Through online documentation of land records, hyper links with court registries of the district or the State can be developed, so that the unwary buyer can get immediate information of any pending litigations.

7.6.41 In this context, the Registration and Other Related Laws (Amendment) Act, 2001 has proposed the compulsory registration of documents relating to part performance of contracts concerning immovable property (covered by Section 53A of the Transfer of Property Act), in order to prevent loss of revenue to the states. The Act also seeks to curb

the practice of avoiding registration of deeds by transferring property through power of attorney and agreements of sale. Though this Act has received the assent of the President and has been notified in the official gazette, it will come into force only from a date to be notified by the Government.

Urban Land Monopoly

7.6.42 Many cities have created development agencies (like the DDA in Delhi) and handed over control of all urban land within the municipal jurisdiction to them in the belief that they would act in the interests of the public. However, such agencies tend to behave like the monopolies that they are. It is in the interests of the monopolist to restrict the development and sale of new land and keep prices high, so as to maximise its own returns. Introduction of a competitive construction boom requires abolishing the monopoly of such agencies over urban land by completely separating control of land from its development.

7.6.43 There is a huge opportunity for leveraging the large portfolios of unutilised and underutilised real estate assets of various government agencies. A conscious effort on the part of these agencies, coupled with policy initiatives, can unlock the value of these non-performing assets. Revenues generated from such initiatives can be utilised for the development of infrastructure.

7.6.44 Government staff housing : During British rule, official bungalows were built in exclusive civil lines for government officials. This practice was perpetuated after Independence and a large volume of government housing for functionaries ranging from ministers and legislators to Class III and Class IV employees, involving huge public expenditure was developed during the past 50 years. In other democracies such as the United States and United Kingdom, there is usually an official residence for the elected chief executive and all other officials live in owned or rented houses. Many economists have proposed that all government housing including those in the Lutyens bungalows zone in Delhi should be handed over to the private sector and the resources generated be invested for productive purposes.

7.6.45 Public-Private Partnerships : Private participation in housing is giving way to the new mantra of public-private partnerships. Under this, the government acquires the land which is then developed for residential/commercial use by the private developer. One example is the 'Bengal Ambuja project' in Kolkata, which is a joint venture between the West Bengal Housing Board and the Gujarat Ambuja Cement Group. The housing project caters to the housing needs of various income groups by building 'low density high rise' buildings.

7.6.46 Another example worth emulating is the HUDA model of the Haryana Urban Development Authority (HUDA) under which a number of integrated cities have been developed through public-private partnership (Annexure-7.6.2). Gurgaon has emerged as the most successful of these, with the country's largest private sector integrated township DLF City being established there. Development of integrated townships would mean development of residential, commercial, corporate and institutional complexes, besides provision of roads, power, water supply, waste management, storm water drainage as also social infrastructure – medical, community and education facilities. A certain percentage of houses – around 10 per cent — in these townships can be reserved for the economically weaker sections (EWS) and low-income groups (LIG) at affordable rates.

Land Reforms

7.6.47 The present ceiling of 15 - 25 acres per person on agricultural holdings comes in the way of large-scale real estate development, especially with the recent foreign direct investment (FDI) norms making it mandatory for having at least 100 acres of land for investment in integrated townships. Therefore one has to under the existing law find methods of circumventing this by first converting agricultural land within the limit into urban land and then again purchasing more land in order to meet the 100-acre limit for FDI. This would only lead to delays in projects. With the urban land ceiling removed in most parts of the country, the agricultural land holding ceiling with respect to land in the periphery of towns needs to be looked into.

Conversion of Rural Land to Urban Use

7.6.48 Conversion of rural land at market prices should be completely de-controlled and left to the market. At present, in Delhi, historical village land situated within the city limits cannot be converted to develop urban colonies. The presence of 'urbanised villages' in the middle of the capital city is an anachronism and a testament to bad policy. The curbs on the expansion of urban limits into surrounding village areas should be removed.

FINANCIAL SECTOR

Credit Restrictions

7.6.49 Financing options are presently skewed in favour of personal loans vis-à-vis developer financing. Most housing finance companies cater mainly to individuals in the higher income group, who have a reasonably assured credit worthiness. Only 5-7 per cent of the loans disbursed by these housing finance companies go to builders and institutional developers.

7.6.50 The high default rates among the developers is one of the factors dissuading housing finance companies from investing in this sector. The legal recovery mechanism is time consuming. Lack of a code of conduct for the industry is the other factor that keeps investors away. Even now, developers need to become corporatised to avail funding from financial institutions. All this leads to builders and developers approaching private sources of finance at high interest rates, which ultimately leads to higher real estate prices.

7.6.51 To attract investment into this sector, it is imperative that the government increases the comfort level of the existing fund providers through appropriate legal measures and corporatisation of real estate, besides maintaining industry discipline. Developing a grading system among the developers will make investors aware of the risks associated with the projects of each developer. Grading would facilitate the overall growth of the real estate sector by providing the developers with incentives to

conform to fair trade practices and legal requirements. A scientifically graded project would lend itself to a more accurate and reliable estimation of the risks associated with the real estate project/project promoter. This is expected to enhance the confidence of the end users and augment the interest of the lenders in these projects, thereby facilitating the flow of institutional funds to the project/project owner. With the construction sector receiving industry status, it is expected that developers and companies will be able to borrow from financial institutions on priority basis.

Sources of Funds

7.6.52 Real estate mutual funds, pension funds and insurance companies are the major investors in the housing sector in developed countries. In the United States, pension funds invest 5 per cent of their reserves in real estate equity and mortgages, whereas in India developers' ability to get financial help from these sources is limited. Housing finance companies in India also need to be given access to pension, provident and insurance funds. As the gestation period of real estate projects is more than five years, on an average, it is necessary that developers have access to such long term funding sources.

Real estate investment trusts

7.6.53 In India real estate assets are kept outside the financial market and not leveraged for investment purposes. India must try to make real estate a full-fledged investment option. Real estate as an asset class is vastly different from capital market assets. It is a natural hedge against inflation, experiences low volatility and hence generates positive long-term returns. To begin, with an exclusive stock exchange could be set up under Securities and Exchange Board of India (SEBI) guidelines for trading real estate stocks.

7.6.54 The Government should permit the setting up of a Real Estate Investment Trust (REIT) which should be regulated by SEBI in order to open the investment floodgate for the real estate sector. The

REIT would operate like a mutual fund, where investments of individual investors are consolidated to invest in real estate, rather than stocks of companies. It would provide a higher level of liquidity as well as professional advice for price discovery, as the investor would be investing through an asset management company. It also provides assured returns in the form of dividends to its investors from rental income earned on real estate assets. The essential difference between a REIT and a mutual fund is that investments made in REIT are traded in real estate stocks and not invested in stock of companies. Further the swings in this market are in the range of 5-10 per cent, which an average investor is in a better position to absorb than the 60-90 per cent swings on the stock market.

Mortgage market and securitisation

7.6.55 Another source of finance for housing companies is development of the secondary mortgage market which involves conversion of mortgages into tradable financial or debt instruments. Securitisation is a process popular among housing finance companies in the West by which the home loan assets are bundled into securities and sold to the investors. Such securities are called mortgage-backed securities and they help the finance companies convert their loan assets into cash for further loan disbursements, thus maintaining a flow of funds from the lenders. It also helps finance companies reduce their investment risk; the risk of earning a lower rate of return on cash flows for pre-payments of home loans.

7.6.56 There are two pre-requisites for secondary mortgage market:

- (i) **Mortgage loan insurance:** The risk of default under mortgage loan is covered under an insurance policy for a nominal premium, which protects the risk of non-payment to the lender. As a result, the mortgage loans are risk-free and it is this reason that only 50 per cent risk weight is assigned to housing loans under capital adequacy norms. In India, however, such risk weight is 100 per cent given the absence of such insurance cover which increases the risk

of non-payment/failure. The Reserve Bank of India (RBI) has recently reduced the risk weight for housing loans to 75 per cent, taking into account the good recovery in this sector.

- (ii) **Foreclosure:** Housing loans are long-term loans, repayable over a period of 15 to 20 years. Any default will be restricted to the period of actual default. Under prudential norms, the account will become a non-performing asset after default of six monthly instalments. Foreclosure laws will enable the lender to call back the entire dues when default of six monthly instalments takes place, irrespective of the fact that the full amount is not due. The various agreements obtained by the lender will have such clauses to recall the entire balance due in case of default.

7.6.57 At present, banks and housing finance companies find it difficult to sell their housing loan portfolio to institutions if it does not have the remedy of foreclosing an account. The normal procedure for recovery of bad debts under the civil code takes more than 10 years. Parliament passed the National Housing Bank (Amendment) Act 2000 adding a new chapter, V-A, to the National Housing Bank Act, 1987. This simplifies the foreclosure norms for housing loans and permits summary proceedings for dues by appointing a Recovery Officer and setting up Appellate Tribunals on the lines of the Debt Recovery Tribunals in the case of banks. Further, the Government has also included scheduled banks in the definition of approved institutions, besides housing finance companies.

7.6.58 Under these provisions, officers of approved institutions with a legal background shall be appointed as recovery officers of the Tribunal. If a borrower defaults in repayment, the lending institution may resort to foreclosure of the account and apply to the recovery officers for sale of the property pledged, mortgaged or assigned to it as security. The foreclosure law can speed up the recovery process considerably. However, the government has to notify the rules and appoint recovery officers before the foreclosure norms can take effect.

ROAD NETWORKS

7.6.59 According to a study conducted by the real estate management company, C.B. Richard Ellis, the returns on commercial property in India are among the highest in the world. Mumbai prime property fetches returns of 13 per cent, New Delhi 12 per cent and Bangalore 11 per cent. In contrast, returns in London are 5.3 per cent and in Singapore 4.8 per cent. Lack of space is not the reason for these high returns because India is a huge country while Singapore is just a tiny city. Various reasons have been put forward to explain the curious phenomenon of astronomical real estate values in a poor country. The real reason, however, is the distorted market for real estate combined with the under-supply of roads. Absurd land ceiling and rental laws combined with high stamp duties have skewed the real estate market towards a situation of perennial shortage. Roads add to the supply of land by connecting villages to towns and this makes land available to the urban economy. This keeps land prices down. It also reduces the rural-urban migration, easing the pressure on cities.

7.6.60 Unfortunately, roads have long been neglected by our policy makers. Roads are a 'public good' and, therefore, an area where State investment is required. However, the 'planned economy' has failed to invest sufficiently in roads even as it has been investing in cars and running hotels. This has put pressure on land in cities, causing urban land prices to soar.

7.6.61 It is now time to usher in a free market in real estate development. With roads, tramways and rail connections to the surrounding areas, a lot of rural land will be 'developed'. All these parcels of land will add to the total supply of real estate and this will work to keep prices down.

FOREIGN DIRECT INVESTMENT

7.6.62 The real estate market is currently characterised by small players. None of the local developers have a truly national presence and large companies are still not fully involved in real estate development. None of the current players have the

financial strength to invest in large-scale development projects. The development of new towns and cities would require huge massive investment and technical expertise that domestic players alone cannot provide. One way to overcome this hurdle is to raise funds through the FDI route. However, right now, FDI in the real estate sector is allowed only for the development of integrated townships.

7.6.63 Allowing FDI in the real estate sector will result in the following advantages:

- (i) It will provide the much-needed investment for the funds-starved sector;
- (ii) it will bring in professional players equipped with expertise in real estate development;
- (iii) the introduction of new technology and quality real estate assets will have a demonstration effect on the local developers;
- (iv) it will lower real estate costs in the long run;
- (v) it will generate employment and revenue; and
- (vi) it will improve the quality of related infrastructure.

7.6.64 The real estate sector needs to be opened up to FDI as returns in the form of rentals (annual investment yield) and capital appreciation are assured. Rentals in Indian cities are amongst the highest across the world. The average yield from investments in commercial property has ranged between 11-13 per cent per annum in India over the last few years. Across the world, real estate is a preferred option for foreign investors. It is estimated that roughly, half the FDI flow into China is for the housing sector only.

7.6.65 But the stumbling block is the fear that foreign investors may repatriate all the profits. These apprehensions are fuelled by the fact that the Southeast Asian financial crisis was partly the result of short-term investments in the real estate sector in these countries leading to flight of capital.

To guard against this, a minimum lock-in period of three years must be fixed on investments and care should be taken to ensure that no long-term investment is funded by short-term capital.

7.6.66 Opening up the real estate sector will bring in substantial foreign investments into India which would result in developing the real estate market and making it more efficient. This is also likely to give a big fillip to the construction industry, which has tremendous spin-offs, especially in terms of employment generation. These issues are discussed more fully in Chapter 7.7.

7.6.67 Legal problems, small individual land holdings, untraceable records and unavailability of organised finance are major entry barriers to FDI in real estate. These need to be tackled before the sector is opened up.

MUNICIPAL LAWS, RULES & PROCEDURES

Municipal Laws

7.6.68 Most urban and municipal laws and regulations in India date back to half a century if not more. There is a need to thoroughly review and modernise them in the light of the latest developments in urban infrastructure, transport, pollution control etc. A committee of eminent persons from the concerned fields should be set up to draw up a model municipal law. Such a law must make provision for private investment in and supply of all public utilities and services. It must ensure that the municipal authority focuses its attention on data gathering, analysis, planning, organisation and monitoring. In other words, the government should play the role of the facilitator more than that of the provider.

Zoning Rules

7.6.69 In an ever-changing urban scene, the zoning regulations are in a constant state of flux

with no systemic reviews or updation taking place. There is need to establish a regulatory commission to continuously review the zone shifts and activity shifts as demographic patterns change in urban areas.

7.6.70 The failure of the Master Plan for Delhi is a case in point. The most important cause of this is the poor and inadequate implementation of the Plan during the first 20 years of its existence from 1961 to 1981. Most of the provisions made for various facilities in the Plan were not realised on the ground. Space made available for housing, retail, commercial offices, service industry, small-scale industry, as well as for educational, social and cultural institutions was far below the provisions made in the Master Plan. The implementing agency, the DDA, notified and acquired all the land required for the future growth of the city, but failed to develop it on a scale and at a speed sufficient to meet actual need. In such circumstances, restrictions on change of use of land and premium charged by authorities like DDA/Directorate of Industries are matters to be investigated.

Approval Procedures

7.6.71 Another serious malaise affecting investment in the real estate sector and housing development is the tardy process of planning approvals. A system of deemed approvals for all planning permissions by registered architects operating on the basis of self-regulation much like chartered accountants do, would enormously speed up the entire plan approval process. This will ensure that far larger quantum of housing stock is supplied every year, at more reasonable prices than is the case presently.

CONSUMER PROTECTION

7.6.72 Real estate came under the purview of the Consumer Protection Act (1986) in 1993 after an amendment to the definition of 'service' in Section 2(1) 0 of the Act to include the term 'housing construction'. However, there are still several lacunae relating to consumer protection.

7.6.73 Under the provisions of this Act, housing is considered a 'service' not 'goods'. If housing is treated as 'goods' then replacement or liquidated damages can be claimed if it is defective, unlike in the case of breach of service provision, which requires only payment of a penalty. Further, pricing is covered under the Act under the 'unfair trade practice' as applicable to goods. By defining housing as a 'service', unfair practices related to pricing of housing are not covered. However, merely defining housing as 'goods' will not solve all problems. The responsibility of making the right choice under the Act rests with the consumer and the seller is protected from giving a warranty of the goods. Thus, even if housing were to be included as a good, the very definition of 'good' adopted in the Act may need to be reviewed to give adequate protection to a purchaser of housing.

PATH AHEAD

7.6.74 There are three critical issues in real estate development - archaic rules and regulations, lack of affordable finance on a mass scale and inadequate land availability.

Legislative Reforms

- a. Revise the number of legislations governing property transactions and merge them into one comprehensive law.
- b. The repeal of the Urban Land (Ceiling & Regulation) Act by various states which have not done so is necessary. This is expected to facilitate the release of 2.2 lakh hectares of urban land, which remains frozen.
- c. Amend the Rent Control Act so as to remove the absolute authority of the rent controller over the disposition of the rented property. This allows the rent controller to virtually divest the owners of the natural right to his property and transfer it to the tenant. The Rent Control Act must limit itself to ensuring a level playing field in terms of rent (adjustment) negotiations and a reasonable period for vacation of

property. Market rates must be allowed to prevail in the medium term. Instilling confidence in the owners would lead to release of vacant houses into the market within the levels of affordability of the tenants.

- d. Amendment of the Indian Stamp Act, 1899 and the Indian Registration Act to delink the process of registration from the payment of stamp duty and also to liberate the registration process from the requirement of various no-objection certificates.
- e. Rationalise the tax rates and duties pertaining to the real estate sector. States should reduce stamp duties from the present range of 13-26 per cent to the level of 3-5 per cent. Stamp duty rates must also be uniform across States. The perceived loss in stamp duty revenues will be more than compensated through increased disclosure of property sales and the correct value of the property transacted. Property tax must be linked to the capital value of the property than on the rental value of the property. Entertainment tax rates must be reduced.
- f. The principles of law applicable to statements made in a prospectus should also apply to the sale of property. This will also facilitate the institutionalisation of conveyances and conveyancers can investigate titles and cross-linkages between municipal authorities, electricity boards, taxation departments, land registries and collectorates can be easily facilitated through hyperlinks.
- g. A formal system for enabling private participation in the provision of municipal services will provide access to the skills required for improving the efficiency of urban services and make them self-sustaining in the long run. Pricing municipal services rationally will ensure enough funds for the maintenance and expansion of municipal services. Municipal authorities maybe allowed to raise funds by issuing municipal bonds.

Financial Reforms

- a. Allow the pension funds, provident fund and insurance sector to invest in real estate. Provident and pension funds must be allowed to invest in deposits/bonds of housing finance companies.
- b. Encourage creation of real estate mutual funds/real estate investment trusts.
- c. Promote trading in mortgage-backed securities. The introduction of foreclosure norms and establishment of recovery tribunals is essential. Though securitisation of mortgage debt has just started in India it has not succeeded due to the high incidence of stamp duty on documents.
- d. The present stipulation that FDI will only be allowed for the development of integrated townships of a minimum area of 100 acres needs to be relaxed to 50 acres or less, as such vast expanse of land may not be available in urban areas. FDI in the rest of the real estate sector may be permitted up to 74 per cent with a lock-in period of three years and there should be no repatriation of dividend during the construction period. Repatriation thereafter may be allowed.
- e. Develop a grading system among real estate developers to keep fly-by-night operators out and control default rates among developers. This will help investors (end user/buyer of property) be aware of the risks regarding the developer's ability to deliver as per specified terms and quality parameters and transfer of ownership on time.

Land Related Reforms

- a. Simplify and modernise the current registration system for land/property titles. The Registration and Other Related Laws

(Amendment) Act 2001 must be notified at the earliest.

- b. A time-bound programme for auctioning of all vacant government land should be drawn up and implemented. State owned development bodies like DDA can bid along with others for the land they want to develop.
- c. Promote public-private partnerships in housing based on the HUDA model in order to increase the housing stock.
- d. Freedom to convert rural land for urban use would increase the supply of land and stimulate real estate development.
- e. Set up a regulatory commission for continuously reviewing zoning regulations.
- f. A system of deemed approval of plans for development/re-development by registered/authorised architects can speed up the process of securing approvals.
- g. Existing ceiling on agricultural land holding, especially lands on the periphery of towns, needs to be reviewed to allow development of integrated townships.
- h. Amendment to the Land Acquisition Act to speed up the process of acquisition and to de-link the process of taking over possession of land from the process of determining compensation. The Act should also be modified to focus solely on the acquisition of land for public goods (e.g. roads, defence) and public utilities (power lines, irrigation dams/canals) and exclude commercial purposes such as housing.

7.6.75 The real estate sector can be a leading sector in generating economic growth and employment. The housing and construction industry employs 30 million people and as many as 250 industries are directly or indirectly dependent on this sector. The policy reforms outlined above, if implemented, can unleash a boom in this sector, the likes of which the country has never seen.

Weights for Capital Valuation of Realty

1. Construction Category

Construction category	Construction Type	Weight
C1	Vacant land/land under construction	0.5
C2	Semi-permanent structures	0.6
C3	Chawls	0.6
C4	RCC structures without lift (usually up to four floors)	1.00
C5	RCC structures with lift (usually more than four floors) and bungalows	1.10

2. User Category

User Category	Broad User Type	Detailed User Description	Weight
U1	Charitable	Charitable Properties	1.00
U2	Residential	Residential Properties	1.00
U3	Industries/Factories	Tuition classes and computer classes, nursing homes, factories including workshops, laundries, oil installations, printing press, refineries, private swimming pools, clubs, gymkhanas, industrial estates, mills (textiles, silk, flour, oil) godowns and tanks for industrial use, drama theatres, marriage halls, stadiums, service stations	2.00
U4	Shops	Shops, credit societies, co-operative departmental stores (Apna Bazaar, Sahakar Bhandar), petrol pumps, cinema houses, studios, ordinary lodging-boarding, other non-residential property not covered elsewhere.	2.50
U5	Offices	Offices in less prominent areas, other hotels excluding ordinary lodging-boarding	3.50
U6	Hotels (4 Star or lower) and Offices	Four star hotels, banks (Co-op scheduled banks excluding credit societies, Air conditioned markets, shopping complexes, commercial/administrative office buildings in commercial locality, departmental stores excluding Co.op department stores	4.00
U7	Hotels (5 star)	Five star hotels, banks (excluding credit societies and Co.op banks)	5.00

3. Age Category

Age Category	Year of Construction	Weight
A1	Pre-1940	0.80
A2	1941-1960	0.85
A3	1961-1970	0.90
A4	1971-1985	0.95
A5	Post-1985	1.00

Source : Tata Institute of Social Sciences, Mumbai.

Haryana - HUDA Model

The Haryana Urban Development Authority (HUDA) is a prime agency of the State Government engaged in the planned development of urban areas in the state. It undertakes development of land after the same is acquired by the Government of Haryana through its urban estates department for specific land uses, like residential, commercial and industrial etc. in accordance with the provisions of the development plans of a particular area.

The Development Plans are prepared and published by the Director, Town & Country Planning, Haryana, in exercise of the powers conferred by Sub-Section 7 of section 5 of the Punjab Scheduled Roads and Controlled areas (Restriction of Unregulated Development) Act, 1963. After acquisition of land, a layout plan is prepared on the basis of a plane table survey of the acquired land, and in accordance with the norms and standards evolved by HUDA for providing a congenial living environment.

For the purpose of ensuring the health and safety of the allottees and for proper aesthetics and a desirable street picture, the Haryana Urban Development Authority (Erection of Buildings) Regulations, 1979 have been framed, which, besides other design/structural requirements, specify the proportion of the site which may be covered with building, F.A.R., Max. height etc. in the case of different types of buildings.

INDUSTRIAL

Maximum permissible coverage on ground	Maximum permissible F.A.R	Maximum height of the industrial building
60 per cent of area of the site	125 per cent	21 meters

INSTITUTIONS AND OTHER PUBLIC BUILDINGS

Area of Plot	Maximum permissible coverage on ground floor	Maximum permissible F.A.R
upto 10,000 sq. M.	33 per cent of the area of the plot	100 %
Above 10,000 sq. M.	25 per cent of such additional plot	100 %

Residential

(a) Permissible Maximum Coverage

Area of Site	Maximum permissible coverage on ground (including ancillary and residential zone)	Maximum permissible coverage on the 1st floor 100 %
1. For the first 225 sq. m of the total area of the site	60 per cent of the such portion of the site	55 %
2. For the next 225 sq. m, i.e. portion of the area between 225 and 450 sq. m.	40 per cent of such portion of the site	35 %
3. For the remaining portion of the site. i.e., for the portion of the area exceeding 450 sq. m.	35 per cent of such portion of the site	25 %

(b) Permissible FAR and Maximum Height

Area of Site/category of plot	Maximum permissible FAR	Maximum permissible Height
6 Marla	1.45	11 Mtr.
10 Marla	1.45	11 Mtr.
14 Marla	1.30	11 Mtr.
1 Kanal	1.20	11 Mtr.
2 Kanal	1.00	11 Mtr.

NORMS FOR DEVELOPMENT OF COOPERATIVE GROUP HOUSING SCHEME

1	Building Zone	As shown on zoning plan of site cooperative society/ organisation																
2	Set backs (including inter-se distances)	As per zoning plan or the B.I.S code as the case may be																
3	Boundary Wall /Gate	To standard design as specified in zoning plan																
4	Max. permissible coverage on ground as well as subsequent floors	33.33 per cent of the site																
5	Max. F.A.R	150 per cent of the site area																
6	Density of dwellings	40 to 80 DUs per acre (To be calculated @ 5 persons per dwelling unit.)																
7	Population density	200 to 400 persons per acre.																
8	Building area of general DUs (Super Area) Building Area of EWS Service Personal DUs (Super Area)	50 sq. m to 150 sq.m 20 sq.m to 35 sq. m																
9	Max. height of building	Upto 30 m or as per local instructions subject further to zonings and provisions of light, vent planes etc. as per B.I.S code.																
10	Covered Parking	Adequate parking on basis of occupancy shall be provided for cycle, scooters and cars with in residential blocks and in any case the area for such parking shall not be less than 5 per cent of the covered area of each dwelling unit. In case of dwelling units of size 120-150 sq. m space for one car, parking shall be provided for each dwelling unit. However, the total parking space including open parking shall be governed by the following:																
		<table border="1"> <thead> <tr> <th>Sr. No.</th> <th>Area of flats (in sq.mts)</th> <th>Car parking space</th> <th>Scooter parking space</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Below 80</td> <td>Nil</td> <td>100 per cent of number of flats</td> </tr> <tr> <td>2</td> <td>80-119</td> <td>50 per cent of number of flats</td> <td>50 per cent of number of flats</td> </tr> <tr> <td>3</td> <td>Above 120</td> <td>100 per cent of number of flats</td> <td>Nil</td> </tr> </tbody> </table>	Sr. No.	Area of flats (in sq.mts)	Car parking space	Scooter parking space	1	Below 80	Nil	100 per cent of number of flats	2	80-119	50 per cent of number of flats	50 per cent of number of flats	3	Above 120	100 per cent of number of flats	Nil
Sr. No.	Area of flats (in sq.mts)	Car parking space	Scooter parking space															
1	Below 80	Nil	100 per cent of number of flats															
2	80-119	50 per cent of number of flats	50 per cent of number of flats															
3	Above 120	100 per cent of number of flats	Nil															

11	Open Parking	In addition to the above, open parking space equivalent to 10 per cent of the total covered parking areas shall be provided for visitors etc.
12	Parking under stils and basements	Area under stils and basement shall not be counted towards F.A.R if used for covered parking.
13	Lifts and Stairs	For building having more than four storeys, provision of adequate number of lifts shall be made as per B.I.S Building code in addition to stairs. For continuous running of lift system, provision of power generation run on diesel/ petrol or other such fuel shall be made. Ramp shall be optional in Group Housing Schemes if adequate (as per B.I.S code) lifts and stairs are provided.
14	Ramps	Ramp shall be optional. If constructed in addition to the lifts and staircases (as mentioned above) within buildable zone and as per definition of Covered Area in NBC (Definitions) will not be counted towards F.A.R subject to the condition that ground coverage shall not exceed 35 per cent of the site.
15	Basement	A twin level basement restricted to the actual ground coverage will be permitted for parking and services and detailed out in the zoning plan of the site and the same will not be reckoned in F.A.R. Entry to the basement shall be from inside the building. Basement can also be used for captive generation, water storage, liftwell/room, fire fighting pumps, electric sub-stations etc. Subject to the restrictions, stipulated in the zoning plan.
16	Organised Children Park	At least equal to 15 per cent of the area of site
17	Fire Safety	All buildings shall conform to the provision of part IV of the National Building Code and shall be provided with adequate arrangements to overcome fire hazards to the satisfaction of concerned authorities
18	Building Regulations	HUDA (Erection of Buildings) Regulations, 1979 and B.I.S Building Code

1 Status on State Income Estimates, CMIE, May 1981.

2 Ministry of Urban Development & Poverty Alleviation.

3 Identifying the Barriers to Employment and Output Growth in India, Mckinsey & Co. Report

CHAPTER 7.7

CONSTRUCTION

7.7.1 Construction activity is an integral part of a country's infrastructure and industrial development. It includes hospitals, schools, townships, offices, houses and other buildings; urban infrastructure (including water supply, sewerage, drainage); highways, roads, ports, railways, airports; power systems; irrigation and agriculture systems; telecommunications etc. Covering as it does such a wide spectrum, construction becomes the basic input for socio-economic development. Besides, the construction industry generates substantial employment and provides a growth impetus to other sectors through backward and forward linkages. It is, essential therefore, that, this vital activity is nurtured for the healthy growth of the economy.

7.7.2 With the present emphasis on creating physical infrastructure, massive investment is planned during the Tenth Plan. The construction industry would play a crucial role in this regard and

has to gear itself to meet the challenges. In order to meet the intended investment targets in time, the current capacity of the domestic construction industry would need considerable strengthening.

7.7.3 The construction sector has major linkages with the building material industry since construction material accounts for sizeable share of the construction costs (Table 7.7.1). These include cement, steel, bricks/tiles, sand/aggregates, fixtures/fittings, paints and chemicals, construction equipment, petro-products, timber, mineral products, aluminum, glass and plastics.

7.7.4 The construction sector is one of the largest employers in the country. In 1999-2000, it employed 17.62 million workers, a rise of 6 million over 1993-94. The sector also recorded the highest growth rate in generation of jobs in the last two decades, doubling its share in total employment.

Table 7.7.1
Break-up of Construction Costs

	Materials %	Construction Equipment %	Labour %	Finance %	Enabling Expenses%	Admin. Expenses %	Surplus %
Building	58-60	4.5	11-13	7-8	5.5-6.5	3.5-4.5	5-6
Roads	42-45	21-23	10-12	7-8	5.5-6.5	3.5-4.5	5-6
Bridges	46-48	16-18	11-13	7-8	5.5-6.5	3.5-4.5	5-6
Dams, etc	42-46	21-23	10-12	7-8	5.5-6.5	3.5-4.5	5-6
Power	41-43	21-24	10-12	7-8	5.5-6.5	3.5-4.5	5-6
Railway	51-53	6-8	16-18	7-8	5.5-6.5	3.5-4.5	5-6
Mineral Plant	41-44	20-22	12-14	7-8	5.5-6.5	3.5-4.5	5-6
Medium Industry	50-52	7-9	16-18	7-8	5.5-6.5	3.5-4.5	5-6
Transmission	49-51	5-7	19-21	7-8	5.5-6.5	3.5-4.5	5-6

Source : Construction Industry Development Council Survey

7.7.5 The main advantage of the construction sector in employment generation lies in the fact that it (i) absorbs rural labour and unskilled workers (in addition to semi-skilled and some skilled); (ii) provides opportunity for seasonal employment thereby supplementing workers' income from farming; and (iii) permits large-scale participation of women workers.

Share of Construction Sector in Gross Domestic Product (GDP) and Gross Capital Formation (GCF)

7.7.6 The share of construction sector in gross domestic product (GDP), which was 5.4 per cent in 1970-71, came down to 4.4 per cent in 1990-91. Subsequently it picked up and stood at 5.1 per cent in 1999-2000

7.7.7 The share of the construction sector in total gross fixed capital formation (GCF) came down from 60 per cent in 1970-71 to 34 per cent in 1990-91. Thereafter, it increased to 48 per cent in 1993-94 and stood at 44 per cent in 1999-2000.

7.7.8 Clearly, there has been a decline in the share of construction sector in the GDP and capital formation. The main reason for this was reduced Government spending on physical infrastructure in the last decade due to fiscal constraints. Though there has now been an increasing emphasis on involving the private sector in infrastructure development through public-private partnerships and mechanisms as Build-Own-Operate (BOT), private sector investment has not reached the expected levels. The Government is now providing substantial fiscal stimuli by way of programmes like the National Highways Development Project (NHDP), Pradhan Mantri Gram Sadak Yojana (PMGSY), power projects etc. which would provide necessary impetus to the construction sector.

7.7.9 Considering the significance of the construction sector, it is necessary to identify the major issues affecting the efficiency of the sector and take corrective action.

Improvement in productivity

7.7.10 There is a need to enhance productivity through appropriate mechanisation to meet the physical targets set in the Plans. There is a clear case for encouraging mechanisation to build up the sector's capacity to deliver the critical infrastructure needed for economic development.

7.7.11 The poor state of technology adopted by the construction sector adversely affects its performance. Upgrading of technology is required both in the manufacturing of construction material and in construction activities. As a large number of construction materials are manufactured in the unorganised sector, effective monitoring and regulation of the production of these materials to ensure proper quality becomes difficult.

7.7.12 Use of low-grade technology in the construction sector leads to low value addition and low productivity, apart from poor or sub-standard quality of construction and time overruns in projects. The non-availability of quality construction tools is the main reason for this. Besides, the construction sector also lacks information about new technology.

7.7.13 Introduction of new technology in the construction sector is entirely owner-driven. It is only when they demand quality and are prepared to pay the price that the contractors would have the incentive to adopt better technology. It may, therefore, be necessary to introduce higher specification

Box 7.7.1 Incorporating Technology in Contract Conditions – MSRDC's Way

In an effort to improve the traffic and transport infrastructure of Mumbai, the Maharashtra State Road Development Corporation (MSRDC) built many flyovers in the city. In its bid document, the MSRDC laid out specific technical conditions that the bidding contractors were required to meet. Some of these included hi-tech construction equipment and techniques. Such steps taken by project owners would go a long way in modernising the construction activity in India.

and technical conditions in the bid documents in order to encourage adoption of superior technology.

Labour and Human Resource Development

7.7.14 The construction industry is characterised by the predominance of migratory and unskilled labour. Therefore, there is need to expand the training and skill certification programmes, both in terms of content as well as geographical reach. To encourage such training, incentives may be provided to contractors for funding the skill upgradation of construction workers. However, there is no institutional framework to impart training at the worker's level, barring a few initiatives taken by the Construction Industry Development Council (CIDC) and some companies. There is need to involve the Industrial Training Institutes (ITIs) in a big way with training for the construction sector to bridge the demand-supply gap for skilled labour force.

7.7.15 In addition, schemes for registering construction labour and providing them with a permanent registration number could be considered. This would help in maintaining a databank on them. Besides, contract conditions could carry a stipulation that a minimum percentage of trained/certified workers would need to be employed. The stipulations made by the National Highway Authority of India about employing at least 5 per cent trained and certified workers as a pre-qualification condition needs to be replicated. The percentage of such workers should progressively be enhanced to 10 per cent by the end of the Tenth Plan, and effort must be made to raise the share to 25 per cent by the end of Eleventh Plan.

Need to Reduce Cost of Construction

7.7.16 The high cost of operation has been identified as one of the major problems that not only affects the construction industry directly but also the overall economy indirectly, as high input and process costs are reflected in high cost of infrastructure, which, in turn, translates into higher user charges. This also reduces the surplus that can be ploughed back into construction technology upgradation and labour welfare. Steps to do this

would include improving the procurement and dispute resolution mechanism and measures for instituting more competition and transparency among contractors. As part of the process of standardisation and improving efficiency in the construction sector, harmonised bidding conditions and standard bidding documents for domestic construction contracts have been developed and circulated to all Government agencies and public sector organisations as guidelines.

7.7.17 There is need for an appropriate dispute resolution mechanism in the construction sector. A substantial amount of money is locked up due to disputes between contractors and clients, leading to cost and time overruns. Any comprehensive dispute resolution mechanism needs to address all these issues. At present, the Arbitration and Conciliation Act, 1996 is the basis for all dispute resolutions. In sectors like National Highways, provisions are made in the contract document for a Dispute Review Expert (DRE) and Dispute Review Boards (DRBs). It is necessary to review the functioning of DREs and DRBs.

7.7.18 An important factor in time and cost overruns has been the lack of proper project preparation. Details are often ignored at the preparatory stage, leading to problems later on. Project planning needs to be strengthened through adequate field investigation, data collection and its analysis. The complementary facilities to be created for making the project operational also need to be identified and included in the project.

Flow of Institutional Credit

7.7.19 At present, the high resource requirements of the construction industry are not matched by the availability of finance. The high cost of raising finance also translates into high costs, which again has a cascading effect on the economy. Appropriate measures and instruments should be formulated and implemented to reduce financing costs and ease the flow of funds to the industry.

7.7.20 The deployment of gross bank credit indicates that the share of construction sector in

total bank credit available to the industry sector went down from 2.13 per cent in 1990 to 1.37 per cent in 2000. In order to increase the flow of institutional credit to the construction sector, it was declared as an industrial concern under the Industrial Development Bank of India Act in March 2000. While this step was in the right direction, it is necessary now to encourage banks and lending institutions to develop lending norms and special funding instruments that could address both the requirements of the construction industry as well as the concerns of the bankers. The need for specialised financial institutions like the Karnataka Contractors' Credit Cooperative Society may also be considered.

Box. 7.7.2

Karnataka Contractors' Credit Cooperative Society

The Karnataka Contractors' Credit Cooperative Society Ltd. is one of the success stories of providing institutional support to construction industry. It was established in 1984 as a society under the State Government's jurisdiction to provide credit facilities to contractors against their works. It was started with an initial share capital of Rs. 2 lakh. It improved its position from year to year and by the time it was converted into a cooperative bank in March 1997 as Karnataka Contractors' Sahakara Bank Niyamitha its paid up share capital was Rs. 256.23 lakh and it had deposits to the tune of Rs. 1,645.46 lakh. The area of operation extends to all urban and semi-urban areas in Karnataka and a 10-km periphery around them. The bank is governed by the Reserve Bank of India rules.

Asset Management and Maintenance

7.7.21 The creation of physical assets is an important outcome of construction activity. Building Infrastructure is a continuous activity, which, apart from improving the quality of life of the citizens, also creates wealth and sustains the growth of the economy. However, it is also essential to ensure that such assets are maintained properly. Suitable policies relating to ownership, management and

maintenance of assets, therefore, need to be evolved.

Project Export

7.7.22 The Indian construction industry has been very active in the overseas markets, especially in the Gulf during the 1970s and 1980s when Indian companies ventured there to meet the demand of construction activities generated by the oil boom. Between 1975 and 1980, Indian companies handled construction work amounting to nearly US \$5 billion. But this trend did not last and by the late 1980s, the volume of contracts secured fell sharply. In 1996-97, the value of project export was Rs. 338 crore (US\$ 95.2 million), which increased to Rs. 1,500 crore (US\$ 346.2 million) in 1999-2000.

7.7.23 Action needs to be taken to streamline the functioning of the construction sector to get a larger share of the global business. Such action would include formulation of business-friendly policies, development of insurance instruments to mitigate the business risks and adoption of aggressive marketing of the Indian construction industry abroad.

PATH AHEAD

- Upgrade technology to improve productivity and quality as also to ensure the timely completion of projects.
- Invest in human capital to improve the quality of labour. This must be done through more training and certification institutes to augment the supply of skilled labour; associating ITIs with training of construction workers; stipulating the widespread use of trained labour as a pre-qualification condition for bidding. The percentages stipulated could be increased over time.
- Review of the procurement and dispute resolution mechanism to reduce the cost of construction so that infrastructure services could be provided at competitive costs.

- Develop lending norms and special fund-ing instruments so as to increase the flow of credit to the construction sector.
- Develop a policy framework relating to ownership, management and maintenance of assets so as to ensure the proper upkeep of the assets already created.
- Formulate a business-friendly policy, develop insurance instruments to mitigate business risks and adopt aggressive marketing of Indian construction industry so as to increase project exports.

CHAPTER 7.8

INTERNAL TRADE

7.8.1 Trading enables mutual exchange of goods and services and is also the foundation of markets comprising diverse goods and services. Goods and services are in turn, an embodiment of the division of labour in a society since they represent diverse kinds of labour and skills.

led to the division of labour on a small scale, national and global trade ensured division of labour on a larger scale. With the expansion of trade beyond the local level, the functions of market increased manifold to take care of the needs of processing, storage, packaging and transportation.

7.8.2 The advent of various modes of transportation and development of diverse means of communication helped expand the scope of trade in goods and services. If local exchange and barter

7.8.3 Monetisation of the economy further facilitated trade in a big way, introducing, in the process, credit and insurance as added characteristics of trading activity. In order to ensure that demand

Table-7.8.1
Contribution of Internal Trade to Gross Domestic Product (GDP)

Year	1990-91	1991-92	1992-93	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99	1999-2000	2000-01 (Q.E)	2001-02 (A.E)
Trade (Rs. crore)												
At current prices	59,845	68,150	79,470	93,206	1,12,058	1,36,950	1,60,840	1,82,091	2,09,905	2,30,555	2,42,807	2,63,954
At constant prices	81,820	82,291	87,242	93,206	1,03,362	1,17,856	1,26,976	1,36,628	1,45,666	1,57,141	1,62,406	1,68,805
Share in GDP(%)												
At current prices	11.7	11.6	11.8	11.9	12.2	12.8	12.9	13.1	13.0	12.9	12.8	12.7
At constant prices	11.8	11.7	11.8	11.9	12.3	13.1	13.1	13.4	13.4	13.6	13.6	13.4
Gross Fixed Capital Formation (GFCF) (Rs. crore)												
At current prices	3,286	3,317	3,684	3,759	5,980	9,134	6,361	5,862	5,613	6,076	-	-
At constant prices	4,276	3,795	3,863	3,759	5,598	7,852	5,239	4,761	4,460	4,759	-	-

Sources : 1. National Accounts Statistics,2001,CSO,M/o Statistics & Programme Implementation, Govt. of India, New Delhi.July,2001.
2. National Accounts Statistics- Back series: 1950-51 to 1992-93,CSO,M/o Statistics & Programme Implementation, Government. of India. April,200.

Note : A.E- Advance Estimate; Q.E -Quick Estimate.

and supply matched each other, over time and regions, the distribution system acquired more sophistication with the introduction of 'wholesale trade' and 'retail trade'. The State as an institution has been favourably disposed towards trade as it enabled it to collect taxes.

7.8.4 The share of trade in the Indian economy stood at around 13.4 per cent of gross domestic product (GDP) (Table-1) and employed approximately 36 million people, a majority of whom were self-employed, engaged in the retail and wholesale trade. The growth rate of 'trade' over the period 1990-91 to 1999-2000 was 6.9 per cent. It is the most important sector in the tertiary/service sector with a share twice the share of 'finance and insurance'. Both imports and exports are becoming increasingly important components of internal trade. The sales turnover of imports increased from around 8 per cent of GDP in 1990-91 to 11 per cent of GDP in 2000-01 and that of exports has gone up from around 6 per cent in 1990-91 to 9 per cent of GDP in 2000-01.

WHOLESALE TRADE

7.8.5 Internal trade is made up of trade in goods and services across the country. The major problems faced by the trading community are the diversity of controls exercised by multiple authorities at different levels, restrictions on inter-state and inter-district movement of goods, lack of uniformity in standards laid down by different authorities and agencies and in taxes. Pricing strategies get affected by differential tax rates and become localised.

7.8.6 All this has led to breaking up the vast Indian market into a large number of smaller regional markets. The paperwork involved in complying with the various controls, regulations and licenses, the cost involved in terms of time and resources and the inevitable corruption and malpractices that this leads to have served as big drag on the efficiency of trading operations in the country. There is a need to look into following impediments that hinder efficient trading.

Regulatory Impediments

7.8.7 It is imperative for a trader to obtain a licence before undertaking trade. Different classes of goods require licences from different authorities. Once a licence has been obtained, innumerable laws and regulations bind the trader. There are around 400 laws that govern trade. Some of the provisions of these laws have outlived their utility and appear arbitrary.

The Essential Commodities Act, 1955

7.8.8 Prior to the third amendment to the Constitution in 1955, regulation of trade and finance (barring industrial goods) was the exclusive responsibility of the State Governments. The Constitution (Third) Amendment Act made statutory provision for regulating the production, prices and distribution of essential commodities all under the Government of India. The Essential Commodities Act (ECA), 1955, accordingly, authorises the Central Government to make orders for the following:

- (i) Regulating by licenses, permits, etc. the production, storage, transport, distribution, disposal acquisition, use or consumption of an essential commodity;
- (ii) increasing cultivation of food grains;
- (iii) controlling prices;
- (iv) prohibiting the withholding from sale of any essential commodity;
- (v) requiring a stockholder to sell any essential commodity to the Government;
- (vi) regulating or prohibiting any commercial or financial transactions in food items or cotton textiles which may be detrimental to the public interest;
- (vii) collecting any information;
- (viii) requiring production of books of accounts etc; and
- (ix) any incidental matters.

7.8.9 The essential commodities, to which the Essential Commodities Act is applied, fall into four broad categories:

- (a) foodstuffs (including edible oilseeds and oil) tea, onion, drugs and textile which are items of mass consumption;
- (b) cattle fodder, seed of food crops, seeds of fruits and vegetables which are of agricultural origin;
- (c) insecticides, fungicides and medicines which are intermediate products; and
- (d) coal, iron and steel, paper, petroleum, cement, textile machinery, electric cables, general lighting service lamps and switches, which are industrial products.

7.8.10 The ambit of items so included becomes pervasive since these items may be generic terms. The actual number of items covered under the Act is, therefore, far more than can be gauged from this list. For example, iron and steel may include all items manufactured from iron and steel and foodstuffs may include food grains as well as products like nutritive foods, pickles and jams.

7.8.11 The Task Force on Employment Opportunities (Planning Commission, 2001), thus, observed, 'The Essential Commodities Act is a Central legislation which provides an umbrella under which states are enabled to impose all kinds of restrictions on the storage, transport and processing of agricultural produce. These controls have been traditionally justified on the grounds that they are necessary to control hoarding and other types of speculative activity, but the fact is that they do not work in times of genuine scarcity and they are not needed in normal times. Besides, they are typically misused by the lower levels of the administration and become an instrument for harassment and corruption.'

7.8.12 The need to relax various controls on agricultural products including on inter-state movement of these products was discussed in the conference of Chief Ministers in May 2001 and later, in the Standing Committee of Union Ministers and Chief Ministers that was set up following the recommendations of the conference. A consensus emerged on allowing the Essential Commodities Act to continue as an umbrella legislation for the Centre

and the States to be used when needed, but the need for a progressive dismantling of controls and restrictions was also recognised.

7.8.13 To do away with the requirements of licensing and controls on the storage and movement of food grains (wheat, paddy/rice, coarse grains), sugar, oilseeds and edible oils, the Central Government issued an order under Section 3 of the Essential Commodities Act in February 2002 which allows dealers to freely buy, stock, sell, transport, etc. any quantity of the specified commodities. It also removed a number of items declared as essential under the Act.

7.8.14 These items are: cement, textiles made from silk, textiles made wholly or in part from man-made cellulosic and non-cellulosic spun fibres, textiles made wholly or in part from man-made cellulosic filament yarn, textiles machinery (namely, knitting machine, spinning machine, lace making machine, power loom and processing machinery), central lighting service lamps, household appliances such as electric irons, heaters and the like, electrical cables and wires, man-made cellulosic and non-cellulosic staple fibres, yarn made wholly or in part from any of the materials (namely, wool, man-made cellulosic spun fibre, man-made non-cellulosic spun fibre, and silk), nylon tire yarn/cord/fabric, and switches for domestic and similar purposes (namely, 2-AMP Switches, 3-pin plugs and socket outlets).

Weights and Measures Acts

7.8.15 While the establishment of standards of weights and measures is the responsibility of the Central Government, the enforcement of these is placed in the Concurrent List and its implementation rests with the State Governments. Accordingly, the Standards of Weights and Measures Act, 1976 deals with the establishment of standards of weights and measures, while the Standards of Weights and Measures Enforcement Act, 1985 deals with the regulation and enforcement of weights and measures involved in industrial production, trade and commerce.

7.8.16 The Controller of Legal Metrology normally heads the enforcement machinery. The legal

metrology department in the state is normally under the control of the Department of Food and Civil Supplies, though in some states they are attached to other departments like Labour, Industry etc. In most states, Controller is an official from the administrative services, who holds the office for a short period and carries out the functions with the help of Joint Controllers or Deputy Controllers, who hold permanent posts in the Department. Each state is divided into a number of districts and normally two or three districts are placed under the supervision of a Deputy Controller. An Assistant Controller is appointed for almost every district to look after the enforcement in that district. The declaration requirement on packaged commodities with regard to weights and measures are provided under the Act and the Rules framed by the Central Government, and are, therefore, uniform throughout the country. However, the other declaration requirements desired by the enforcement machinery differ from state to state.

Fiscal Impediments

7.8.17 Domestic trade in India is impeded by highly complex and elaborate sales tax system, comprising State sales tax, Central sales tax, turnover tax, octroi and entry tax. Besides, there may be some taxes specific to some states, such as, tobacco tax in Uttar Pradesh and professional tax in Maharashtra. Moreover, there are inter-state differences in definitions, enforcement and incidence of taxes and each tax may have multiple rates. Traders have thus to keep track of all the returns that have to be submitted, with each return having a number of pages. Problems only get compounded for those with operations in more than one state for different states have different requirements and formats for returns.

7.8.18 The system of both 'Union excise duty' and 'State sales tax', the two principal components of the domestic trade taxes, has given rise to inefficiencies that have cost the economy dearly in the following ways:

- lack of free flow of goods within the country;

- higher transaction cost and lower productivity;
- inter-jurisdictional conflicts and rate wars; and
- hindrance to exports.

7.8.19 A 1994 study by the National Institute of Public Finance and Policy (NIPFP), New Delhi, on *Reform of Domestic Trade Taxes in India: Issues and Options* observed: 'In sheer complexity and irrationality, the sales tax system, as they are structured and implemented at present, surpass the excises even at their worst.' The Report goes on to describe the complexity of the system: 'Even a bare description of the sales tax laws would provide an idea of the complexity of the prevailing structure. The rules and procedures laid down for compliance and enforcement make the systems even more complex than might appear from the primary legislation. In fact, judging by the complexity of the system and frequency with which changes are made, one wonders whether the tax officials themselves can keep abreast of them, or fully comprehend them.'

Financial Impediments

7.8.20 The organised financial sector has been, for a long time, somewhat wary about lending to the trading community. This has been treated as a high-risk proposition, mainly because the bulk of trading activity is carried out by small and medium traders. A substantial proportion of the financial capital needed for trading purposes, has been provided by the informal sector where the cost of credit is usually higher than in the formal sector. Under the Industrial Development Bank of India (IDBI) Act, 1964, institutional finance can be availed by only those sectors which enjoy industry status. Trade as a sector is thus deprived of benefits arising from institutional finance and raising money from stock exchange. These factors have been inhibiting higher growth and modernisation of trading activities.

7.8.21 According to the Reserve Bank of India (RBI) Annual Report 1998-99, wholesale trade

(other than food procurement) accounted for just 4 per cent of the gross bank credit disbursed during that year. The share of retail trade in the total priority sector advances made by the public sector banks was, similarly, less than 2 per cent during the March 1997 to March 2000 period. The constraint of finance has made it difficult for traders to have optimal inventory holdings. This, in turn, has often created artificial shortages and increased the prices of goods.

TRADE IN AGRICULTURE

7.8.22 Trade in agricultural products is overshadowed by various restrictions imposed on account of 'food security' considerations under the Essential Commodities Act. These restrictions may encompass sale and purchase of agricultural produce in organised mandis, storage of essential commodities, transportation of food grains, processing and distribution. Storage controls, together with selective credit policies, severely restrict the capacity of private operators to undertake storage thus reducing their capacity to cover price risks through hedging on futures market. Currently, as part of its selective credit control policy, the RBI sets 'minimum margins' on commercial bank advances against a range of 'sensitive commodities' such as, food grains, pulses, oilseed, vegetable oils, sugar, gur, khandhari and kapas/cotton. Some of the restrictive provisions distorting trade in agriculture as well as those laws that are necessary but need to be modernised are discussed below:

Orders Related to the Essential Commodities Act

State Levy Control Orders

7.8.23 Under the Essential Commodities Act, various State Levy Control Orders have been introduced, which require private mills to deliver between 7 and 75 per cent of their rice production to the Food Corporation of India (FCI) and to State Governments for the public distribution system (PDS) and buffer stocks. 'For these deliveries, the mills receive a state-prescribed pan-territorial and

pan-seasonal levy price that is based on the minimum support price (MSP) for paddy plus "average" rice milling costs. Only after meeting levy commitments, from which rice hullers and shellers are exempt, can private mills sell their remaining rice output in the open market'.¹ The 'compulsory levy of rice' is prejudicial to rice-millers and puts them at a disadvantage vis-à-vis the hullers and shellers who do not have to make any contribution towards levy.

Sugar (Control) Order, 1966

7.8.24 Section 3 (3C) of the Essential Commodities Act lays down the guidelines for determining the price payable to the producer for levy sugar supplied by him. Under this sub-section, levy sugar price is required to be fixed by the Central Government having regard to:

- (a) the minimum price fixed for sugarcane by the Central Government;
- (b) the manufacturing cost of sugar;
- (c) the duty or tax payable thereon; and
- (d) the securing of a reasonable return on the capital employed in the business of manufacturing sugar.

7.8.25 The Sugar (Control) Order, 1966, thus empowers the Government to regulate production of sugar, restrict sale etc. of sugar by producers, issue directions to producers and dealers, regulate movement of sugar and quality of sugar, call for information from the producer or recognised dealer, inspection, entry search, sampling and seizure of sugar. On the basis of the monthly free sale decided by the Government, month-to-month release orders for sale of sugar in the open market are also issued under clause 5 of the Order.

Milk & Milk Products Order (MMPO)

7.8.26 The Department of Animal Husbandry and Dairying, Ministry of Agriculture issued the Milk and Milk Product Order (MMPO) in June 1992 under Section 3 of the Essential Commodities Act. This

order seeks to ensure the supply of liquid milk, an essential commodity, to the consumers by regulating its processing and distribution. The salient features of MMPO are:

- Establishment of a Milk and Milk Product Advisory Board, giving representation to industry (both cooperative as well as private) and consumer organisations.
- Registration of units handling more than 10,000 litres of milk per day or an equivalent amount of milk sold.
- State Governments are authorised to issue registration for capacity up to one lakh litres per day.
- Registration Certificate issued under the MMPO specifies the maximum quantity of milk a unit is allowed to handle and also the range of products it can manufacture.
- Preferential treatment to cooperatives in grant of registration.
- The Certificate also specifies the milk-shed area, which is defined as a geographical area demarcated by the Registering Authority for the collection of milk by the registered unit. Holders of the Registration Certificate are normally required to confine the procurement of milk to the allotted milk-shed.
- Maintenance of specified hygienic conditions in the premises where milk and milk products are handled, processed, controlled, manufactured and stored.
- The Registering Authority has the power to enter, inspect and seize in case of non-compliance with the provisions of MMPO.
- The Registering Authority has the power for suspension or cancellation of registration in case of wilful furnishing of incorrect information or non-compliance with the terms and conditions of the Registration Certificate.
- Appeal to the Controller against the decisions of Registering Authorities and

appeal to Government of India against the decisions of Controller is allowed.

7.8.27 The Central/State Registering Authorities have, till November 2001, granted registration to a total of 675 units with a total processing capacity of 687 lakh litres per day (llpd). Out of these, 212 units with a processing capacity of 284 llpd are in the cooperative sector and 399 units with a processing capacity of 316 llpd are in the private sector, and the remaining 64 with a total processing capacity of 88 llpd fall in other categories. The MMPO is, however, another form of licensing that restricts private sector investment.

7.8.28 Apart from the above there are a plethora of orders such as Meat Food Products Order (1973), Fruit Products Order (1977), Pulses and Edible Oils Order (1977), Cotton Control Order (2000), Jute and Jute Textiles Control Order (2000), which need to be reviewed.

Other Acts

Agricultural Produce Marketing Acts

7.8.29 The National Commission on Agriculture (1976) recommended regulated markets for agricultural produce. States and Union Territories (except for Kerala, Manipur, Andaman and Nicobar Islands, Lakshadweep and Dadar and Nagar Haveli) initiated action for the enactment of legislation for regulation of markets. Regulated markets or organised mandis were set up under the Agricultural Produce Markets Act to help upgrade market yards, storage, grading and packaging and other market services like market information, intelligence and verification of weights and scales. As on March 2001, there were 7,177 regulated markets (2,355 principal markets and 4,822 sub-yards) in the country. In a large number of cases, the already existing wholesale markets were brought under the regulations of the Act.

7.8.30 Various systems of sale are in vogue even in regulated markets. The system of sale followed at present are open auction, mutual agreement between buyer and seller, sale under cover, chit

tender system, forward sales, etc. Among these systems, the open auction system is the most desirable and popular method of sale. The basic objective of market regulations is to regulate the trade practices, increase market efficiency through reduction in market charges, elimination of superfluous intermediaries and protecting the interest of producer-sellers. However, these objectives could not be adequately achieved.

7.8.31 A World Bank report on India's food marketing policy points out that an inspector is employed by the mandi or state government to inspect the grain to determine whether it meet fair average quality (FAQ) standards. However, it notes, 'In practice, inspection is usually manual and visual, even if moisture-measuring instruments and a testing laboratory are available. Grain failing to meet FAQ standards is discounted, but only rarely is it rejected. It is well known that the post of inspector is much sought after everywhere. Inspected grain is then auctioned with bidding organised by a '*kacha arthia*' or commission agent who usually get a two-per cent commission. Once bidding is completed, the grain is loaded into 95 kg. bags for wheat and 65 kg bags for paddy, each weighed individually on a portable scale (a balance) by a licensed weigh man. Each bag is stitched close manually with the required 14 stitches (informally cut to 7-10 during peak periods, resulting in higher losses during transport and handling). The bags are manually loaded into trucks of private traders, FCI or state agencies. The farmer bears the cost of unloading, cleaning, filling and weighing and tips to the weigh man and commission agent. Buyers pay the commission agent's fee, the market fee, purchase tax, stitching, loading and any other associated taxes.'² The organised mandis have thus failed to take off, in letter and spirit, and have been abandoned at several places on account of high mandi charges, purchase and sales tax and the consequent reduced trading margins.

Prevention of Food Adulteration Act, 1955

7.8.32 The Prevention of Food Adulteration Act (PFA), 1955, is the principal instrument to ensure that clean and wholesome articles of human

consumption are sold to the public. While the Act by itself is not a very complicated piece of legislation, the accompanying rules are byzantine in nature. There are a number of procedural problems in the implementation of this law. The law requires food inspectors to pay for the samples that they take and these samples must be taken in the presence of at least two witnesses. In practice, however, no one is willing to go through the hassle of court proceedings and finding a witness is thus an impossible job. People often give a fictitious name and address, which cannot be traced at the time of issue of summons.

FUTURES AND FORWARD MARKETS

7.8.33 As in the case of competitively produced industrial products, commodity prices are also determined by the forces of supply and demand. Commodity markets (e.g., those of minerals and agriculture products) are, however, faced with greater risks because of price fluctuations. Forward and futures markets enable sellers and buyers to reduce uncertainty and the consequent risk through price discovery ahead of actual production. By aligning their functioning with spot markets, the forward/futures markets can work as a tool to handle complex situations arising from good and bad harvests through stabilising supplies and prices. The prospect of good harvest, internally and globally, enables the buyers/traders to contract their purchases at lower prices. This provides a signal to the farmers for reducing the cultivated area under a particular crop as well as for timely diversion in the cropping pattern. The demand for storage acquires its own dynamics in the light of the risk management benefits and arbitrage possibilities in the futures market, thereby rationalising the sudden flow of agricultural produce in the market during peak seasons.

7.8.34 Forward contract is an agreement between the buyer and the seller in regard to both price and quantity. It is a sale or purchase of a commodity for a deferred delivery, and the contract price supposedly fluctuates less from year to year than the actual or 'spot price'. The future contract, on the other hand, is an obligation to make or take a

delivery of a fixed quantity (and quality) at the market price in the future. It is like taking a bet on where the market price would be in future. Thus, the future contract is fixed only in respect to the quantity, and the negotiating parties win or lose to the extent of the price difference between the bet and the actual price in the market on the future date.

Regulatory Framework

7.8.35 The Ministry of Consumer Affairs, Food and Public Distribution regulates commodity forward and futures trade through the Forward Contracts (Regulation) Act, 1952. The Act differentiates and classifies the following type of contracts:

- Spot or 'ready delivery' contracts: Contracts which provide for the delivery of goods and the full payment of the value of the goods at the price settled when the contract was entered into either immediately or within a period of eleven days after signature of the contract.
- Forward contracts: These are contracts for the delivery of goods and which are not 'ready delivery' contracts.
- Non-transferable specific delivery (NTSD) contracts: These are forward contracts between two parties in which a commodity of a specific grade has to be delivered to a specified location during a predetermined time frame at a predetermined price. Neither the buyer nor the seller can transfer the contract to another party, and financial settlement is not allowed. Grade, location and delivery dates cannot be renegotiated after the contract has been signed.
- Transferable specific delivery contracts: These specify the (basis) grade, quantity and delivery location of a commodity, just like NTSD contracts do. However, the buyer can transfer the contract to others, often up to a pre-determined number of times, for instance, six times in the case of oilseed. Contracts can, in principle, even be transferred back to the original seller

implying the financial closing out of the contract.

- Hedge contracts: These specify the basis and tenderable delivery grades, and a range of delivery centres. Both buyers and sellers can close out their positions, and delivery is not obligatory. Hedge contracts are not defined in the Act, but can be considered as delivery contracts that are both transferable and non-specific until entered into.
- Option contracts: Option contracts give the right, but not the obligation, to make or take delivery of a commodity (or a futures contract) at a given price and one pays a premium for this right. Options can thus be likened to insurance, but they can also be used for speculation; the premium paid can be quite low in relation to the possible profits if prices move in the anticipated manner. These contracts, widespread earlier, were banned for all commodities under the Act because of the speculative features.

Commodity Exchanges

7.8.36 The Forward Market Commission (FMC) under the Ministry of Consumer Affairs, Food and Public Distribution is the statutory body responsible for regulating and supervising the commodity exchanges. Normally only one trade/association is recognised in a city or region for forward/futures contracts in any single commodity. While commodities like cotton, gur, potatoes, groundnut, castor seed are traded at several centres, some commodities are traded by only one exchange in the country: pepper and copra in Kochi (Kerala), turmeric in Sangli (Maharashtra), jute and jute goods in Kolkata (West Bengal) and mustard in Jaipur (Rajasthan). Futures trading has recently been permitted in sugar (in May 2001) and in tea (in November 2001), although they have still to take off. The FMC's recommendations on permitting futures trading in rubber, onion, gram and chillies etc. are being examined by the Government.

7.8.37 Under Section 17 of the Forward Contracts Act, forward contracts are prohibited in metals like gold and silver, and several food grains, including rice, wheat and maize. While the underlying conditions like presence of a reasonably large number of market players and sufficient marketable surplus may not hold good in the case of most of these items, favourable conditions do exist in the case of rice and wheat. There is a need, therefore, to bring rice and wheat under the regulated list in Section 15, with the approval of the Cabinet. Section 14 of the Act covers the 'free list' of residual commodities in regard to which the FMC is empowered to give a certificate for commencing futures trading. Recognised associations are responsible for the day-to-day operations of the futures markets. They set the standards and rules of trade, register prices; work as clearing houses, including the collection of margin money and settlement of closed transactions; distribute delivery notices etc. All associations have their trading bye-laws, memorandum and articles of association generally modeled after British and American commodity exchanges.

7.8.38 There are apprehensions that futures markets would prevent the Government from pursuing its own price stability and production objectives.³ In practice, however, a commodity futures markets does not prevent a Government from subsidising producers or consumers, or from controlling the external trade of products. In the United States, two raw sugar futures contracts are traded. One reflects world market conditions while the other reflects domestic conditions. The latter, therefore, trades at a considerably higher price, reflecting the government's objective of stimulating sugar production.

7.8.39 The relationship between storage, access to credit and futures market has also been very well documented. Commodity futures markets function best when efficient storage is possible and supported by a well-functioning credit system. Storage charges will keep in check the price differentials between spot and futures prices. If spot market prices are considered low in relation to

futures market prices, operators will arbitrage: buy commodity now, pushing up spot prices, sell futures contracts, pushing futures prices down; after a period of storage, commodities will be sold, pushing down spot prices, and buy back futures contracts. Arbitrage contributes to greater seasonal price stability. Such arbitrage strategies freeze working capital, but because the hedging futures market provide, it should not be difficult to obtain bank finance'.⁴

RETAIL TRADE

7.8.40 A typical trading system of a manufactured item has the following servicing channel: (a) carry and forward (C&F) agent of the company, (b) the stockiest, (c) the wholesale trader, zone-wise and (d) the retailers, area-wise. The large manufacturers have painstakingly built their brand names and massive distribution networks. They attempt to increase their penetration into the widely-dispersed retail trade through advertisements. Some such large manufacturers have a reach of over a million retail outlets, making wholesale trade a lucrative and thriving business. In a seller's market, the wholesale trader may reap abnormal profits.

7.8.41 The retail trade in India is the biggest of all the trading channels, both in terms of number of operators and the value added. According to the Federation of Indian Chambers and Commerce (FICCI), there are as many as 120 lakh retail outlets in the country and the sector gainfully employs nearly 21 million people. The retail structure is dominated by a conglomeration of many unorganised independent stores. The average size of a retail unit is less than 500 sq. ft. and not more than 4 per cent of the retail outlets occupied a space larger than 500 sq.ft. While India has one of the highest numbers of outlets per capita in the world, the per capita retail space is the lowest. It has also been observed that while retail shops typically need a 14 feet high ceiling, the builders build ceiling heights of 9 feet. Several factors like lack of finance and know-how, lower profit margins, poor infrastructure and obstacles in real estate development have been inhibiting the growth of the retail sector.

Organised Retailing

7.8.42 Only 4 per cent of the retail trade in India belonged to organised retail. It covered items such as apparel, grocery, music, electronics, automobiles and financial services. This is inconsequential compared to 20 per cent in China, 40 per cent in Thailand and 80 per cent in the United States. The emergence of organised retail in India is, moreover, so far restricted to the top 15 cities. The strength of organised retailing lies in the ability to source directly from the manufacturers due to increased bargaining power achieved through large-scale operation. Organised retail chains can get bulk discounts on large purchases and reduce cost by eliminating middlemen and by reducing the supply chain. However, the potential benefits of lower prices is not evident in the early stages because modern retailing tends to concentrate on the upper segment of the market where consumers are willing to pay higher prices for convenience and a superior shopping environment.

7.8.43 Organised retailing is often run on the principle of 'franchising'. The franchiser allows a local businessman, a franchisee, to set up a retail outlet using its name and methods as a joint venture on a 50:50 paid up capital basis. The franchiser also provides training, equipment, quality control and national advertising. In exchange, it receives fees and a share of profits. Organised retailing, moreover, has multiple formats like discounters, hypermarkets, convenience stores, small outlets and warehouse clubs. The special advantage of organised retailing are:

- (a) enhancing quality through skilled processing, grading and delivery of goods;
- (b) lower price through better expertise in managing back-end activities such as sourcing and inventory management as well as the ability to strengthen the front-end functions of merchandising, promotions and customer services;
- (c) creating a level playing field for small and medium enterprises vis-à-vis the large manufacturers; and

- (d) higher productivity per worker and better job opportunities.

The growth of organised retailing is thus expected to lead to value migration from wholesale trade to retail trade.

7.8.44 Groceries are one of the major product lines to which organised retailing can contribute significantly. Groceries can be classified under two groups: dry grocery and fresh grocery. Organised retailing has made a mark under the category of fresh grocery, comprising vegetables, fruits and meat. According to rating agency, ICRA, New Delhi, 'Worldwide, it is estimated that the grocery market is worth about \$ 400 billion of which 65-70 per cent is catered to by the organised sector. In the developed countries, these grocery stores are big in size and reap high economies of scale, resulting in cheaper prices to the end-consumer'.

7.8.45 According to the Task Force on Employment Opportunities (ibid), 'Concern is sometimes expressed that the modernisation of retail trade and the growth of larger scale department stores may displace self-employment in the more traditional retail segment since productivity per worker in modern retailing is typically much higher. This leads to the fear that there may be a net reduction in total employment potential. However, it is important to emphasise that expansion of modern retailing is extremely important for several reasons. It will certainly improve the quality of employment provided in this sector. Improvement of quality of employment must be an important objective over the next ten years'. It may also influence the unorganised retail trade through 'demonstration effect' and help them introduce new techniques and new methods of organising their businesses. Organised retailing, moreover, helps develop real estate and also promotes tourism through better shopping experience.

CONSUMER PROTECTION

7.8.46 The United Nations adopted the UN Guidelines for Consumer Protection on April 9, 1985. The guidelines call upon governments to

develop, strengthen or maintain a strong consumer policy, and provide for enhanced protection of consumers (Box).

consumers' interests. In order to provide speedy, simple and inexpensive redress to consumer disputes through summary trials, a three-tier quasi-

Box 7.8.1

UN GUIDELINES FOR CONSUMER PROTECTION, 1986- GENERAL PRINCIPLES

- Governments should develop, strengthen or maintain a strong consumer protection policy, taking into account the guidelines set out below. In so doing, each Government must set its own priorities for the protection of consumers in accordance with the economic and social circumstances of the country, and the needs of its population, and bearing in mind the costs and benefits of proposed measures.
- The legitimate needs, which the guidelines are intended to meet, are the following:
 - (a) The protection of consumers from hazards to their health and safety;
 - (b) The promotion and protection of the economic interests of consumers;
 - (c) Access of consumers to adequate information to enable them to make informed choices according to individual wishes and needs;
 - (d) Consumer Education;
 - (e) Availability of effective consumer redress;
 - (f) Freedom to form consumer and other relevant groups or organizations and the opportunity of such organizations to present their views in decision-making processes affecting them.
- Governments should provide or maintain adequate infrastructure to develop, implement and monitor consumer protection policies. Special care should be taken to ensure that measures for consumer protection are implemented for the benefit of all sections of the population, particularly the rural population.
- All enterprises should obey the relevant laws and regulations of the countries in which they do business. They should also conform to the appropriate provisions of international standards for consumer protection to which the competent authorities of the country in question have agreed.
- The potential positive role of universities and public and private enterprises in research should be considered when developing consumer protection policies.

Source: Department of International Economic and Social Affairs

UNITED NATIONS

New York, 1986

Consumer Protection Act, 1986

7.8.47 Some of these issues, especially those relating to “consumer’s economic interests”, have been covered ‘under unfair trade practices’ in Section 36A of the Monopolies and Restrictive Trade Practices (MRTP) Act 1969 (modified from time to time). The Consumer Protection Act, 1986 was enacted to provide for better protection of

judicial machinery (i.e. one National Commission, 35 State Commissions and 570 District Forums) was introduced under the Act. The Consumer Redressal Forums are required to dispose of cases, as far as possible, within 90-150 days. Apart from these forums, consumers can also approach the civil courts and other legal forums. The Consumer Protection Act has been amended twice – in 1991 and in 1993. It now provides for a Central

Consumer Protection Council (CCPC) as the apex body for safeguarding consumer interests. The Council is supposed to meet once a year to review the progress in regard to consumer awareness and consumer protection.

MRP and Consumer Protection

7.8.48 Manufacturers are required to mention the maximum retail price (MRP) on the packaging of their goods. MRP was made mandatory to protect the consumers against overcharging by the retailer. However, this appears to have lost its relevance since goods are being sold at half the MRP. This indicates that the ceiling price of MRP is not based on cost price, allowing for a reasonable mark up, but has been kept higher by the manufacturers, perhaps to appease the retailer. So the consumer's interest remains unprotected. However, in spite of these shortcomings, the MRP declaration on pre-packed commodities still provides some protection to consumers. Subsequent to the revision of Excise Laws, excise duty collections are linked to MRP in specified cases, which act as a counter to high MRP marking.

Consumer as Investor

7.8.49 The Indian retail investor has suffered a great deal in recent years. Fly-by-night finance companies have lured the gullible public with promises of high returns into investing their money into these companies. The consumer needs to be educated that high returns and high risk are two sides of the same coin. Regulatory gaps have led to consumers being cheated. Besides, poor law enforcement emboldens white-collar criminals. The regulatory laws have been strengthened to close the gaps and this process must continue.

7.8.50 In the case of investment in housing, too, the consumer faces problems in the timely completion of projects, the cost as well as the quality of dwelling. Housing constitutes the single largest item of expenditure for an average consumer and most consumers take loans to build their houses. Rating systems and self-regulatory organisations need to be created and strengthened.

Utilities and Consumer Protection

7.8.51 Many public utilities like the railways, the postal system and telecommunications continue to operate under outdated and anti-consumer rules and regulations. The right to information vis-à-vis the cause of accidents, loss etc. is also not readily provided and the rules framed are not transparent. These may be reviewed in the light of the best practices prevalent in other countries.

POLICY REFORMS

7.8.52 The current development of India's trade sector is far behind its potential. With its size, India can provide economies of scale to its industry and agriculture. However, many regulations which have outlived their utility continue to harm internal trade. While these hindrances need to be removed, the country also needs to introduce modern practices in forward, futures markets and organised retailing.

7.8.53 In view of the falling tariff rates and increasing competition, there is immediate need to provide a level playing field to domestic industry through removing all possible impediments on internal trade, while, at the same time, strengthening transport and communication infrastructure. Some of the policy reforms needed are:

Laws and Rules

7.8.54 Legal reforms may be initiated in order to evolve a simple, transparent, business-friendly system. States should consider a single procedure for granting licences, irrespective of the goods/services to be traded. There should be a comprehensive legislation relating to consumer's rights, which will protect them from adulteration, malpractices relating to weight and wrong information regarding contents and ingredients etc. Punishment must, however, be commensurate with the misdemeanor. Thus, the use of poisonous substances in food and spurious 'life saving drugs' should attract arrest and imprisonment while incorrect labeling and weights should be treated as civil offences with only monetary penalties. This Act should be uniformly accepted and implemented all over the country.

7.8.55 The Essential Commodities Act is an anachronism for a modern competitive economy. It should be repealed and replaced by an emergency Act that can be applied by notification for a limited period of time to a specified commodity in a specified region. There should be no delegation of authority, to issue notifications, from the Centre to the States.

7.8.56 The different acts applicable to food such as the Prevention of Food Adulteration Act and the Weights and Measures Act should be integrated into a single unified and modern Food Act. This should provide for a single food regulatory authority for the entire food sector, including food processing. While, in the earlier system, the food inspector was almost the judge, under the new dispensation he would be merely carrying out the orders decided by a quasi-judicial forum.

7.8.57 Consideration should be given to enacting a single Food and Drug act that covers both food and drugs, as the central issue in both cases is preserving the health of the consumer. Such an integrated Act should have a provision for two separate regulators for food and drugs. Ideally, drug price control should come under the purview of the proposed Competition Law, so that the modern principles of competition and abuse of monopoly can be applied to drugs.

Fiscal Issues

7.8.58 Fiscal reforms are important in facilitating the growth of efficient trade. The complex tax structure and multiplicity of state-level taxes distort the process of trade. International experience shows that simpler tax laws not only lower costs of compliance and administration, but also lead to higher revenues and contribute to the fairness of the tax system. Inter-state and Centre-State harmonisation of tax laws and administrative procedures can facilitate the simplification of the tax system. Octroi on transport of goods may also be dispensed with as far as possible.

7.8.59 Since the current tax statutes are cluttered with ad-hoc and outdated rules and procedures, the ideal solution is to gradually move to a uniform,

nation-wide value added tax (VAT). VAT is universally accepted as the most efficient form of indirect taxation. It is a multi-stage tax like the turnover tax but is levied on the value added at each stage and not on the gross turnover of the dealer. As each input going into a final product is taxed only once, this tax avoids cascading and multiple incidences, and is easy to monitor and implement.

7.8.60 A unified system of taxing domestic trade in the form of national VAT levied and administered by the Union Government would, in one stroke, bring about harmonisation and help in removing the tax on inter-state trade. The Government set up the Empowered Committee of State Finance Ministers to Monitor Sales Tax Reforms in November 1991. This Committee is still working on the rationalisation of state taxes. On the recommendations of the Committee, the Government has introduced, as a first step, minimum floor rates for different categories of products from January 2000 so as to discourage rate wars between states. It was to be followed by the introduction of VAT by April, 2001 but this has been deferred.

7.8.61 Many State Governments have already notified their revised sales-tax rates. A review of these notifications, however, indicates that there is no uniformity in revised rates or the categorisation of products. In some states, 'essential commodities' are clubbed with the 'prohibited items categories', for rate purposes, and the highest rate of 20 per cent is levied on items of mass consumption along with liquor and narcotics. It appears that the decision to implement a minimum floor rate has been used as an excuse to increase the sales tax rates without rationalising the tax structure.

7.8.62 It is heartening to note that the Central Government has made a beginning in the direction of VAT by introducing CENVAT from the current year. But till such times as it is able to introduce a more comprehensive national VAT, each state should be persuaded to have its own VAT the rates of which could be determined to make the tax revenue neutral. For inter-state sales, there should be a zero-rate in the originating state and destination VAT should be

applied at the point of final sale. The state VAT, with a harmonised rate structure across states should replace all other sales taxes and other taxes like the turnover tax, octroi and entry tax.

Financial Issues

7.8.63 The financial needs of the trading community should be recognised as genuine concerns and sustained efforts must be made to ensure that the sector is not dependent largely on the informal markets using unaccounted money, money laundering and costly credit. Commercial banks must be allowed to be more liberal in their attitude towards lending to traders. However, banks generally fulfill the needs of only bigger traders. The Union Budget (2001) increased the credit limit of the composite loan scheme of the Small Industries Development Bank of India (SIDBI) and commercial banks designed to help small borrowers by providing term loan and working capital through a single window to Rs. 25 lakh. Since small and medium traders account for the bulk of trade, the remit of SIDBI should be expanded to include the service sector, including trade. SIDBI can play a multiple role of providing finances, sensitising traders about laws and regulations as well as the importance of consumers' rights and privileges.

Futures and Forwards

7.8.64 Both large and small traders are the main users of future contracts in India. The percentage share of trade they hedge through the futures market, however, remains small. The success of most futures contracts depend on (a) sufficiently large supply and demand of the commodity; (b) determination of price by market forces without too much of government intervention; (c) well-developed exchange infrastructure facilities; and (d) conducive legal and regulatory framework. The following policy reforms should be introduced for enhancing greater vitality into the futures market:

- The ban on future contracts in wheat and rice may be lifted. Rice and wheat are a critical sector of the Indian economy

accounting for approximately 26 per cent of agricultural GDP.

- The existing policy of pan-seasonal pricing of wheat and rice under the PDS provides a disincentive for future trading. This needs to be modified to encourage private storage.
- Existing tax rules do not allow hedgers to deduct hedging losses from their ordinary income, unlike investors in financial derivatives. Hedging losses are treated as speculative capital losses, which can only be deducted from speculative gains and can be deferred up to eight years. This regulation creates taxation asymmetry. Unrealised profits on a hedge contract should be allowed to be deferred until the underlying physical transaction has been realised.
- Trading procedures could be improved by introducing a time stamping obligation and the monitoring of prices by an exchange official on a minute-to-minute basis. These prices should be disseminated widely on a real-time basis with the help of information technology. These two measures would make it easier to determine whether a transaction indeed took place at a competitive price and prevent fraudulent behaviour on the part of traders. The length of the trading day needs to be carefully considered since a long day dilutes liquidity over too many hours and also makes it more difficult to monitor the proper functioning of exchange trading.
- The weakness of India's unique delivery system needs to be corrected. A simple solution would be to adopt international practices by giving up the settlement options: positions remaining open at maturity date would have to go to delivery. A less drastic solution, however, would be to set out clear and transparent formula for determining the close-out price, on the basis of spot prices at and near the

maturity date. The formula would be worked out by the Pricing Committee of the exchange in which all the participants in the trade would be represented in order to ensure its fair and transparent operation.

- Greater effort should be directed at enforcing and educating members about the rules and regulations of the exchange. Internal auditing departments should be strengthened in order to consistently monitor the trading behaviour of brokers and to ensure an honest and fair relationship with their customers.

tion be classified as 'industry' getting 'industry' status.

- (b) Earmarking a certain percentage of residential/township area for market centres must be made mandatory and local governments must enact appropriate zoning laws. The absence of such a directive has only led to encroachments on municipal land and the weekly markets in colonies.
- (c) The local bodies/governments may be encouraged to invest in public goods like roads, footpaths, street lighting, public water and toilet facilities.

Retail Reforms

7.8.65 The efficiency of retail trade can be increased by the following reforms:

- (a) The restrictive clause Section 2(c) of IDBI Act, 1964 providing for grant of term loan, subscription to equity capital, underwriting or guarantee to only industrial concerns needs to be modified to include sectors such as trade, education and entertainment etc. This would also remove the present anomaly of defining sectors that can by no stretch of imagina-

THE PATH AHEAD

7.8.66 The traditional bias in favour of manufacturing and against trade needs to be jettisoned. Trade generates employment with very little capital investment. In other words, it has a low incremental capital output ratio. Even though modern trade has higher capital requirements, it can generate good quality productive jobs with reasonable capital investment. In a competitive market economy there is no need to either favour or discriminate against trade. In fact efficient trade is one of the key ingredients for attaining a competitive market economy.

1 Food Marketing Policy: India, World Bank, September, 1998

2 Food Marketing Policy: India, World Bank, September., 1998.

3 *Report on 'Managing Price Risks in India's Liberalised Agriculture: Can Futures Markets Help,'* World Bank, 1997.

4 *Report on Managing Price Risks in India's Liberalized Agriculture: Can "Commodity Futures Markets Help?"* World Bank, 1999.

Section - VIII

INFRASTRUCTURE

CHAPTER 8.1

IRRIGATION, FLOOD CONTROL AND COMMAND AREA DEVELOPMENT

8.1.1 Rainfall in India, as in all tropical countries, is confined mainly to the southwest monsoon months of June to September. The rainfall is not even and has spatial and temporal variation causing droughts in some parts of the country and floods in others. The all India annual average rainfall is 1,170 mm but it varies from 100 mm (about five rain days) in the western deserts to 11,000 mm (about 15 rain days) in the northeastern region. Fifty per cent of the precipitation takes place in about 15 days and less than 100 hours altogether in a year. Irrigation has, therefore, since time immemorial, been recognised as a vital input for agriculture, contributing not only directly by meeting the evapotranspiration needs of plants, but also indirectly by recharging ground water. Understanding and addressing the irrigation sector's problems and assessing its performance is thus a *sine qua non* for shaping of the future irrigation strategy.

8.1.2 Irrigation constitutes the main use of water and is thus the focal issue in water resources development. As of now, irrigation use is 84 per cent of the total water use. However, due to growing population, the per capita availability of water is steadily going down, declining from 5,000 cubic metres a year at the time of Independence to about 2,000 cubic metres as of now, and many areas of the country are already facing water stress. This, coupled with urbanisation and industrialisation, has raised concerns about the deteriorating quality of surface and ground water. Any strategy for integrated development of water resources and its management will necessarily have to go beyond the technical issues to include economic, social and administrative issues.

8.1.3 On the economic front, rising costs of irrigation projects and the initiation of too many projects by the state governments, leading to the thin spread of scarce financial resources, have affected the pace of creation of irrigation potential.

Subsidised supplies of irrigation, drinking and industrial water have stretched the finances of the states beyond acceptable limits. Efforts need to be concentrated on the quick completion of ongoing projects, especially the old ones, and proper maintenance of the created infrastructure. The assistance programmes of the central government need to be restructured to encourage this. A list of on-going major projects in various states showing the Plan period in which they were started, latest estimated cost, expenditure till the end of the Ninth Plan, spillover cost, ultimate potential and potential created so far is at Annexure I.

8.1.4 The pricing structure for water needs a serious review to reflect the scarcity value of water. Water charges must ensure that the revenues earned by state governments cover the operation and maintenance (O&M) costs of irrigation and water supply systems. In the changed economic scenario, with the private sector already stepping into telecom, transport and power sectors, it is high time that the water sector also took appropriate steps to attract private investment as it may no longer be possible for State Governments to fund all water resources development projects.

8.1.5 On the administrative front, the oversized O&M set up in the states need to be pruned and this activity handed over to the Water User Associations. Although some states have increased water rates, the O&M allocations still have a large component of establishment cost. State Governments should be persuaded to set up River Basin Organisations for planning of the river basin as a hydrological unit. The subject of water resource development and management is handled by several ministries at the Central Government level viz. Water Resources, Agriculture, Rural Development, Urban Development, Power, Shipping, Environment and Forests. Bringing the various water related subjects under the control of

one ministry — the Ministry of Water Resources — should be done expeditiously.

8.1.6 On the technical front, while dams will continue to be the mainstay of irrigation development, other cost-effective options like rejuvenation of traditional water harvesting structures, ground-water development, development/restoration of surface minor irrigation systems, rain water harvesting in urban areas and watershed development should be taken up simultaneously. These options are less costly in terms of cost per hectare (ha) of development as compared to dams and do not involve other problems faced by dams like rehabilitation of displaced persons, submergence of forest land, land acquisition, long gestation period etc. While the per ha cost of development of irrigation through major irrigation projects is over Rs. 1 lakh, the cost/ha in respect of watershed schemes is Rs. 5,500, tank renovation schemes Rs. 15,000/ha. and ground water schemes Rs. 10,000/ha. However, dams have multiple benefits as compared to watershed structures.

8.1.7 It is important that the created potential be utilised to the maximum extent within a reasonable time frame. The Command Area Development Programme (CADP) was launched as a centrally-sponsored programme in 1974-75 with this objective. However, the programme needs to be restructured as it is presently confined to the construction of field channels, land levelling and warabandi. The programme should involve the stakeholders and cover main and intermediate drainage, water use efficiency promotion and system management and improvement.

8.1.8 The requirement of agricultural produce is expected to rise steeply by 2025. The net sown area has remained stagnant around 142 million hectares (m. ha). Given the constraint of land availability, India must necessarily concentrate on increasing the area under irrigation and significantly improving the productivity of both land and water to meet the food, fuel, fibre and timber needs of the population. A multi-pronged strategy, backed by a long-term vision for integrated water resources development and management, has thus to be carefully conceived. Another 30 m. ha can be added to the net sown area by tapping unutilised land. Trans-

basin diversions to even out the available water resources in the country and break the vicious cycle of droughts and floods would form an important component of such a strategy.

AVAILABLE WATER RESOURCE

Surface Water

8.1.9 India, which has 16 per cent of the world's population, has only 2.45 per cent of the world's land resources and 4 per cent of the world's fresh water resources. Monsoon rain is the main source of fresh water, with 76 per cent of the rainfall occurring between June and September under the influence of the southwest monsoon. The average annual precipitation in volumetric terms is 4,000 billion cubic metres (BCM). The average annual flow out of this is 1,869 BCM, the rest being lost in infiltration and evaporation. Due to topographical and other constraints, only 690 BCM can be utilised.

Ground Water

8.1.10 The ground water recharge is principally governed by the intensity of rainfall as also the soil and aquifer conditions. The distribution and potential for ground water development thus varies from region to region. The annual replenishable ground water resources in the country are estimated at 432 BCM. This is a dynamic resource and is replenished every year from natural precipitation, seepage from surface water bodies and conveyance systems, return flow from irrigation water etc. Prudence lies in confining the utilisation in each region/area to a quantity within the replenishable limit of that region to avoid problems of water quality and high energy costs of pumping due to falling water table.

8.1.11 The total availability for use from surface and ground water sources is thus 1,122 BCM (690 + 432 BCM).

ESTIMATED IRRIGATION POTENTIAL

Major and Medium

8.1.12 The ultimate irrigation potential of the country from major and medium projects is estimated as 58.46

m.ha. A project with a culturable command area (CCA) of more than 10,000 ha. is categorised as a major project and that with area between 2,000 ha. and 10,000 ha. as a medium project.

Minor

8.1.13 The ultimate irrigation potential of the country from minor irrigation projects is estimated as 81.43 m. ha, of which 17.38 m.ha. is from surface water minor irrigation schemes and 64.05 m.ha. from ground water schemes. A project with culturable area less than 2,000 ha. is a minor irrigation project.

8.1.14 The total ultimate irrigation potential is thus 139.89 m.ha. (58.46 + 81.43). By trans-basin diversions, it is estimated that another 25 m. ha. potential can become available through surface and 10 m.ha. through groundwater sources.

ACHIEVEMENTS IN IRRIGATION DEVELOPMENT

Major and Medium

8.1.15 Before the commencement of planned development in 1951, the irrigation potential created through the major and medium sector was 9.70 m. ha. In the First Five-Year Plan, the country launched a major irrigation programme to offset the loss in irrigation area due to Partition and to solve the problem of perpetual food shortage necessitating large-scale imports. A number of major and multipurpose projects like Bhakra Nangal, Nagarjunasagar, Kosi, Chambal, Hirakud, Kakrapara and Tungabhadra dams were taken up. This trend continued till the Fourth Plan, when the emphasis shifted to the completion of ongoing projects, modernisation and integrated use of surface and ground water. The Fifth Plan saw the launch of the CADP. Till the end of the Eighth Plan, a potential of 32.96 m. ha. had been created in this sector. The Plan-wise creation of potential is at Annexure 2. State-wise creation of potential is at Annexure 3.

8.1.16 The storage due to major and medium projects already completed in the country is 177 BCM. Projects under construction are likely to add

another 75 BCM. The contribution expected from projects under consideration is 132 BCM.

8.1.17 A total of 295 major and 967 medium projects were taken up for construction till the end of Eighth Plan. Of these, 124 major and 708 medium projects have been completed leading to a spillover of 171 major and 259 medium projects into the Ninth Plan. The Plan-wise position of taking up of new projects and their completion is at Annexure 5. A total investment of Rs. 1,01,649 crore has been made in the major and medium sector till the end of Ninth Plan. Plan-wise expenditure is at Annexure 4.

8.1.18 The Working Group for formulation of the Ninth Plan had recommended an outlay of Rs. 60,058 crore for creation of 9.81 m. ha. potential in the major and medium irrigation sector. However, the actual outlay provided was Rs. 42,959.34 crore, with the target being kept as 9.81 m. ha. The expenditure during the Ninth Plan is expected to reach Rs. 49,043.18 crore. It is expected that the potential creation up to the end of Ninth Plan would have risen to 37.08 m. ha. or 63 per cent of the ultimate potential of the major and medium sector.

8.1.19 The Working Group for the Tenth Plan has assessed that 171 major, 259 medium and 72 Extension, Renovation and Modernisation (ERM) projects were ongoing projects in the Ninth Plan. Besides, 13 major, 37 medium and 36 ERM projects were taken up in the Plan period. The likely completion during the Ninth Plan are 25 major, 45 medium and 14 ERM projects. Thus, a total of 159 major, 242 medium and 89 ERM projects are estimated to spillover into the Tenth Plan, after reclassification of a few projects. A further 67 major, 130 medium and 34 ERM projects are expected to be taken up in the Tenth Plan. The Working Group has proposed an outlay of Rs. 1,09,025 crore (Rs. 1,07,327 crore under State Plan and Rs. 1,698 crore under Central Plan) for the Tenth Plan for ongoing projects and new projects. With this investment, 103 major, 240 medium and 62 ERM projects are expected to be completed in the Tenth Plan and 11.14 m. ha. created.

MINOR IRRIGATION

8.1.20 The minor irrigation potential, which was 12.90 m.ha. during the pre-Plan period (6.40 m.ha.

from surface water and 6.50 m.ha. from ground water) made steady progress during various Plan periods. Till the end of the Eighth Plan, a potential of 53.30 m.ha. was created utilising Rs. 40,426.57 crore through State Plan outlay (Rs. 24,298.8 crore) and institutional finance (Rs. 16,127.77 crore). Plan-wise expenditure is at Annexure 4.

8.1.21 The Working Group for Minor Irrigation for the Tenth Plan has estimated that in the Ninth Plan, a potential of 3.64 m. ha. had been created till 1999-2000 with a total investment of Rs. 36,229.79 crore, taking the total potential created to 56.90 m.ha. which is 70 per cent of the ultimate potential of 81.43 m.ha. It has, further, recommended an investment of Rs. 35,050 crores in the Tenth Plan in the State Sector and Rs. 1,150 crores in the Central Sector to create 8 m.ha. potential, of which 3 m.ha. is from surface water and 5 m.ha. from ground water. The cumulative potential created till the end of the Ninth Plan is 56.90 m. ha as per figures reported by State Governments in their Tenth Plan documents.

Flood Management

8.1.22 According to statistics of flood damage furnished by state governments, an average of 7.56 m. ha. is affected annually by floods, of which 3.55 million ha. is cropped area. On an average, floods annually claim 1,595 lives and 94,772 heads of cattle and damage 1.2 million houses. The annual damage is about Rs. 1,347 crore.

8.1.23 The Rashtriya Barh Ayog has estimated the flood-prone area in the country at about 40 m. ha., of which 32 m. ha. can be given a reasonable degree of protection. The area protected prior to 1954 is assessed as 3 m. ha. Between 1954 and 2000, 33,630 km of new embankments and 37,904 km of drainage channels have been constructed. A total of 2,337 town protection works have been completed and 4,705 villages raised above flood level. All these works are estimated to have given reasonable protection to 15.8 m ha.

8.1.24 An expenditure of Rs. 4,856.68 crore has been incurred in the flood control sector till the Eighth Plan. The Working Group on Flood Management for the Ninth Plan assessed the likely benefits in Ninth Plan as 3.06 m ha., corresponding to an outlay of

Rs. 4,959 crore for the State Sector and Rs. 1,509 crore as additional Central assistance for identified flood management works. However, the actual outlay approved by the Planning Commission for the State sector was Rs. 2,212.12 crore and Rs. 716.13 crore for the Central sector and this outlay was expected to benefit 1.366 m. ha. The anticipated expenditure in the Ninth Plan is Rs. 2,629.23 crore and according to reports of State Governments, the area likely to be benefited is 1.14 m. ha.

8.1.25 The Working Group has recommended an outlay of Rs. 10,631.84 crore for the Tenth Plan, of which Rs. 7,624 crore is for the State sector and Rs. 3,007.91 crore is for the Central sector. This is expected to benefit 2.781 m. ha. The Group has recommended strengthening of the flood forecasting network of the Central Water Commission (CWC), flood plain management through zoning and people's participation in maintenance of embankments.

Command Area Development

8.1.26 During the post-independence period, the country saw an unprecedented expansion of irrigation facilities and infrastructure, aimed at increasing agricultural production from irrigated land to meet the food needs of a growing population. However, in the 1970's it was noted that agricultural production was not commensurate with irrigation development and showed signs of stagnation. The Second Irrigation Commission (1972) reported a wide gap between the creation and utilisation of irrigation potential and this led to the initiation of the CADP.

8.1.27 The CADP envisaged integrated and coordinated development of irrigated areas along with on-farm development. The area of action of CADP was below outlets which were owned by farmers. The assumption was that the canal system above the outlet was satisfactorily operated, maintained and managed by the Irrigation Department.

8.1.28 The components of the CADP were:

- (i) Development of field channels and field drains.

- (ii) Land levelling and shaping.
- (iii) Reclamation of waterlogged area.
- (iv) Introduction of warabandi.
- (v) Realignment of field boundaries and consolidation of holdings wherever possible.
- (vi) Development of groundwater irrigation.
- (vii) Development and management of main and intermediate drains.
- (iii) Extension service support continues to be with the Agricultural Department of states.
- (iv) High water use crops like paddy, sugarcane had increased in head reach areas.
- (v) Conjunctive use did not pick up due to various constraints including cumbersome institutional financial support and unreliability of electricity supply.
- (vi) Maintenance and upkeep of the canal system above outlet was found lacking.
- (vii) Due to the neglect of intermediate and main drains, field drains were not effective in preventing waterlogging.

8.1.29 The CADP has, so far, covered 236 major and medium schemes and cluster of minor irrigation schemes with a total CCA of 23 m.ha. The overall achievement till 2000 was: -

Construction of field channels	-	15.72 m.ha.
Warabandi	-	0.57 m.ha.
Land levelling/ shaping	-	2.19 m.ha.
Field drain	-	0.68 m.ha.

Till 2000-01, a total expenditure of Rs. 7,097.48 crore has been incurred on the CADP, of which Rs. 2,304.23 crore has been released by the Central Government.

8.1.30 Evaluation studies carried out by the Ministry of Water Resources in 26 major and medium projects have shown that the CADP has had a positive impact by way of better utilisation of created potential, increase in irrigation intensity and water use efficiency, increase in agricultural production due to introduction of high efficiency crops and increase in use of fertilisers and better variety of seeds, improvement in farm income and reduction in water logging, soil salinity etc.

8.1.31 The evaluation study also threw up some shortcomings, which need to be corrected. Some of them are:

- (i) Progress of field channels was slow mainly due to inadequate funding by State Governments.
- (ii) Realignment of field boundaries and consolidation of holdings did not pick up in many states.

It was also increasingly realised that for the CADP to be a success, it was not only necessary to address these issues, but the system needs to be handed over to the Water Users Associations for maintenance. Thus, the concept of Participatory Irrigation Management (PIM) needs to be dovetailed into CADP.

8.1.32 The Working Group has suggested an outlay of Rs. 4,962.5 crore for the CADP in the Tenth Plan. The Ministry of Water Resources has allocated Rs. 1,401.8 crore in the Tenth Plan for CADP out of its total allocation of Rs. 3,600 crore. Scheme-wise Tenth Plan outlay is given in the Appendix to this volume.

Private Sector Participation

8.1.33 Presently all the programmes in water resource development and management, especially in the major and medium sector, are entirely funded by the Government. Institutional finance is available for the minor irrigation sector. Recently, under the Rural Infrastructure Development Fund (RIDF), the National Bank for Agriculture and Rural Development (NABARD) has been extending assistance to major/medium projects as well. Despite massive investments and impressive achievements, a lot more investment is needed to fully harness the available potential. The unit cost of irrigation development is nearly Rs. 1 lakh per ha. of CCA. This is so high that even recovery of interest on capital from the service is difficult, unlike

many services which are able to pay for themselves with or without some incentives or subsidies. Due to decreasing investments in the irrigation sector, it may be difficult to complete even the on-going projects. Hence the desirability of mobilising financial resources from the private sector which will also ensure better irrigation efficiency and better service.

8.1.34 However, even in developed countries, there are only a few examples of successful private sector irrigation projects. One of the inhibiting factors is that the private investor has to deal with irrigators who are not used to treating irrigation as a commercial service. The long gestation period of projects and the fact that benefits are not transferable are other disincentives for the private sector. However, a beginning has to be made with pilot projects and by offering part of service for privatisation, especially in minor irrigation projects. The canal systems of the northern India used to generate surplus revenue during the British period as also in the initial years of Independence. A Group of Experts, therefore, needs to be set up to study the whole gamut of issues connected with the economics of irrigation water viz. water rates, cost of establishment, staff required for O&M purposes, requirement for O&M on Rs./ha basis etc.

ISSUES IN FOCUS

Demand for water

8.1.35 The demand for water, which was 634 BCM in 2000, is likely to increase to 813 BCM by 2010 and 1,093 BCM by 2025. Thus the entire water potential of 1,132 BCM utilisable by conventional means would have to be developed by 2025. This calls for the completion of 75 BCM of ongoing storage and developing a further 50 per cent of the potential storage of 132 BCM, ground water development in potential areas, improvement in water use efficiency and introduction of a rational pricing for water. Although irrigation will continue to be a major consumer of water (84 per cent as of now) demands from other sectors like industry, domestic, energy, ecology, recreation, navigation are likely to increase, putting additional pressure on the irrigation sector. Water audit should be insisted upon for all major large-scale water uses including irrigation projects, industries and civic bodies.

Proliferation of projects

8.1.36 The spillover of major and medium projects into successive Plans is a major problem in this sector. Out of the balance 21.68 m.ha. potential to be created in the major and medium sector, completion of ongoing major projects with balance completion cost of Rs. 28,500 crore will itself add another 10 m.ha. The prioritisation of projects on the lines suggested by the National Commission for Integrated Water Resources Development and Management in 1999 should be adopted. Out of the 159 major projects spilling into Tenth Plan, nearly 65 per cent are projects dating back to the Sixth Plan or even earlier Plans.

8.1.37 The Central Government will also take effective steps to complete old projects by targeting Accelerated Irrigation Benefit Programme (AIBP) funds to these projects and discouraging its use for comparatively newer projects. Projects where 90 per cent of the potential is already created should be declared completed unless there is a clear evidence that the project is really incomplete and for genuine reasons. The State Governments will be asked to plan phased development in large projects to avoid unproductive investments in dams or main canals alone and also make higher allocations for inter-state projects. The Planning Commission shall seriously consider a 'plan holiday' for new projects if the situation does not improve. The Planning Commission has already suggested that the Ministry of Water Resources carry out a State-wise review of on-going irrigation projects through a committee headed by the Secretary, with the Chairman, CWC, Adviser, Water Resources, in the Planning Commission and concerned secretaries of the State Government as members.

Lag between potential created and utilised

8.1.38 The lag of about 9 m.ha between potential created and utilised is a matter of concern. The main reason for this is the non-construction of on-farm development (OFD) works below the outlet. Other reasons are: change in cropping pattern to more water-intensive crops, over-estimation of run off in hydrological planning leading to reservoirs not being filled, loss in live storage due to sedimentation, especially in minor irrigation tanks, low water use

efficiency due to disrepair of the system, lack of reliable statistics on creation and utilisation, etc. It is estimated that about 13 m.ha of irrigated area from projects completed before Independence and 8 m.ha. from schemes completed 25 years ago can be fully restored by modernisation of these projects. The proposed restructured CADP is aimed at addressing some of the issues. A committee headed by the CWC chairman, is already looking into the issue of differences in data on utilisation of irrigation potential as reported by the Ministry of Agriculture and the Ministry of Water Resources. The same committee, with the induction of other experts, will study and report, on a continuous basis, the progress in bridging the gap between created and utilised potential and suggest necessary corrective measures.

Benchmarking

8.1.39 Benchmarking is a continuous process of measuring one's performance and practices against the best competitors and is a sequential exercise of learning from other's experience. It is the process of comparison with relevant and achievable internal standards as measured against the previous achieved goals or the future desirable targets (or external ones set by other similar organisations). This is done in order to identify the 'best practices' and the weak links in the system with the objective of improving performance. In the irrigation sector, benchmarking would mean more productive and efficient use of water i.e. 'more crop per drop'. There is, therefore, a pressing need for introducing the concept of benchmarking in the irrigation sector to assess and improve various indicators like efficiency, financial viability, environmental sustainability, productivity etc. The best existing models and success stories would be studied and adopted. Information on these will be collected in a set time frame and disseminated.

Surface water pollution

8.1.40 Pollution of water bodies and rivers is most severe where human settlements have developed. The low flow in rivers have progressively decreased due to upstream withdrawals/impounding and ground water extraction along banks, denying the river the flushing dose required for ecological purposes. Urban water supplies which depend on flows in nearby rivers (like Delhi which depends on

the Yamuna), are most affected. It is estimated that 1,800 million litres of untreated domestic waste and another 300 million litres of industrial waste flow into the Yamuna daily. The actual count of coliform count is several times more than the permissible limit of 500 per 100 millilitre. The remedy lies in ensuring release of historic minimum flows from dams, treating urban sewage before letting it into river courses, setting up land-fills away from river banks, provision of sanitation facilities in slums on river banks etc. An appropriate strategy needs to be devised for integrated management of water and waste water.

8.1.41 As far as the Yamuna is concerned, there is urgent need to take up and complete the storages which are planned like Renuka dam, Agra barrage and Kanpur barrage, so that the stored flood waters can be released in lean months for river conservancy. A study titled 'Blueprint for Water Augmentation in Delhi' carried out by INTACH in March 1999 has recommended storing part of Delhi's monsoon season allocation of Yamuna waters in flood plains around Delhi especially by creating a ground water sanctuary. Water harvesting and recycling has also been recommended. The Central Ground Water Board (CGWB) has made a similar recommendation for the Gomti river near Lucknow, suggesting that the meandering loops be developed as flood plains to create a ground water sanctuary.

Participatory Irrigation Management

8.1.42 People's participation in renovation and maintenance of field channels was the established practice during the British days. However, the bureaucracy encroached on this function since Independence. The central and state governments need to promote PIM more vigorously, as currently only 15.25 per cent of the net irrigated area is partially covered. There is merit in linking the CADP to PIM so that projects receiving assistance under the former have to promote PIM in at least a part of the command area. The sustainability and success of PIM depends on mutual accountability between the Water Users' Association and the Irrigation Department, attitudinal change in the bureaucracy, autonomy for the Water Users' Association, multifunctional nature of the Water Users'

Association and choice of appropriate model for PIM with appropriate legal and institutional framework. If farmers have to take over and manage the system, then the system must be rectified by the Irrigation Department to a minimum standard to carry the design discharge before it is handed over to the Water Users' Association. The success of PIM is also linked to the introduction of rotational water supply and water charges with rationalised establishment cost. Unlined field channels need to be manually constructed in a 'V' shape which is considered stable and efficient for carrying water. Based on the 30-year experience of operating CADP and the results of evaluation studies, the CADP is proposed to be restructured in the Tenth Plan with emphasis on structures like field channels and equitable distribution of water through warabandi and Water Users Associations and dropping of infeasible components. The restructured CADP will include corrections of system deficiencies, linkage of field drains with the main drainage system, increased involvement of beneficiaries by expanding the scope of Water

Users' Associations in construction and maintenance of OFD works through a mandatory 10 per cent contribution. Cost norms for CAD components are also proposed to be revised.

Water Rates

8.1.43 Water is both an economic and social good. Canal water rates in most states are, however, very low and are generally based on the size of the holding, depending on crop and season. Water rates in many states have not been revised for many decades. A substantial part of the water charges recovered goes to meet the expenditure of the maintenance staff leaving very little for maintenance works. Increase in water tariff on volumetric basis will become acceptable, therefore, only when basic restructuring is done by reducing establishment cost, better technical management and establishing participatory systems. The central government has moved in this direction in linking AIBP allocations to economic reforms in the water sector. The state governments should take

Box 8.1.1 Administrative Cost Component In O&M

The Eleventh Finance Commission has recommended maintenance norms of Rs. 450 per ha. for major and medium projects and Rs. 225 per ha. for minor irrigation projects. Irrigation projects, which were financially viable before Independence have, since 1974-75, reported losses (negative net revenue i.e. gross receipts – working expenses). Several factors have contributed to this, like increase in construction and operation and maintenance (O&M) cost, low water charges and mounting salary bills of over-staffed establishment for O&M. Data for four states collected by the Planning Commission has revealed the low percentage of O&M allocation to works and poor realisation of O&M costs through user charges in 1998-1999.

State	Expenditure on O&M	Establishment cost as % of O&M expenditure	Revenue realised as % of O&M expenditure
Andhra Pradesh	Rs. 440/ha.	38.5	73.80
Assam	Rs. 406/ha.	99.1	0.07
Gujarat	Rs. 428/ha.	49.8	28.20
Haryana	Rs. 462/ha.	85.3	26.50

Data from other states is being collected.

advantage of the facility of better loan terms and move towards full recovery of O&M charges in a time frame of five years.

Water Logging and Water Use Efficiency

8.1.44 The water use efficiency in most irrigation systems is low in the range of 30 per cent to 40 per cent against an ideal value of 60 per cent. Low water use efficiency leads to lower productivity, inequity in supplies to tail-enders and water logging and salinity. The reasons for this situation are not difficult to identify. Many of the irrigation systems

have become dilapidated due to silting of canal system, weed growth, and breakage of regulatory structures leading to over-use of water. The low water rates also encourage misuse of water. In many of the old delta systems like the Godavari, Cauvery and Mahanadi, irrigation is practised by field-to-field flooding. The issue of low water efficiency, water rates, O&M, dilapidation of system and PIM are all inter-related and need to be tackled as a package of measures to improve the water use efficiency. The package should include: modernisation, conjunctive use through shallow augmentation tubewells, provision of tamper-proof outlets, replacement of old canal road bridges, development of canal banks as roads for maintenance of canals and improving the rural transport system, promotion of water saving devices like sprinkler and drip irrigation systems through tax concessions and back-ended subsidy-cum-loan schemes. A Task Force on Water Use Efficiency would be set up to co-ordinate all these measures. There should be a systematic survey to assess the extent, nature and location of waterlogged and saline/alkaline lands in existing irrigation commands.

Box 8.1.2

Success Story In Water Use Efficiency

Beneficiary members of the Pimpalnare village in Maharashtra formed a cooperative society named Shriram Pani Waper Sahakari Sanstha Maryadit in 1995 to utilise the waters of the Pimpalnare Minor Irrigation Project which was completed in 1983. Due to shortfall of rain, the tank does not fill completely every year. Therefore, the beneficiaries always faced difficulties due to water shortage. To tide over the situation and for proper distribution of water, they decided that water from the tank be drawn directly by pipelines and supplied to the fields to prevent the wastage of water. Beneficiaries were not allowed to lay separate pipelines, but asked to form groups of not less than 10. Thus, 18 groups were formed and each group laid down separate joint PVC pipelines. All 18 groups installed electric pumps at the tank site. During the rainy season, water flowing in the nals in the area was pumped into the tank using these pipelines and pumps. The expenditure of about Rs. 100 lakh has been contributed by the members from their own funds, without any financial assistance from the Government or from any financial institution. There are 169 members of the society today. Against 143 ha. of gross area irrigated earlier from the project, an area of 400 ha. in the rabi season and 125 ha. in the summer season has been brought under irrigation by augmenting and saving water thus. The problem of drinking water has also been solved. For this effort, the Sanstha was awarded the 'Jain INCID-Krishi Sinchai Vikas Puraskar – 2002'.

8.1.45 Introduction of irrigation in any area inevitably results in disturbance of the ground water balance that existed prior to irrigation. Because of seepage from water conveyance systems and deep percolation losses from farms during irrigation, the rate of recharge to the ground water increases, resulting in the progressive rise of the water table which, if unchecked, leads to waterlogging in irrigated lands. Recharge to the ground water can be minimised by regulating improving water effect withdrawals from ground water to strike a balance with net recharge so that the rise of the ground water table is checked at an appropriate level. Conventional drainage methods are: horizontal drainage by sub-surface drains and vertical drainage by conjunctive use and pumping back into canal system or pumping from wells. These methods are quite expensive and present many operational and environmental problems.

8.1.46 Bio-drainage is an effective drainage measure particularly in dry, arid regions. It is less expensive, environment friendly and socially acceptable. Plantation of properly selected species of trees at suitable locations can meet the total

drainage requirements without any loss in agricultural produce.

Ground water development

8.1.47 Over exploitation of ground water is leading to falling water levels in many areas especially, the hard rock areas. The CGWB has assessed that as on 1 April 1998, out of 5,711 blocks/mandals/taluks/watersheds, 310 are categorised as over-exploited (stage of groundwater exploitation has exceeded the annual replenishable resource). Another 160 are categorised as dark (stage of groundwater exploitation has exceeded

85 per cent of the annual replenishable resources). The state-wise position is as under (Table 8.1.1):

8.1.48 While there is over-exploitation in some parts of the country, under-exploitation of ground resources especially in the east and northeast is a matter of concern. Some of the reasons inhibiting ground water development in these parts are: -

- (i) Erratic and unreliable power supply.
- (ii) Fragmented holdings, the returns from which are not adequate to pay back loans

Table 8.1.1

S.No.	State	No. of districts	No. of blocks/ taluks/mandals/ watersheds	No. in over exploited category	No. in dark category
1.	Andhra Pradesh	22	1,104	12	14
2.	Arunachal Pradesh	3	-	-	-
3.	Assam	23	134	-	-
4.	Bihar	42	589	3	9
5.	Goa	3	12	0	0
6.	Gujarat	19	184	13	15
7.	Haryana	17	108	33	8
8.	Himachal Pradesh	12	69	0	0
9.	Jammu & Kashmir	14	123	0	0
10.	Karnataka	19	175	7	9
11.	Kerala	14	154	0	0
12.	Madhya Pradesh	45	459	2	1
13.	Maharashtra	29	231	2	6
14.	Manipur	6	26	0	0
15.	Meghalaya	5	29	0	0
16.	Mizoram	3	20	-	-
17.	Nagaland	7	21	0	0
18.	Orissa	30	314	4	4
19.	Punjab	17	138	72	11
20.	Rajasthan	32	236	74	20
21.	Sikkim	4	4	-	-
22.	Tamil Nadu	27	384	64	39
23.	Tripura	3	17	0	0
24.	Uttar Pradesh	58	819	19	21
25.	West Bengal	16	341	0	1
26.	U.T.s	-	20	5	2
	Total	470	5,711	310	160

from institutional finance for construction of ground water structures.

- (iii) Availability of cheaper canal water.
- (iv) Lack of adequate maintenance facilities.

8.1.49 The power supply position needs to be improved to make it more regular and reliable. Levying a minimum horsepower standing charge plus metered tariff is more desirable than extending power subsidies. Areas where the ground-water table is not very deep can have shallow tubewells

that can be run with diesel engines, promoted by a back-ended subsidy-cum-loan scheme. A better alternative will be to make these a common resource as per the Assam model (see Box).

8.1.50 The systematic approach to the management of ground water requires a sustainable legal framework. The Central Government has circulated a model ground water legislation among the states. A few states have enacted such a legislation. This is possible only with strong political will and public acceptance.

Box 8.1.3 Success Story In Ground Water Development

The one lakh shallow tubewells programme initiated in Assam is a success story in ground water exploitation meriting replication in other areas with ground water potential. The total cost of the project was Rs. 230 crore, out of which one-third was contributed by the beneficiaries. The balance was made available to the State Government from the non-lapsable pool of Central resources and by the National Bank of Agriculture and Rural Development (NABARD). The shallow tubewells were installed in clusters of eight to ten through farmers bodies viz. Field Management Committees. Operation and maintenance of the tubewells is the responsibility of the Committee. The response of the beneficiaries to this programme was overwhelming.

The Department of Agriculture has also initiated a million tubewells programme for the eastern and northeastern states. The subsidy-cum-loan programme envisages 20 per cent contribution by the beneficiaries while the subsidy and loan components are 40 per cent each. The programme is being operated through NABARD.

8.1.51 The CGWB has been constituted into an Authority, which has started initiatives in notifying areas as protected areas from the point of view of over-exploitation of ground water. The CGWB has prepared a master plan for rainwater harvesting and

recharging of ground water. An area of 4.5 lakh sq. km has been identified in the master plan for recharge with 36 BCM of monsoon runoff at a cost of Rs. 24,500 crore. Groundwater recharge through rainwater harvesting has already been made

Box 8.1.4 Ground Water Legislation

A model Bill to regulate and control development of ground water was circulated by the Central Ground Water Board to the State Governments in 1970 and again in 1992 for enactment. The model Bill was also circulated among the states in 1996 by the Ministry of Water Resources. However, the response from the State Governments has been most discouraging. Gujarat has enacted the legislation. Tamil Nadu has passed the Metropolitan Area Ground Water Regulation Act. Madhya Pradesh, Maharashtra and Andhra Pradesh have passed regulation for drinking water purposes. West Bengal and Karnataka have also passed a Bill for water resources conservation, protection and development but these are awaiting the assent of the President.

compulsory in many urban areas and this should be extended to all urban areas.

8.1.52 The National Commission for Integrated Water Resources Development, in its report, has stated that the story of watershed development undertaken so far is a mixed one of success and failure, initial success and later decline and initial failures and later revival. Compared to government programmes, projects undertaken by local communities, voluntary organisations and activists were more relevant to each location, had much greater people's involvement and were flexible and innovative. These projects have also been keen to evolve cost-effective techniques and use local traditional knowledge. A major reformulation of priorities and programmes and restructuring of institutions and operational means are vital for integrated local watershed development. The ultimate aim should be to make each rural area manage its own water needs through water harvesting. The Commission has emphasised the integration of rural area programmes into an umbrella programme and the inclusion of watershed development as an integral component. Funds available under poverty alleviation programmes should be tapped for watershed development.

8.1.53 The Committee on Twenty Five Years' Perspective Plan for the Development of Rainfed Areas set up by the Planning Commission has, in its report of June 1997, estimated that the entire treatable area of 75 m.ha. can be covered under the watershed programme with Government and people's initiative at a cost of Rs. 29,720 crore.

Ground water pollution

8.1.54 Ground water has played a crucial role in irrigation and is also the main source of drinking water in rural and urban areas. It is estimated that 80 per cent of domestic needs in rural areas and 50 per cent in urban areas is met by ground water. Contamination of ground water sources due to over-exploitation and industrialisation is a matter of concern. It is difficult to restore ground water quality once the aquifer is contaminated. Ground water contamination occurs due to human intervention (seepage of sewer lines, disposal of chemical effluents in natural water courses, salinity ingress

in coastal areas due to over exploitation) and also naturally (viz. arsenic, fluoride, iron). In parts of West Bengal, over-exploitation has led to arsenic contamination. To promote human health, there is urgent need to prevent contamination of ground water and also promote and develop cost-effective techniques for purifying contaminated ground water for use in rural areas like solar stills. Dilution of harmful chemicals can, to a large extent, be achieved by recharge.

DRINKING WATER SUPPLY AND SANITATION

8.1.55 The National Agenda for Governance aims to ensure provision of potable water supply to every village in the next five years. The National Water Policy, 2002 has accorded topmost water allocation priority to drinking water. The norms adopted for rural water and urban water supply are:

- | | |
|-------------------------------|--|
| Rural water supply | <ul style="list-style-type: none"> - 40 litres per capita per day (lpcd) or one handpump for 250 persons within a walking distance of 1.6 km or elevation difference of 100 m in hills. - 30 lpcd additional for cattle in Desert Development Programme (DDP) areas. |
| Urban water supply (Domestic) | <ul style="list-style-type: none"> - 40 lpcd where only spot sources are available. - 70 lpcd where piped water supply is available but no sewerage system - 125 lpcd where piped water supply and sewerage system are both available. 150 lpcd for metro cities. - Additional water for other demands like industrial, commercial, institutional, fire fighting, gardening etc. |

8.1.56 Substantial progress has been made on the rural water supply front mainly due to the Accelerated Rural Water Supply Programme

(ARWSP), launched in 1972-73. Out of 14.22 lakh habitations, 12.56 lakh habitations have been fully covered, 1.48 lakh partially covered and 0.18 lakh not covered. Similarly urban water supply coverage is almost 100 per cent. However, State Governments have not paid adequate attention to urban and rural sanitation as the coverage is only 60 per cent and 35 per cent respectively.

8.1.57 Reforms in the drinking water sector were introduced on a pilot project basis in 65 districts under ARWSP. The project aims to include the people in the development process by engaging the beneficiaries in both the management and upkeep of the project. The beneficiaries are also expected to contribute 10 per cent of the project cost. The experience gained during the implementation of these pilot projects would be effectively utilised while expanding the reform package to other districts.

8.1.58 Sewage treatment plants should be made compulsory for all cities and industrial areas and this should be implemented in a time-bound manner. The water supply systems in urban areas need to be redesigned to supply treated water for drinking purposes only, while untreated and ground water should be used for other purpose like bathing, washing, gardening. A differential tariff structures should accordingly be worked out keeping in view the cost of treatment of water.

Flood Management

8.1.59 According to the Working Group on Flood Control Programme for the Tenth Plan, the flood damage reported for the first three years of the Ninth Plan was Rs. 10,784 crore and the corresponding disaster relief provided as central share was also high at Rs. 3,992 crore. The Plan expenditure of Rs. 1,207 crore during this period thus seems inadequate. The increasing value of flood damage reflects the increasing economic activity in flood plains. There seems to be a hesitation on the part of state governments to enact flood plain zoning legislation. While legislation is desirable, other immediate steps such as differential insurance rules, additional surcharge by way of property tax on structures in risk areas etc. can also be taken to discourage unbridled economic growth, especially

construction of houses and other structures, in flood plains. The long-term and permanent solution, however, lies in the construction of storage, raising of villages, modification in cropping pattern (sowing crops which can tolerate water-logging) and setting up of a nation-wide network of communication, forecasting and forewarning systems.

8.1.60 In the past, flood proofing measures adopted in the country (mainly in Uttar Pradesh) consisted of raising a few villages above pre-determined flood levels and connecting them to nearby roads or highlands. In West Bengal and Assam, land fills were attempted in villages to keep houses above flood levels. In North Bihar, flood proofing measures were implemented by the construction of raised platforms with amenities where flood-affected people could be temporarily shifted. The Working Group on Flood Control for the Tenth Plan has recommended setting up of a new Integrated Flood Management Commission to review the follow-up action taken on the recommendations made by the Rashtriya Barh Ayog in 1980. This Commission could also study the long-term permanent solution and assess the number of villages in each state that can be raised. Other measures that merit detailed examination by the proposed Commission are: changes in crop pattern and timing of crops in flood affected areas and providing shallow tubewells for irrigation in such areas by capping them in flood months and reopening in other months.

R & D Efforts

8.1.61 For optimal utilisation of the water resources and to ensure sustainable development, the highest standards of scientific activity have to be taken up in the sector. With this objective, research and development (R&D) efforts have to be speeded up through sponsored research as well as through invited research proposals. Institutionalised arrangements are necessary to compile and update the data on availability and utilisation of surface and ground water for various purposes and by sources in basins and sub-basins, on a continuing basis. Further, personnel involved in the sector have to be adequately trained to improve their knowledge and skills. It is also

essential to organise post-evaluation studies for major and medium irrigation projects to serve as a vital input to improve designs in order to make them more cost effective and functional. Similarly, evaluation of flood control works has to be undertaken to take necessary corrective actions.

Use of Remote Sensing

8.1.62 Organisations under the Ministry of Water Resources like the CWC, Central Water and Power Research Station (CWPRS) and the National Institute of Hydrology (NIH) have developed in-house capability to interpret satellite imageries in some of the facets of water resources planning like reservoir sedimentation and river behaviour. The capability needs to be expanded to cover other areas in water resources planning like land use, irrigated area assessment, water logging and salinity, crop condition, river morphology studies using long-term data to assist states in planning of flood protection works etc.

Single Administrative Ministry for Water

8.1.63 Presently water as a subject that is being dealt with in different ministries (Table 8.1.2).

8.1.64 While at the policy formulation level, the National Water Resources Council representing all the concerned ministries was set up in 1983 under the Prime Minister, the Planning Commission is of

the view that the subject of water and all its uses should be dealt with at the Centre by only one ministry — the Ministry of Water Resources.

8.1.65 To begin with, it is desirable that a National Water Resources Programme Coordination Committee under the chairmanship of Member (Agriculture and Water Resources), Planning Commission is set up to ensure that everyone's interests and concerns are taken into account when framing and implementing all programmes having a bearing on the use, development, conservation, augmentation, productivity and protection of water resources. Secretaries of the concerned ministries as well as the chairmen of CWC, CGWB and chairman and managing director of the National Hydroelectric Power Corporation (NHPC) would be members and the Secretary, Water Resources, would be the Member Secretary. The role of each Ministry in the use and management of water should be clearly identified by the Committee.

Institutional and Legal Framework

8.1.66 At present, the Government has virtually no legal control over surface water resources and regulation of ground water use is done through restrictions on the flow of institutional credit from banks, mainly in the form of seeking various clearances before sanctioning loans. What is needed to effectively manage the country's water resources is an appropriate legal framework that clearly specifies

Table 8.1.2

S.No.	Ministry/Department	Subject dealt with
i.	Water Resources	Irrigation, command area development, flood control, ground water.
ii.	Rural Development	Rural drinking water supply and rural sanitation, watershed programmes.
iii.	Urban Development	Urban drinking water and urban sanitation.
iv.	Environment	Pollution control
v.	Power	Hydropower
vi.	Shipping	Inland navigation
vii.	Planning Commission	Allocation of Plan funds for various sectors and investment clearance.

the rights and responsibilities of various stakeholders. This issue merits serious consideration in the Tenth Plan, when a beginning could be made by evolving an appropriate forum for discussion on the scope and coverage of such a legal framework keeping in view practices in other countries.

THE PATH AHEAD

8.1.67 The country's achievements in the areas of irrigation, command area development and flood management in the last five decades have been considerable, but there are many challenges that need to be faced in the new millennium. These are: the challenge of feeding a growing population, the challenge of poverty and malnutrition and the challenge of meeting the targets of economic growth in a sustainable manner so that the development process does not harm the environment.

8.1.68 It is a matter of concern that from the First Plan onwards, the funding for the irrigation sector with respect to the total state Plan size, has steadily declined from 23.25 per cent in the First Plan to 15 per cent in the Eighth Plan. This is particularly disappointing as the incremental capital output ratio (ICOR) for agriculture, where irrigation is an important input, is around 2:1. Moreover, it is well recognised that irrigation is the best bet for poverty alleviation in rural areas with several spin-off effects by way of secondary and tertiary benefits. There is, therefore, a strong case for progressively stepping up investments in the sector from the Tenth Plan onwards.

8.1.69 In the minor irrigation sector, the balance potential to be created is only 21 m. ha. and, at the rate of Rs. 30,000 per ha cost of development, an investment of Rs. 63,000 crore is required to create

all the balance potential of 21 m.ha in this sector. Since the gestation period of minor schemes is low, as compared to major/medium schemes, one strategy in the Tenth and subsequent Plans should be to give priority to minor irrigation and make the required investment through Plan and institutional resources to develop the full balance potential.

8.1.70 The revised National Water Policy adopted in April 2002 has focused on the areas needing attention in the water sector and has given a roadmap for further development of this sector to make it viable and self-sustaining. State Governments should prepare State Water Policies in a time-bound manner and also take steps to operationalise the policy.

8.1.71 The philosophy of development of the water sector needs a sea-change to move away from government owned and operated systems to participation of beneficiaries in construction, operation and maintenance. Some state governments have already made changes in existing Irrigation Acts or introduced new Acts to facilitate and motivate such participation. Others should follow suit with the central government acting as a catalyst. State governments also need to be persuaded to enact other suggested legislation for ground water regulation, dam safety and flood plain zoning. The central government should also take the initiative for drawing up guidelines and initiating policy changes for private sector participation in the irrigation sector.

8.1.72 It is deemed appropriate that the Tenth Plan is declared as a Water Plan for focused attention on the integrated development of water resources in the country.

Financial and Physical details of ongoing Major projects of X Plan (2002-07)

(Rs. in Crore/Potential in Th. Ha.)

Sl. No.	Project Name	Started in Plan	Estimated cost Original	Latest	Likely Expenditure upto end of IX Plan	Spill over Cost	Likely achievement of Potential upto end of IX Plan	Districts Benefitted	Likely Year of Completion
ANDHRA PRADESH									
1	Jurala(Priyadarshini)	VI	76.40	512.00	492.25	19.75	36.17	MahaboobNagar	2006-07
2	Nagarjuna Sagar	II	91.12	1000.00	1056.40	-56.40	839.58	Khammam, Prakasham, Nellore, Guntur, Krishna, Nalgonda	2006-07
3	Pulivendula Branch Canal	IV	2.98	90.73	50.25	40.48	14.74	Cuddapah, Kurnool	2006-07
4	Singur	V	29.75	180.00	169.62	10.38	0.00	Medak	2006-07
5	Somasila	V	17.28	467.00	397.00	70.00	14.74	Nellore	2006-07
6	Sriram Sagar Stage-I	III	40.10	2550.00	1967.30	582.70	342.20	Nizamabad, Warrangal, Karim Nagar	2006-07
7	Srisailem Left Br. Canal	VI		1186.00	487.28	698.72	0.00	Nalgonda	Beyond X Plan
8	Srisailem Right Branch Canal	VI	220.22	1600.00	1252.32	347.68	40.22	Kurnool	2006-07
9	Telugu Ganga	VI		2149.00	1477.36	671.64	29.52	Kurnool, Cuddapah, Nellore	2006-07
10	Vamsadhara Stage-I	IV	8.78	109.00	104.49	4.51	58.26	Srikakulam	2003-04
11	Vamsadhara Stage-II (Niradi Barrage)	VI		749.83	26.39	723.44	0.00	Srikakulam	2006-07
12	Yeleru Reservoir (water supply scheme)	VI	107.35	335.34	344.04	-8.70	Water Supply Scheme	E.Godavari	2006-07
13	Chagalanadu	IX		85.00	42.65	42.35	0.00	E.Godavari	2006-07
14	Galaru Nagari Ph.II	IX		392.10	29.86	362.24	75.80	Cuddapah, Nellore, Chittur	2006-07
ASSAM									
15	Bordikerai	V	3.560	32.500	43.610	-11.11	30.752	Sonitpur	2003-04
16	Champamati	VI	15.320	80.000	59.820	20.18	4.180	Kokrajhar	2006-07
17	Dhansiri	V	15.830	224.800	171.990	52.81	34.650	Darrang	2006-07
18	Intd. Kollong	V	4.570	80.550	67.510	13.04	29.078	Nagaon	2003-04
BIHAR									
19	Bagmati	V	5.78	154.73	36.74	117.99	0.00	Sitamari	2009-10
20	Barnar	VII	8.03	230.43	46.10	184.33	0.00	Munger	2009-10
21	Bateshwarsthan Pump Ph.I	V	13.88	175.85	29.65	146.20	0.00	Bhagalpur	2009-10
22	Durgawati	V	26.30	266.97	218.96	48.01	23.69	Rohtas	2009-10
23	Eastern Kosi Canal Ph.II	VII		156.32	95.48	60.84	0.00	Purlia, Sahansa, Kathihar	2006-07
24	Gandak Ph.II	VII		578.27	97.02	481.25	7.50	Siwan, Vaishali, E&W Champaran	2009-10
25	Western Kosi Canal	III	13.49	693.88	696.03	-2.15	51.10	Madhumani, Darbhanga	2004-05
26	Upper Kiul Project (under residual payment)	V	8.07	109.93	113.78	-3.85	27.67	Munger	2002-03

Annexure 8.1.1 Contd.

(Rs. in Crore/Potential in Th. Ha.)

Sl. No.	Project Name	Started in Plan	Estimated cost Original	Latest	Likely Expenditure upto end of IX Plan	Spill over Cost	Likely achievement of Potential upto end of IX Plan	Districts Benefitted	Likely Year of Completion
JHARKHAND						0.00			
27	Ajoy Barrage	V	115.24	206.89	209.63	-2.74	0.00	Deoghar	2002-03
28	Auranga	V	125.40	699.36	24.29	675.07	0.00	Palamu	2008-09
29	Konar	V		373.00	105.03	267.97	0.00	Hazaribagh	2008-09
30	North Koel	V	439.00	814.74	512.92	301.82	66.00	Palamu, Aurangabad	2008-09
31	Punasi	VII		219.05	85.72	133.33	0.00	Santhal Pargana	2008-09
32	Subernarekha	V	1428.00	2376.15	1078.18	1297.97	0.00	Singhbhum	2008-09
33	Tilaiya	V		301.79	78.22	223.57	0.00	Nawada, Hazaribagh	2008-09
GOA						0.00			
34	Salauli	IV	9.61	153.00	157.00	-4.00	14.330	South Goa	2004
	- Tillari (IS)	V	217.22	510.73	350.73	160.00	2.170	North Goa	2005
GUJARAT						0.00			
35	Sardar Sarovar(IS)	VI	6406.04	13180.00	12264.00	916.00	235.72	12 districts	Beyond X Plan
36	Zankari	VI	18.70	90.00	4.99	85.01	0.00	Surat	Beyond X Plan
37	Sidumber	IX		30.53	0.21	30.32	0.00	Valsad	Beyond X Plan
HARYANA						0.00			
38	Gurgaon Canal	III	2.88	65.00	26.52	38.48	34.74	Gurgaon, Faridabad	Beyond X plan
39	J.L.N. Lift Irrigation	V	40.00	245.75	159.08	86.67	189.74	Rohtak, Bhiwani & Mahendragarh	2006-07
40	Loharu Lift	IV	4.13	79.63	39.00	40.63	43.70	Bhiwani, Ambala	2006-07
41	S.Y.L. Project(Punjab Portion)	V	59.70	601.00	454.62	146.38	432.88	Whole State	Beyond X plan
42	Rewari Lift St.II	III	0.62	39.60		39.60	32.01	Guragaon, Rewari, Jhajjar	
HIMACHAL PRADESH						0.00			
43	Shahnahar Irrigation Project	VIII	143.32	150.78	83.23	67.55	0.50	Kangra	2003-04
KARNATAKA						0.00			
44	Bennithore	V	73.25	153.00	203.75	-50.75	10.18	Gulbarga	2003-04
	- Dudhganga(IS)	VI		110.00	13.20	96.80	0.00	Belgaum	2006-07
45	Harangi	III		310.00	338.47	-28.47	48.37	Kodagu, Hassan, Mysore	2006-07
46	Hemavathi	AP 66-69		2484.73	1665.61	819.12	198.19	Hassan, Mandya, Tumkur	2006-07
47	Hippargi Barrage	V	418.77	524.21	57.20	467.01	0.00	Bijapur, Belgaum	2006-07
48	Kabini(NP)	II		1207.00		1207.00		Mysore, Ch. Nagar	
49	Karanja	V	98.00	284.92	301.13	-16.21	18.98	Bidar	2006-07
50	Malaprabha	III	19.91	603.56	640.40	-36.84	172.76	Belgaum, Dharwad, Bijapur	2006-07
51	Tungabhadra HLC(IS)	II	2.57	62.93	54.15	8.78	74.47	Bellang, Raichur	2006-07
52	Upper Krishna St.I	V	58.20	3785.46	8354.04	-4568.58	318.70	Bijapur, Raichur	2006-07

Sl. No.	Project Name	Started in Plan	Estimated cost Original	Latest	Likely Expenditure upto end of IX Plan	Spill over Cost	Likely achievement of Potential upto end of IX Plan	Districts Benefitted	Likely Year of Completion
53	Upper Tunga	VIII		877.75	177.72	700.03	0.00	Shimoga, Dharwad Chitradurga	2006-07
54	Varahi	VII		122.50	30.30	92.20	0.00	Dakshina Kannada	2006-07
55	Yagachi	VIII		239.70	139.64	100.06	3.00	Hassan	2006-07
56	Markandeya	IX		223.00	110.13	112.87	0.00	Belgaum	2006-07
57	Bhima Lift	IX		187.58	16.30	171.28	0.00	Gulbarga	2006-07
58	Singatlur	IX		595.00	49.60	545.40	0.00	Bellary	2006-07
KERALA						0.00			
59	Idamalayar	VI	17.85	107.00	112.00	-5.00	0.00	Ernakulam	2006-07
60	Kallada	III	13.28	457.50	706.00	-248.50	53.61	Alapuzha, Kollam	2006-07
61	Kuriarkutty (Karappara)	VIII		100.00	15.00	85.00	0.00	Palakkad	XI
62	Muvattupuzha	V	48.08	388.00	332.00	56.00	0.00	Idukki, Ernakulam, Kottayam	2006-07
MADHYA PRADESH									
63	Bansagar (IS) Unit-I	V	91.31	936.00	461.22	474.78	0.00	Rewa, Satna, Sidhi, Shahdol	2006
	Bansagar (IS) Unit-II	V	344.66	345.00	186.63	158.37	5.00	do	XI Plan
64	Bargi Div.	VIII	1101.23	1554.50	24.88	1529.62	0.87	Jabalpur, Satna, Rewa	2014
65	Bariarpur LBC	V	18.40	143.00	71.29	71.71	-	Chhatarpur	XI Plan
66	Mahan	VI	39.00	155.10	51.83	103.27	0.00	Sidhi	Beyond IX plan
67	Indira Sagar	VI	752.16	1574.00	610.78	963.22	0.00	Khandwa, Khargaon	2014
68	Jobat	VI	30.75	67.23	37.92	29.31	0.00	Dhar	2005
69	Kolar	IV	139.14	185.00	178.68	6.32	35.00	Sehore	2004
70	Mahi	VI	61.52	192.85	74.93	117.92	0.00	Dhar, Jhabua	XI Plan
71	Man	VI	44.10	96.13	106.61	-10.48	0.00	Dhar	2003
72	Omkareshwar (NVDA)	VIII	350.00	755.00	15.36	739.64	0.00	Khandwa, Khargaon, Dhar	2012
73	Pench Diversion	VIII	91.60	184.04	9.50	174.54	0.00	Chhindwara	IX Plan
-	Rajghat (IS) Unit-I	V	61.61	133.50	143.33	-9.83	0.00	Guna, Shivpuri, Datia, Tikamgarh Gwalior, Bhind	2003
	Rajghat (IS) Unit-II	V	309.21	523.41	436.74	86.67	18.80	do	2005
74	Rani Avanti Bai Sagar (Bargi)	V	566.34	759.00	560.08	198.92	25.68	Jabalpur, Narsimhapur	2005
75	Sindh Ph.I	IV	4.95	46.42	59.43	-13.01	40.20	Gwalior, Shivpuri	2004
76	Sindh Ph.II	VI	510.94	607.67	188.15	419.52	8.70	Shivpuri, Gwalior, Datia	XI Plan
77	Upper Wainganga	V	50.60	193.97	239.74	-45.77	81.00	Seoni, Balaghat	2007
78	Urmil (IS)	V	6.41	22.01	26.70	-4.69	3.80	Chhatarpur	2005
-	Bawanthadi Unit-I	VI		82.80	60.33	22.47	0.00	Balaghat, Bhandara	2007
	Bawanthadi Unit-II	VI		149.19	45.17	104.02	0.00	Do	XI Plan
CHHATTISGARH						0.00			
79	Mahanadi Reservoir	IV		1223.45	494.42	729.03	135.40	Raipur, Durg	2007
80	Jonk Diversion	IV	4.13	49.99	40.39	9.60	10.10	Raipur	2003

Annexure 8.1.1 Contd.

(Rs. in Crore/Potential in Th. Ha.)

Sl. No.	Project Name	Started in Plan	Estimated cost Original	Latest	Likely Expenditure upto end of IX Plan	Spill over Cost	Likely achievement of Potential upto end of IX Plan	Districts Benefitted	Likely Year of Completion
81	Hasdeo Bango	78-80	115.30	858.31	709.72	148.59	186.90	Bilaspur, Raigarh	2005
MAHARASHTRA						0.00			
82	Arunavati	VI	66.48	148.71	194.26	-45.55	23.97	Yavatmal	2004
83	Bawanthadi (IS)	78-80	161.58	124.17	108.62	15.55	0.00	Bhandara	2008
84	Bhatsa	V	164.11	322.49	246.42	76.07	8.93	Thane	2007
85	Bhima	III	42.58	919.00	858.60	60.40	214.53	Sholapur	2007
86	Chaskaman	V	22.48	347.14	289.25	57.89	21.21	Pune	2005
87	Dudhganga (IS)	V		540.00	372.12	167.88	22.39	Kolhapur	2007
88	Gosikhurd	VI	461.11	2091.00	1134.11	956.89	15.01	Nagpur, Chandrapur, Bhandara	2012
89	Human	VI		370.04	37.48	332.56	0.00	Chandrapur	2009
90	Jayakwadi St. I & II.	V	127.36	796.87	779.32	17.55	236.93	Aurangabad, Beed, Parbhani, Nanded, Jalna, Ahmednagar	2004
91	Kadwa	VI	27.00	48.46	64.47	-16.01	7.82	Nasik	2004
92	Khadakwasla	II	11.62	345.04	322.21	22.83	62.15	Pune	2005
93	Koyna Krishna L.I.S.	VI	259.10	1083.00	921.49	161.51	4.52	Sangli	2009
94	Krishna	III	27.66	370.00	388.97	-18.97	89.95	Satara, Sangli	2007
95	Kuadi	66-69	17.90	919.00	1052.45	-133.45	94.88	Pune, Solapur, Ahmednagar	2007
96	Lendi (IS)	VI		204.50	55.50	149.00	0.00	Nanded	2010
97	Lower Dudhna	VIII	52.21	347.83	130.62	217.21	0.00	Parbhani, Jalna	2010
98	Lower Penganga (IS)	VIII		207.14	156.66	50.48	0.00	Yavatmal, Chandrapur	2012
99	Lower Tirna (Flow)	VI	37.65	129.67	230.57	-100.90	26.60	Osmanabad, Latur	2007
	Lower Tirna (Lift)	VI		53.71		53.71			
100	Lower Wardha	VI		540.14	278.41	261.73	0.00	Wardha	2009
101	Lower Wunna	VI	87.55	261.33	274.08	-12.75	21.48	Nagpur, Wardha	2004
102	Nandur Madhmeshwar (A)	V		105.30	371.99	-266.69	0.00	Do	2009
	Nandur Madhmeshwar (N)	V	72.66	146.40		146.40		Aurangabad, Nasik, Ahmednagar	
103	Nira Deoghar	VIII		576.60	418.26	158.34	1.99	Satara	2008
104	Punad	VI	29.92	81.97	93.80	-11.83	0.00	Nasik	2005
105	Surya	78-80	19.35	175.14	228.20	-53.06	22.55	Thane	2007
106	Talamba	VI		238.85	78.06	160.79	0.00	Sindhudurg	2011
107	Tillari (IS)	78-80	217.22	424.06	484.16	-60.10	1.33	Sindhudurg	2008
108	Tultuli	VI		169.40	46.84	122.56	0.00	Gadchiroli	2010
109	Upper Godavari	66-69	14.20	133.23	116.94	16.29	66.17	Nasik, Ahmednagar, Aurangabad	2007
110	Upper Penganga	V	84.48	861.99	548.44	313.55	73.97	Yavatmal Parbhani, Nanded	2007
111	Upper Pravara	V	15.87	287.14	120.03	167.11	4.83	Ahmednagar	2007
112	Upper Tapi	IV	12.09	115.57	170.11	-54.54	37.37	Jalgaon	2006

SI. No.	Project Name	Started in Plan	Estimated cost Original	Latest	Likely Expenditure upto end of IX Plan	Spill over Cost	Likely achievement of Potential upto end of IX Plan	Districts Benefitted	Likely Year of Completion
113	Upper Wardha	V	39.88	661.86	618.03	43.83	73.33	Amaravati, Wardha	2007
114	Vishnupuri	78-80	78.93	193.22	184.10	9.12	18.54	Nanded	2007
115	Waghur	V	12.28	109.40	145.17	-35.77	0.00	Jalgaon	2007
116	Wan	VI	46.85	158.35	211.70	-53.35	18.17	Akola, Buldhana	2004
117	Warna	IV	31.08	892.00	429.55	462.45	18.81	Kohlapur, Sangli	2010
118	Bembli	VIII		353.35	206.00	147.35	5.82	Yavatmal	2008
119	Bhama Askheda	VIII		393.29	287.74	105.55	0.75	Pune	2008
120	Urmodi	VI		478.18	360.82	117.36	2.00	Satara	2009
121	Gunjawani	VIII		286.78	145.33	141.45	0.00	Pune	2008
122	Janai Shirsal	VIII		144.24	99.03	45.21	5.00	Pune	2008
123	Khadakpurna	VIII		336.34	126.20	210.14	11.58	Budhana	2008
124	Sina Kolegaon	VIII		228.00	142.09	85.91	2.00	Solapur	2008
125	Sina Madha LIS	VIII		197.70	93.50	104.20	1.50	Solapur	2008
126	Temghar	IX		267.64	234.52	33.12	1.00	Pune	2005
MANIPUR									
127	Khuga	VI	15.00	150.29	152.21	-1.92	8.00	Chura Chanderpur, Bihnpur	2002-03
128	Thoubal	AP 78-80	47.25	390.00	235.97	154.03	4.00	Imphal, Ukru, Senapati, Thoubal	2004-05
ORISSA						0.00			
129	Potteru	IV	14.81	148.07	150.27	-2.20	102.62	Malkangiri	2003-04
130	Rengali	IV	233.64	2316.77	847.23	1469.54	3.25	Dhankanal	
131	Subernarekha (IS)	VII	790.52	1232.45	542.32	690.13	9.32	Balasure+ Mayurbhanj	Beyond X plan
132	Upper Indravati	AP 78-80	42.74	796.19	672.60	123.59	78.11	Kalahandi+Nowrangpur	2006-07
133	Kanupur Irrigation	VIII		330.89	22.22	308.67	0.00	Keonjhar, Sundargarh	Beyond X plan
134	Lower Indira	IX	211.70	211.70	34.22	177.48	0.00	Kalahandi, Bolangir	2006-07
136	Bagh Barrage	IX	49.19	49.19	27.00	22.19	0.00	Phulbani	2006-07
137	Deo	VI		135.91	64.69	71.22	0.00	Mayurbhanj	2006-07
138	Manjore	VIII		89.34	33.85	55.49	3.00	Dhankanal	2006-07
RAJASTHAN									
139	Bisalpur Irrigation	VII	173.03	228.30	201.66	26.64	49.50	Tonk, S.Madhapur	X Plan
-	Gurgaon Canal (IS)	III	2.88	35.40	28.10	7.30	22.78	Bharatpur	X Plan
140	I.G.N.P Stage-II	V	89.12	2267.44	1957.16	310.28	794.00	Sriganganagar, Bikaner, Churu, Barmer, Jodhpur, Jaisalmer	X Plan
141	Mahi Bajaj Sagar (IS)	IV	31.36	1016.98	499.84	517.14	94.01	Banswara, Dungarpur	X Plan
-	Narmada (SSP) (IS)	VI	467.53	548.00	178.88	369.12	0.00	Jalore, Barmer	Beyond X plan
142	Sidhmukh Nohar (EA)	AP 90-92	143.59	308.77	296.58	12.19	33.74	Hanumangarh, Churu	X Plan

Annexure 8.1.1 Contd.

(Rs. in Crore/Potential in Th. Ha.)

SI. No.	Project Name	Started in Plan	Estimated cost Original	Latest	Likely Expenditure upto end of IX Plan	Spill over Cost	Likely achievement of Potential upto end of IX Plan	Districts Benefitted	Likely Year of Completion
143	WRCP (Rajasthan)	IX		2000.00	0.66	1999.34	0.00	Whole State	Beyond X plan
TAMIL NADU									
144	WRCP (Tamil Nadu)	IX		1062.00	996.00	66.00	Stab.	Whole State	2002-02
UTTAR PRADESH									
145	Chambal Lift	78-79		69.83	97.76	-27.93	59.00	Etawah, Agra	2002-03
146	Eastern Ganga	V	48.46	579.00	347.97	231.03	51.36	Bijnor	2006-07
147	Jarauli P.C.	90-92	47.92	48.22	35.09	13.13	0.00	Fatehpur	2003-04
148	Kanhar Irrigation	V		240.00	64.02	175.98	0.00	Mirzapur	2006-07
-	Bansagar Dam (UP Share) IS	V		287.85	240.34	47.51	0.00		2006-07
	Bansagar Canal (UP)	1990-92		691.35	203.23	488.12	0.00	Allahabad, Mirzapur	2006-07
	Bansagar Dam (MP Share)	V		70.50	22.16	48.34	0.00		2006-07
149	Madhya Ganga	V	66.01	543.96	672.62	-128.66	172.58	Bullandshahar, Agra, Aligarh, Mathura, Etah, Mainpuri	2002-03
150	Providing Kharif Channels in Hindon Krishi Doab	78-80	15.53	34.56	96.65	-62.09	11.40	Meerut, Muzaffarnagar	2002-03
151	Rajghat Dam	V	123.22	133.08	133.09	-0.01	-	Lalitpur, Jalaun, Jhansi, Hamirpur.	2003-04
	Rajghat Canal(UP)	V	126.43	179.24	287.23	-107.99	97.57	do	2003-04
152	Saryu nahar	V	78.68	1256.00	1173.12	82.88	443.70	Bahraich, Gonda, Basti, Gorakhpur.	2006-07
153	Tehri Dam (Irrigation share)	78-80	197.92	711.14	748.29	-37.15	0.00	17 districts	X plan
UTTARANCHAL									
						0.00			
154	Jamrani Dam	V	61.25	280.00	26.32	253.68	21.00	Nainital, Rampur, Bareilly	X Plan Beyond
155	Kishau Dam	IX		864.00	8.10	855.90	0.00	Dehradun, Tehri	Beyond X Plan
156	Lakhwar Vyasi	V	140.97	576.00	217.49	358.51	0.00	Sharanpur, Muzaffarnagar, Meerut, Ghaziabad.	2006-07
WEST BENGAL									
						0.00			
157	Barrage Irrigation DVC	I		60.00	82.33	-22.33	407.96	Bankura, Hooghly Howrah	N.A.
158	Kangsabati	II	25.26	205.41	307.84	-102.43	398.20	Bankura, Hooghly, Midnapur	2001-02
159	Teesta Barrage St.I Ph.I	V	69.72	1177.00	979.13	197.87	153.19	Jalpaiguri, Malda, Dinapur	2008-09
-	Subernarekha	VIII	215.61	654.00	32.88	621.12	0.00	Midnapur	2009-10
Total			21149.61	98369.84	28391.49	28425.23	8396.72		

- Inter State Project (IS) N.A. - Not Available

* Provisional Figures

Development of Irrigation Potential (cumulative) through Plan periods

Plan	Major/Medium Irrgn.		Minor Irrigation		Total Irrigation		Gross Irrigated Area as per Land Utl. Statistics
	Pot.	Utl.	Pot.	Utl.	Pot.	Utl.	
1	2	3	4	5	6	7	8
Pre-Plan	9.70	9.70	12.90	12.90	22.60	22.60	22.56
First (1951-56)	12.20	10.98	14.06	14.0	26.26	25.04	25.64
Second (1956-61)-GW	14.33	13.05	14.75 *(8.28)	14.75 (8.28)	29.08	27.80	27.98
Third (1961-66)	16.57	15.17	17.00	17.00	33.57	32.17	30.90
Annual (1966-69)	18.10	16.75	19.00 (12.50)	19.00 (12.50)	37.10	35.75	35.48
Fourth (1969-74)	20.70	18.69	23.50 (16.44)	23.50 (16.44)	44.20	42.19	40.28
Fifth (1974-78)	24.72	21.16	27.30 (19.80)	27.30 (19.80)	52.02	48.46	46.08
Annual (1978-80)	26.61	22.64	30.00 (22.00)	30.00 (22.00)	56.61	52.64	49.21
Sixth (1980-85)	27.70	23.57	37.52 (27.82)	35.25 (26.24)	65.22	58.82	54.53
Seventh (1985-90)	29.92	25.47	46.61 (35.62)	43.12 (33.15)	76.53	68.59	61.85
Annual (1990-92)	30.74	26.32	50.35 (38.89)	46.54 (36.25)	81.09	72.86	65.68
Eighth (1992-97) IX Plan (1997-02)	32.96	28.44	53.30	48.80	86.26	77.24	70.64
Anticipated	37.08	31.03	56.90	49.05	93.98	80.80	

* Component of ground water.

Source : Ministry of Water Resources and Reports of Working Groups and Tenth Five Year Plan proposals of various states.

Annexure 8.1.3

(Th. Ha.)

Statewise Position of Potential Creation

Sl. No.	Name of States & UTs	Ultimate Irrgn. Pot. For Major & Medium	Potential created till end of IX Plan	Potential utilised till end of IX Plan	Ultimate Irrgn. Pot. For Minor	Potential created till end of IX Plan	Potential utilised till end of IX Plan
1	2	3	4	5	6	7	8
1	Andhra Pradesh	5000.00	3303.22	3051.59	6260.00	3019.46	2781.22
2	Arunachal Pradesh	0.00	0.00	0.00	168.00	99.52	77.40
3	Assam	970.00	243.92	174.37	1900.00	603.62	494.11
4	Bihar	5223.50	2680.00	1714.83	5663.50	4716.44	3759.46
5	Jarkhand	1276.50	354.47	230.45	1183.50	588.87	471.09
6	Goa	62.00	21.17	15.33	54.00	19.14	20.00
7	Gujarat	3000.00	1430.37	1300.83	3103.00	1998.92	1876.14
8	Haryana	3000.00	2099.49	1849.97	1512.00	1630.95	1578.12
9	Himachal Pradesh	50.00	13.35	7.51	303.00	161.00	138.30
10	Jammu & Kashmir	250.00	179.69	168.75	1108.00	382.45	366.77
11	Karnataka	2500.00	2121.12	1844.82	3474.00	1585.40	1541.74
12	Kerala	1000.00	609.49	558.87	1679.00	640.02	603.76
13	Madhya Pradesh	4853.07	1386.90	875.63	11361.00	2256.13	2149.48
14	Chattisgarh	1146.93	922.50	760.74	571.00	487.70	322.86
15	Maharashtra	4100.00	3239.00	2147.24	4852.00	2942.60	2557.72
16	Manipur	135.00	156.00	111.00	469.00	75.49	62.34
17	Meghalaya	20.00	30.00	16.87	148.00	50.97	47.31
18	Mizoram	0.00	—	—	70.00	16.69	14.08
19	Nagaland	10.00	0.00	0.00	75.00	76.56	65.63
20	Orissa	3600.00	1826.56	1794.17	5203.00	1474.12	1337.55
21	Punjab	3000.00	2542.48	2485.99	2967.00	3427.56	3367.82
22	Rajasthan	2750.00	2482.15	2313.87	2378.00	2447.10	2361.80
23	Sikkim	20.00	—	—	50.00	29.67	23.61
24	Tamil Nadu	1500.00	1549.31	1549.29	4032.00	2123.38	2119.52
25	Tripura	100.00	4.90	4.50	181.00	109.65	96.09
26	Uttar Pradesh	12154.00	7910.09	6334.00	17481.00	21599.40	17279.62
27	Uttranchal	346.00	280.30	185.41	518.00	500.98	400.80
28	West Bengal	2300.00	1683.29	1527.12	4618.00	3792.52	3098.12
	UTs	98.00	6.51	3.94	46.00	43.71	35.41
	Total	58465.00	37076.28	31027.09	81428.00	56902.70	49047.01

Magnitude & Composition of Investment Through Plan Periods in Irrigation and Flood Control Sectors

Plan	Major Medium.	Minor Public	Irrigation Institutional. finance	Total	C.A.D.	Flood Control	Total
First (1951-56)	376.24	65.62	Neg.	65.62	-	13.21	455.07
Second (1956-61)	380	142.23	19.35	161.58	-	48.06	589.64
Third (1961-66)	576	327.73	115.37	443.10	-	82.09	1101.19
Annual (1966-69)	429.81	326.19	234.74	560.93	-	41.96	1032.70
Fourth (1969-74)	1242.30	512.28	661.06	1173.34	-	162.04	2577.68
Fifth (1974-78)	2516.18	630.83	778.76	1409.58	-	298.61	4224.38
Annual (1978-80)	2078.58	501.50	480.40	981.90	362.96*	329.96	3753.40
Sixth (1980-85)	7368.83	1979.26	1437.56	3416.82	743.05	786.85	12315.55
Seventh (1985-90)	11107.29	3118.35	3060.95	6179.30	1447.50	941.58	19675.67
Annual (1990-92)	5459.15	1680.48	1349.59	3030.07	619.45	460.64	9569.31
Eighth (1992-97)	21071.87	6408.36	5331.00	11739.36	2145.92	1691.68	36648.83
IX Plan (1997-2002)	48259.08	8615.07	2659.00	11274.07	1519.17	2629.23	63681.55
Anticipated							
Total	100865.33	24307.9	16127.78	40435.67	6838.05	7485.91	155624.97

Source : Reports of the Working Groups of Tenth Five Year Plan.and Tenth Plan Documents of State Govts

Annexure 8.1.5

(Rs. in Crore/Potential in Th. Ha.)

Plan-wise proliferation of schemes

	Major projects		Medium Projects	
	Taken up	Completed	Taken up	Completed
I Plan (1951-56)	44	5	165	34
II Plan(1956-61)	33	20	102	85
III Plan(1961-66)	32	11	44	61
A.Ps(1966-69)	11	5	27	43
IV Plan(1969-74)	33	15	74	62
V Plan(1974-78)	68	6	303	70
A.P. (1978-80)	11	2	55	18
VI Plan(1980-85)	31	30	89	138
VII Plan(1985-90)	11	14	36	137
A.P. (1990-92)	2	7	-	12
VIII Plan (1992-97)	19	9	72	48
*IX Plan (1997-2002)	13	25	37	45
Total	308	149	1004	753

CHAPTER 8.2

POWER

8.2.1. Power is one of the prime movers of economic development. The level of availability and accessibility of affordable and quality power is also one of the main determinants of the quality of life. The Government has, since Independence, been giving priority to this sector while fixing the Plan outlays. As a result, the installed generation capacity has risen from a mere 1,300 megawatt (MW) at the time of Independence to more than 1,00,000 MW today. Along with the growth in installed generation capacity, there has also been a phenomenal increase in the transmission and distribution (T&D) capacity. However, despite these achievements, the power sector has not kept pace with the growth in demand with the result that the country has always faced energy and peaking shortages.

8.2.2. The state electricity boards (SEBs), have, in the past, played a significant role in the generation and supply of power. But the present financial health of the SEBs is not sound, to say the least. This is mainly due to un-economic tariffs for agriculture, lower slabs of domestic consumption and high T&D losses, which often disguise large-scale theft, and low billing and collection efficiency. This is the main roadblock to attracting the much-needed private investment and, in fact, has been one of the main reasons for the shortfall in capacity addition from private sector projects during the Ninth Plan. The actual capacity addition during the Ninth Plan was 19,015 MW against a target of 40,245 MW. The other major reasons for shortfall in the capacity addition were delay in land acquisition and environmental clearances, unresolved issues in fuel linkages, contractual problems, resettlement and rehabilitation (R&R) problems and law and order problems.

8.2.3. As far as the Tenth Plan is concerned, the Working Group Report on Power has envisaged a capacity addition requirement of 46,939 MW during the Plan period. However, keeping in view the status

of the ongoing, sanctioned and new projects in the pipeline, the Planning Commission assessed that a capacity addition target of the order of 41,110 MW (comprising 18,659 MW from on-going, 9,193 MW from projects cleared by the Central Electricity Authority (CEA) and 13,258 MW from new schemes) would be more realistic.

8.2.4. The Government proposes to enhance public funding for the sector as well as encourage the public sector undertakings (PSUs) to take up projects in joint ventures with private investors and state governments during the Tenth Plan period. As part of these efforts, the Accelerated Generation and Supply Programme (AG&SP) is proposed to be extended during the Tenth Plan to provide funds to critical on-going schemes at subsidised interest rates. There is also a focus on initiating suitable policy measures to accelerate the pace of hydro power development as well as to make nuclear power generation as competitive as power generation from other fuels. The Government is making concerted efforts to channelise adequate investment to ensure the completion of the National Grid by the end of the Eleventh Plan. This would enhance the inter-regional transfer of power and facilitate the optimum utilisation of existing assets.

8.2.5. Power sector reforms were initiated in 1991 to encourage competition in each sub element of the sector, namely, generation, transmission and distribution under an independent and transparent regulatory regime. With this objective in mind a Central Electricity Regulatory Commission (CERC) has already been set up at the national level and State Electricity Regulatory Commissions (SERCs) set up in 19 states, 11 of which have issued tariff orders. Private sector participation has also been set in motion with the enactment of the Electricity Laws (Amendment) Act in 1998. The draft Electricity Bill, 2001 has been introduced in Parliament which will replace the existing three laws relating to

electricity: the Indian Electricity Act, 1910 as amended from time to time; the Electricity (Supply) Act, 1948 as amended from time to time; and the Electricity Regulatory Commission Act, 1998.

8.2.6. The Electricity Bill recognises trading of power as a distinct activity and permits SERCs to allow open access in distribution of electricity in phases that would ultimately encourage efficiency and competition.

8.2.7 These reforms have to be carried forward aggressively to improve the financial health of the SEBs. The issue of one-time settlement of dues payable by SEBs to central power utilities (CPUs) has been addressed by securitising the dues. It is likely to facilitate further reforms in the sector. Reforms in the distribution sector have been identified as the key area of reform. The Accelerated Power Development Programme (APDP) was initiated in 2000-01 in order to give a fillip to the reform process in the power sector. One of the main strategies identified in this regard is the development of distribution plans/projects for all distribution circles as centres of excellence that can be replicated by the states in the later phase of distribution reforms. Sixty-three such circles have been taken up initially under APDP funding, which envisages metering of 11 KiloVolt (KV) feeders, improvement/strengthening of sub-transmission and distribution network, 100 per cent metering, establishment of a management information system (MIS) to improve billing, collection etc.

8.2.8 To ensure better utilisation of funds for reforms, an Accelerated Power Development and Reforms Programme (APDRP) has been formulated by making certain modifications in the APDP scheme. It is aimed at promoting investment for distribution reforms. The funding under APDRP is proposed to be 50 per cent on investment stream and 50 per cent on incentive stream. The focus is to ensure that investment must result in quantifiable physical and financial benefits in the selected circles.

8.2.9. Out of the estimated 80,000 villages yet to be electrified, the Tenth Plan proposes to electrify 62,000 villages through grid supply. The balance 18,000 remote villages are proposed to be electrified

by 2011-12 through the use of decentralised non-conventional sources of energy. In order to facilitate the flow of funds, the rural electrification programme has been included as a component of the Pradhan Mantri Gramodaya Yojana (PMGY) and the states are being encouraged to pool resources from other schemes under the Minimum Need Programme (MNP) and Rural Infrastructure Development Fund (RIDF) to meet the objective of 100 per cent electrification. A new scheme called Accelerated Rural Electrification Programme (AREP), with provision for interest subsidy, is being launched. The participation of decentralised power producers will be encouraged, especially for electrification of remote villages. Village-level organisations like panchayat raj institutions (PRIs), rural cooperatives and non-government organisations (NGOs) will play a crucial role in the rural electrification programme. Community participation is essential for success of the programme.

8.2.10. The restructuring of the existing renewable energy programmes towards gradual commercialisation as initiated during the Ninth Plan would be continued during the Tenth Plan period. In this context, a draft Renewable Energy Policy formulated by the Ministry of Non-Conventional Sources of Energy is under the consideration of the Cabinet.

8.2.11. Private sector investments in renewable energy sources are to be encouraged by promoting a bidding process for available subsidies. The contracts should be awarded to private entrepreneurs who provide the maximum benefit with the lowest amount of subsidies.

POWER SECTOR REFORMS

8.2.12. Apart from envisaging the setting up of the CERC, the Common Minimum Plan formulated at the Chief Minister's conference in December 1996 also accepted the need for rationalisation of tariffs so that subsidised sectors like agriculture would pay at least 50 per cent of the average cost of supply within three years. The establishment of SERCs had been envisaged by the State Power Ministers' conference, also in December 1996.

8.2.13. Besides licensing and setting of performance norms, the CERC was expected to set tariffs for all generation and transmission utilities supplying power across several states. The SERCs were expected to discharge a similar function for state utilities. Most importantly, the regulatory bodies were expected to encourage competition, on a level playing field, in each sub sector, namely generation, transmission, distribution and supply. Such competition under an independent adequate and transparent regulatory regime was expected to yield the desired efficiency gains. Accordingly, the Electricity Regulatory Commissions Act, was passed in July 1998.

8.2.14. Nineteen states — Orissa, Haryana, Andhra Pradesh, Uttar Pradesh, Karnataka, West Bengal, Tamil Nadu, Punjab, Delhi, Gujarat, Madhya Pradesh, Arunachal Pradesh, Maharashtra, Rajasthan, Himachal Pradesh, Assam, Chhatisgarh, Kerala and Uttaranchal — have either constituted or notified the constitution of SERCs. The SERCs of Orissa, Andhra Pradesh, Uttar Pradesh, Maharashtra, Gujarat, Karnataka, Rajasthan, Delhi, Madhya Pradesh, Himachal Pradesh and West Bengal have issued tariff orders.

8.2.15. The Electricity Laws (Amendment) Act was passed in 1998 to enable private participation in the power transmission sector. The Indian Electricity Grid Code (IEGC) was established by the CERC in January 2000 to ensure grid discipline and set

operation and governance parameters for individual players in the T&D sector. Trading of power has been recognised as a distinct activity that would encourage efficiency and competition. The Power Trading Corporation (PTC) was set up to facilitate inter-state trading in power. The Availability Based Tariff order notified by the CERC in January, 2000 is a step towards encouraging greater reliability and efficiency in generation.

8.2.16. Orissa, Haryana, Andhra Pradesh, Uttar Pradesh, Karnataka, Rajasthan, Madhya Pradesh and Delhi have enacted State Electricity Reforms Acts which provide for unbundling/corporatisation of SEBs, setting up of SERCs etc. The SEBs of Orissa, Haryana, Andhra Pradesh, Karnataka, Uttar Pradesh, Delhi and Rajasthan have been unbundled/ corporatised. (Table 8.2.1)

8.2.17. Hundred per cent metering of 11 KV feeders have either been completed or is in the final stages of completion in Goa, Maharashtra, Gujarat, Andhra Pradesh, Karnataka, Tamil Nadu, Kerala, Lakshadweep, Haryana, Himachal Pradesh, Delhi, Uttar Pradesh, Madhya Pradesh, Rajasthan and Punjab. The Ministry of Power has signed memorandums of understanding (MoUs) with 20 states to undertake reforms in a time-bound manner. These MoUs provide for time-bound metering in two phases i.e. (i) metering of 11 KV feeders and (ii) all consumers. Monitoring is being done to ensure that the agreed milestones are achieved.

Table 8.2.1
Progress Along with Reform Path by States leading the Process

State/ Reform Path	Orissa	Haryana	Uttar Pradesh	Andhra Pradesh	Karnataka	Rajasthan	Delhi
Date of instituting Reform Act	April 1996	March 1998	September 1998	October 1998	June 1999	June 2000	March 2001
Regulatory Commission Established	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Utility Unbundled	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Separate Distribution companies established.	Yes	Yes	No	Yes	No	Yes	Yes
Distribution Privatised	Yes	No	No	No	No	No	Yes

8.2.18. Measures initiated for reducing T&D losses have largely been unsatisfactory with only six states (Andhra Pradesh, Haryana, Rajasthan, Karnataka, Orissa and Uttar Pradesh) taking steps in the direction. None of the states, (except Haryana to some extent) have initiated any measures towards 100 per cent metering, billing and collection. Energy audit is also pending.

8.2.19. A Conference of Chief Ministers and Power Ministers was held on 3 March 2001 to discuss the challenges confronting the power sector. There was general consensus on the urgent need to depoliticise power sector reforms and speed up their implementation. The resolutions adopted in the meeting are in Annexure-8.2.1.

8.2.20. In addition to reforms in the sector, the Tenth Plan priorities include the achievement of a more optimal primary energy mix for the country. Hence the Tenth Plan proposes to raise the share of power sector investment in hydro, nuclear and renewable energy resources from the Ninth Plan levels.

Electricity Bill, 2001

8.2.21. The main features of the Electricity Bill, 2001 are:

- The central government is to prepare a National Electricity Policy in consultation with state governments.
- Thermal generation is to be delicensed and captive generation permitted freely. Hydro projects would, however, need the approval of the state governments and clearance from the CEA.
- The regulatory commissions may also permit open access to the distribution network in phases to promote competition and efficiency.
- Trading is recognised as a distinct activity. The regulatory commissions are authorised to fix ceilings on trading margins, if necessary.

- Provision for payment of subsidy through budget.
- Consumer tariff should progressively reduce cross subsidies and move towards actual cost of supply.
- Thrust towards 100 per cent rural electrification, with provisions for the management of rural distribution by panchayats, cooperative societies, NGOs, franchisees, etc.
- Provision for generation and distribution in the rural areas without licences.
- Non-conventional energy sources and stand alone systems to be freely permitted.
- SEBs to be corporatised within one year and unbundled into one or more companies through a statutory transfer of assets, liabilities and staff. However, the state governments would have the flexibility to continue with the SEBs through a notification.
- Metering to be made mandatory and 100 per cent metering of all supply is to be done within two years. Where necessary, the concerned regulatory commission may give additional time for completing the task of metering.
- Constituting of SERCs is a mandatory requirement.
- An appellate tribunal to hear appeals against the decision of the CERC and SERCs.
- Provisions relating to theft of electricity have been made more stringent.

REVIEW OF THE NINTH PLAN

Power Generation

8.2.22. The gross energy generation from power utilities at the beginning of the Ninth Plan

Table 8.2.2
Additions to Installed Capacity during the Ninth Plan

Ninth Plan (1997-2002)								
Type	Target				Achievement (MW)			
	Central Sector	State Sector	Private Sector	Total	Central Sector	State Sector	Private Sector	Total
Hydro	3,455	5,815	550	9,820	540	3,912	86	4,538
Thermal	7,574	4,933	17,038	29,545	3,084	5,538	4,975	13,597
Nuclear	880	-	-	880	880	-	-	880
Total	11,909	10,748	17,588	40,245	4,504	9,450	5,061	19,015

was 394.5 billion units (BU). The Ninth Plan envisaged a gross energy generation target of 606.7 BU for the utilities in the terminal year of the Ninth Plan (2001-02). As against this, the actual energy generation has been 515.3 BU. This works out to a compound annual growth rate (CAGR) of about 5.5 per cent during the Ninth Plan period. The shortfall of 91.4 BU in 2001-02 is mainly due to the shortfall in generation capacity addition and hydro generation due to inadequate rainfall in the catchment areas of hydro power stations.

Capacity Addition

8.2.23. The all-India installed generating capacity of utilities at the beginning of the Ninth Plan was 84,893 MW (excluding wind capacity of 902 MW). This included 21,568 MW of hydro, 61,012 MW of thermal and 2,225 MW of nuclear power. The Ninth Plan programme envisaged a capacity addition of 40,245 MW. As against this, the actual capacity addition was 19,015 MW during the Ninth Plan (Table 8.2.2).

8.2.24. The capacity addition of 19,015 MW during the Ninth Plan represents 47 per cent of the targeted addition. In contrast, capacity addition during the Eighth Plan was 54 per cent of the target (16,422 MW against the target of 30,538 MW). The sector-wise shortfalls during the Ninth Plan were : central sector 62.2 per cent, state sector 12.1 per cent and private sector 71.2 per cent. The achievement of 19,015 MW represents an addition of 3,803 MW per annum, compared to the target of 8,049 MW per annum.

8.2.25. The main reasons for the shortfall in capacity addition are: inability to get private sector projects off the ground in the absence of adequate arrangements for ensuring payment security, delay in land acquisition and environmental clearances, unresolved issues relating to fuel linkages, contractual problems, resettlement and rehabilitation problems and law and order problems.

8.2.26. The cumulative capacity at the end of the Ninth Plan in March 2002 was 1,04,917.50 MW, including 1,507.5 MW wind energy (Table- 8.2.3).

Table – 8.2.3
All India Cumulative Capacity Addition

(MW)

	HYDRO	THERMAL	NUCLEAR	TOTAL
Centre	3,049.00	25,836.51	2,720.00	31,605.51
State/UTs	22,636.02	39,546.59	0.00	62,182.61
Private	576.20	9,045.72	0.00	9,621.92
TOTAL	26,261.22	74,428.82	2,720.00	1,03,410.04*

* excludes the capacity of 1,507.46 MW from wind (State-62.86 MW; Private-1,444.60 MW)

Performance of Thermal Power Plants

8.2.27. The performance of the country's thermal power plants registered an overall improvement during the Ninth Plan. The all-India average Plant Load Factor (PLF) of the thermal power plants was 64.4 per cent at the beginning of the Ninth Plan and had increased to at 69.9 per cent by the end of the Plan period. This is mainly due to a reduction in the weighted average of the generating stations, improvement in the design of the new units and better plant maintenance practices. The year-wise actual achievement of PLF during the Ninth Plan period is given in Table-8.2.4 :

Table – 8.2.4
All-India Sector-Wise Thermal PLF (per cent)

Year	State	Central	Private	All India
1997-1998	60.9	70.4	71.2	64.7
1998-1999	60.8	71.1	68.3	64.6
1999-2000	64.3	72.5	68.9	67.3
2000-2001	65.6	74.3	73.1	69.0
2001-2002	67.0	74.3	74.7	69.9

Power Supply Position

8.2.28. At the beginning of the Ninth Plan, it was estimated that the energy and peak deficits were 11.5 per cent and 18 per cent respectively. However, at the end of the Plan period, despite achieving only 47 per cent of the envisaged capacity addition, the energy and peak deficits were restricted to 7.5 per cent and 12.6 per cent respectively. This is mainly due to a marked improvement in PLF of the thermal plants and a lower than projected growth in demand during the Ninth Plan.

Central Share in Total Installed Generation Capacity

8.2.29. The central sector undertakings viz. the National Thermal Power Corporation (NTPC), the National Hydro Electric Power Corporation (NHPC), Nuclear Power Corporation India Ltd. (NPCIL) and North Eastern Electric Power Corporation (NEEPCO), continue to play an important role in

adding new generation capacities in different parts of the country. The central sector share in the total installed generation capacity increased from 25.6 per cent at the end of the Seventh Plan to 31.52 per cent at the end of the Eighth Plan and stood at 30.1 per cent at the end of the Ninth Plan due to shortfalls in capacity addition.

Renovation, Modernisation and Life Extension

8.2.30. Since 1984, renovation & modernisation (R&M) has been considered the most cost-effective option to maximise generation from the existing capacity. Phase-I of the R&M programme, taken up in September 1984 for execution during the Seventh Plan, covered 163 thermal units with a total capacity of 13,570 MW at 34 selected power stations. The programme was successfully completed in 1991-92 at a total cost of Rs.1,066 crore. An average additional generation of 10,000 million units (MU)/year was achieved as against the targeted benefits of 7000 MU/year after completion of the programme.

8.2.31. Encouraged with the results of Phase-I of the R&M programme, Phase-II was taken up in 1990-91 for 44 thermal power stations comprising 198 units with a total capacity of 20,870 MW. The programme was estimated to cost Rs. 2,383 crore and was scheduled to be completed during the Eighth Plan. An additional generation of 7,864 MU/year was expected on completion of the programme. However, many utilities could not implement their R&M schemes on schedule due to the non-availability of funds. As a result, by the end of the Eighth Plan, only around 50 per cent of the works could be completed, yielding an additional generation of 5,000 MU/year. The remaining R&M activities under Phase II, were taken up during the Ninth Plan period. The works for 153 thermal units are at various stages of completion.

8.2.32. By the end of the Ninth Plan, Life Extension Work on 28 units (with a total of 1,981 MW) is likely to be completed. The life of the units covered by the programme is likely to be extended by 12-15 years.

8.2.33. The R&M and Life Extension Programmes face various constraints. These include:

- Non-availability of timely and adequate funds due to poor financial health of most SEBs/utilities.
- Delay in obtaining loans from the Power Finance Corporation (PFC) due to non-fulfilment of loan conditionalities.
- Procedural delays in the formulation of schemes and finalisation of orders by SEBs/utilities.
- Reluctance on the part of the SEBs to undertake renovation and modernisation since this leads to the units going out of the system temporarily, thereby lowering generation.

R&M and Upgrading of Hydro Power Stations

8.2.34. In the Ninth Plan, 36 hydro schemes (23 under Phase-I and 13 under Phase II), with an aggregate installed capacity of 9,001 MW, were identified for Renovation, Modernisation and Upgrading (RM&U) work at an estimated cost of Rs. 917.30 crore. The RM&U programme was estimated to add 1,609 MW of capacity and enhance generation by 4,987 MU.

8.2.35. Of these 36 schemes, RM&U work has so far been completed on 18 hydro schemes with an aggregate installed capacity of 4,860 MW at

an estimated cost of Rs. 554 crore and benefits expected to accrue are to the tune of 1,123 MW/3,350 MU. Of the remaining 18 RM&U schemes, five, with an aggregate installed capacity of 369 MW, have been declared 'closed' and work on four, with an aggregate installed capacity of 380 MW, is yet to commence. The balance nine schemes, with an aggregate installed capacity of 3,392 MW, are under various stages of implementation,

8.2.36 The status of hydro RM&U schemes as on 30 June 2001, is given in Table 8.2.5:

Transmission and Distribution Facilities

8.2.37. The major portion of the 400 KV transmission network planned to be set up during the Ninth Plan was in the central sector, while that of the 220 KV network was in the state sector. Most of the targeted additions under the transmission programme are likely to be achieved during the Ninth Plan. Capacity addition was adequate as neither the targeted generation nor the projected demand was realised. The details of the targets and achievements during the Ninth Plan in respect of major transmission projects are given in Table –8.2.6:

8.2.38. By the end of Ninth Plan, the country is likely to have 52,482 ckm of 400 KV lines and 99,178 ckm of 220 KV lines.

Table 8.2.5
Status of Renovation, Modernisation & Upgrading of Hydro Schemes

Details of schemes	Nos.	Installed capacity(MW)	Estimated cost Rs. Crore.	Expected Benefits MW	MU
Phase-I					
Programmed	23	5,863.75	647.03	1,472.63	3,890.06
Completed	14	4,269.00	422.43	1,069.48	2,565.46
Phase-II					
Programmed	13	3,137.60	270.27	136.10	1,096.50
Completed	4	591.40	131.43	53.90	784.50
Phase I & II					
Programmed	36	9,001.35	917.30	1,608.73	4,986.56
Completed	18	4,860.40	553.86	1,123.38	3,349.96

Table 8.2.6
Targets and Achievements in Major Transmission Lines During the Ninth Plan

Sector	400 KV (ckm) Target based on annual Achievement programmes		220 KV (ckm) Target Based on annual Achievement programmes	
Central	5,799	6,344	2,280	2,123
State	7,076	6,892	16,605	15,270
Total	12,875	13,236	18,885	17,393

ckm=circuit km

Transmission and Distribution (T & D) Losses

8.2.39. T&D losses continued to remain high during the Ninth Plan. The reported all-India average T&D losses increased from 19.8 per cent in 1992-93 to 26.45 per cent in 1998-99 and is anticipated to increase to 27.8 per cent by the end of the Ninth Plan. There is a wide variation in losses reported by different states for 2000-01 (RE), ranging from 17 per cent to 56 per cent. Based on the experience of a few states that have unbundled their utilities, actual T&D losses for the country as a whole are estimated to be in the 35-45 per cent range. The high T&D losses are attributed to:-

- Weak and inadequate sub-transmission and distribution systems due to haphazard growth of demand to meet the short-term objective of extension of power supply to new areas.
- Long transmission and distribution lines.
- Inappropriate size of conductors.
- Improper load management, resulting in overloading of systems.
- Pilferage and theft of energy.
- Unmetered supply.
- Financial constraints to undertake system improvement schemes.

8.2.40. In order to reduce T&D losses, it is necessary that various electricity supply

organisations take up system studies and carry out energy audits for identification of the causes of excessive losses. Based on these studies, system improvement projects should be formulated for strengthening and revamping the distribution system, improving the MIS and addressing issues of governance.

Transmission and Distribution Losses

- The current level of T&D losses is very high. Although the all-India T&D loss is reported to be about 28 per cent, actual loss levels are estimated to be in the range of 35-45 per cent. Further, losses in some states are much higher than in others. Losses in Delhi and Jammu & Kashmir were as high as 47 per cent and 56 per cent respectively in 2000-01.
- While part of the T&D losses are due to technical deficiencies in the system and the extensive low voltage distribution network in rural areas, a large portion of the loss is attributed to theft and pilferage compounded by connivance on the part of line personnel.
- There are a large number of unmetered connections particularly in the agriculture sector. Even if supply of electricity to agriculture is to be subsidised, it should be metered so that proper accounting can be maintained.
- Indiscriminate grid extension despite low load densities (as measured by demand in MW divided by the length of the T&D system) has resulted in a high ratio of low tension (LT) to high tension (HT) lines. This has also led to a large amount of pilferage.
- There is a need to introduce energy audits to help generate reliable data for analyses in a systematic and meaningful manner.

Accelerated Generation and Supply Programme Scheme

8.2.41. The Accelerated Generation and Supply Programme (AG&SP) was launched in 1997-98

initially for one year and was later extended up to the end of Ninth Plan. The scheme covers the following activities:

1. R&M and life extension/rehabilitation.
2. Ongoing generation projects.
3. Missing transmission links and system improvement.
4. Grant for studies.

8.2.42. The Ministry of Power provides a grant from its budget to fund an interest subsidy of 4 per cent on normal lending rates of the PFC to SEBs/State Generation Corporations (SGCs). R&M schemes costing less than Rs. 100 crores are currently also being financed under APDP. It is proposed that in the Tenth Plan, all R&M schemes would be financed under AG&SP only and no financing would be made through APDP.

Programme for Central Assistance under APDP

8.2.43 Projects relating to the following areas are financed under the APDP, which was initiated in 2000-01 in order to give a fillip to power sector reforms:

- i) R&M/life extension/uprating of old power plants (thermal and hydel).
- ii) Upgradation of the sub-transmission and distribution network (below 33 KV or 66 KV) including energy accounting and metering.

8.2.44. One of the main strategies identified for distribution reforms is the development of distribution plans/projects for all distribution circles. Sixty-three such circles have been identified initially in which 11 KV feeders will be taken as profit centres. Improvement/strengthening of the sub-transmission and distribution network, 100 per cent metering, establishing of an MIS to improve billing, collection etc. will be taken up in the selected circles. It has been decided to utilise APDP funds to develop the selected circles as centres of excellence that can be replicated by the states in the later phase of distribution reforms.

8.2.45. Funds under APDP are released to state governments as additional Central Plan by the Ministry of Finance under advice from the Ministry of Power. The funding modality (a combination of grants and loans) is given in the Table – 8.2.7 :

Table – 8.2.7
Funding pattern under APDP schemes

S. No.	Category of states	% of projects/ scheme cost from APDP as		% of projects/ scheme Cost from PFC/ REC/Own/ Other Sources
		Grant	Loan	
1	Special category states	90	10	-
2	Non-special category states	25	25	50

8.2.46. An amount of Rs.1,000 crore and Rs.1,500 crore were provided under APDP during 2000-01 and 2001-02 respectively. An amount of Rs. 3,500 crore has been provided for the Annual Plan 2002-03, which is the first year of the Tenth Plan.

8.2.47. There is a need to restructure the concept of APDP from being merely an investment window to a mechanism for supporting power sector reforms in the states, linked to the fulfilment of certain performance criteria by way of benchmarks. This is necessary to reduce the burden of transition and to ensure that the reform is sustainable and irreversible. The existing APDP may be revised to provide enhanced investment to cover all the distribution circles during the Tenth Plan and also provide for transition finance based on the financial performance of SEBs/utilities. However, the funding and financing pattern for investment in distribution will be the same as APDP. Transition finance may be based on actual cash loss reductions effected by the SEBs/utilities, net of tariff increases given by the regulator, additional purchase of power and increase in fuel costs. In order to avail of transition assistance, states may have to conform to minimum eligibility conditions:

- The state should have set up a SERC.
- The SEB/utility should have filed its first tariff petition before the SERC.
- The SEB/utility should have achieved a minimum prescribed percentage reduction in cash losses compared to the previous year.

8.2.48. The modified APDP could be named as Accelerated Power Development and Reform Programme (APDRP).

Financial performance of the SEBs

8.2.49 The financial health of the SEBs has deteriorated over the years mainly due to higher level of technical and commercial losses and

Table –8.2.8.
Financial Performance of the State Power Sector

(Rs. Crore)

	1991-92	2000-01 (Prov.)	2001-02(AP)	2001-02 (RE)	2002-03 (AP)
A.					
(i) Subsidy involved on account of sale of electricity to					
(a) Agriculture	5,938.00	24,074.13	29,461	25,571.10	26,959.30
(b) Domestic	1,310.00	9,968.04	11,267	10,894.14	11,651.01
(c) Inter-state sales	201.00	385.51	510	247.36	225.89
Gross subsidy	7,449.00	34,427.68	41,238	36,712.59	38,836.20
(ii) Subventions received from state governments.	2,045.00	8,820.33	8,370	10,099.16	7,980.84
(iii) Net subsidy	5,404.00	25,607.35	32,868	26,613.43	30,855.36
(iv) Surplus generated by sale to other sectors	2,173.00	3,434.93	5,526	3,614.88	7,499.00
(v) Uncovered subsidy	3,231.00	22,172.42	27,342	22,998.56	23,356.37
B. @ Commercial losses	4,117.00	25,394.89	28,445	27,306.44	24,320.99
Commercial losses (net of state subvention)		16,574.56		17,207.28	16,340.15
C. Revenue Mobilisation					
(i) Rate of Return (ROR) #	-12.70	-41.82	-38.20	-39.48	-32.08
(ii) Additional revenue mobilisation from achieving					
(a) 3 per cent ROR	4,959.00	27,216.62	30,280	29,403.65	26,226.42
(b) From introducing 50 paise/ unit from agriculture/irrigation	2,176.00	1,637.83	1,840	1,350.44	1,329.71

RE : Revised Estimates, **AP** : Annual Plan Projections,

In percent

@ Commercial losses are different from uncovered subsidy because they include financial results of other activities undertaken by the SEBs.

Note:-

- (i) The information relating to the subsidy for agriculture, domestic and inter-state sales for 1999-2000, 2000-01 and 2001-02 in respect of Orissa is not available, as the distribution is now with private companies. The information regarding commercial losses pertains to GRIDCO only.
- (ii) Information in case of Andhra Pradesh, Haryana, Rajasthan, Uttar Pradesh and Karnataka relates to T&D companies set up after the reforms. In the case of other states, the information pertains to SEBs.
- (iii) The estimates do not include information relating to Uttaranchal as these have not been furnished by the state.

subsidised sale of electricity to agricultural and domestic consumers. Table 8.2.8 gives the financial performance of the state power sector. The net subsidy of Rs. 5,404 crore on agriculture and domestic sectors in 1991-92 was 46 per cent of Central Plan assistance flowing to states/Union Territories in that year. The same has increased substantially to Rs. 25,607 crore in 2000-01 and is likely to be 69 per cent of the funds flowing from Central Plan assistance. Further, the subsidy on account of the sale of electricity to the agricultural sector has come down from Rs. 29,461 crore in 2001-02 annual plan (AP) and is expected to come down to Rs. 26,959.30 crore for 2002-03 (AP). This may be partly due to the reform and restructuring process initiated by some of the states.

8.2.50. The March 2001 conference of Chief Ministers/Power Ministers noted that the large amount of dues owed by the SEBs to central public sector undertakings (CPSUs) was a major impediment to power sector reforms. The conference resolved that an expert group should be set up to recommend a one time settlement of the past dues of SEBs to CPSUs and dues of the SEBs from CPSUs. The outstanding dues payable by SEBs to CPSUs as on September, 2001 was Rs. 41,852.63 crore including interest liability of about Rs. 16,000 crore.

8.2.51 The recommendations of the expert group headed by Shri. Montek Singh Ahluwalia for securitisation of dues through the issue of tax-free bonds by the respective state governments have been accepted by the Government with certain modifications. Under the arrangement, 60 per cent of the surcharge would be waived while securitising the dues. But the SEBs would have to pay the current dues in future, failing which certain steps like graded reduction in the supply of power from central power stations and in coal supplies would be taken. The SEBs should accept reform-based performance milestones such as setting up of

SERCs, metering of distribution feeders and improvement in revenue realisation. The milestones should be specified in the MoU to be signed with the Ministry of Power.

Plan expenditure during the Ninth Plan

8.2.52. An analysis of the Plan expenditure on the basis of actuals for 1997-98, 1998-99 and 1999-2000 (for central/state and Union Territories) and the actual/RE (2000-01) for central/state and revised estimates for 2001-02 for the central and state sector reveal the following:

Central Sector

8.2.53. The actual expenditure on power by the Central sector during the first four years of the Ninth Plan (1997-2001) and approved provision for 2001-02 accounted only for 83.30 per cent of the approved Ninth Plan outlay at current prices. Similarly, at constant prices, it accounts for only 69.4 per cent of the Plan outlay. The estimated domestic budgetary support (gross budgetary support minus external aid) during the Ninth Plan was Rs.14,381 crore which works out to about 98 per cent (at current price) of the approved amount of Rs. 14,380 crore. At constant prices, it works out to Rs.11,662 crore, at 81 per cent of the approved provision. The major shortfall in the central sector was due to the non-mobilisation of resources through internal resources and bonds and because four gas-based extension projects of the NTPC were not taken up.

State Sector

8.2.54. The Plan expenditure for the state sector during the first three years of the Ninth Plan was 53.4 per cent of outlay at current prices. The major shortfalls were in the states of Assam, Bihar, Haryana, Meghalaya, Orissa and Uttar Pradesh. The areas most affected by the shortfalls were transmission and distribution.

SUCCESS STORIES OF THE POWER SECTOR

- The Plant Load Factor (PLF) of thermal stations improved from 63.0 per cent at the beginning of the Ninth Plan to 69.90 per cent at the end of the Plan period. The PLF of the nuclear power stations improved from 55.90 per cent to 79.4 per cent over the same period.
- Thirteen States have constituted and operationalised State Electricity Regulatory Commissions (SERC) while six others have notified the constitution of the SERCs.
- The SERCs of Orissa, Andhra Pradesh, Uttar Pradesh, Maharashtra, Gujarat, Karnataka, Rajasthan, Delhi, Madhya Pradesh, Himachal Pradesh and West Bengal have issued tariff orders.
- Seven States have unbundled/corporatised their SEBs into separate companies for generation, transmission and distribution. Of these, Orissa and Delhi have privatised distribution.
- A three-stage clearance procedure has been introduced for central sector hydro electric projects to minimise time and cost overruns.
- The Accelerated Generation and Supply Programme (AG&SP) initiated during Ninth Plan provided incentives in the form of interest subsidy to SEBs/states and central power utilities. This has helped in carrying out power development activities particularly in the state sector. The capacity addition in the state sector achieved was around 88 per cent of the target, in which the contribution of AG&SP was around 55 per cent. The scheme has also given boost to the renovation and modernisation (R&M) programme during the Ninth Plan period. The additional generation due to the incentives given through AG&SP is estimated to be about 10,000 MU/annum.
- The Accelerated Power Development Programme (APDP) scheme was initiated in 2000-01 with the objective of giving a fillip

to reforms in the distribution segment. The scheme is now proposed to be modified as the Accelerated Power Development and Reform Programme (APDRP), which is a critical investment for providing distribution reforms. Under the modified scheme, there would be an element of incentive linked to achievement of certain reform-based parameters besides provision for investment in the distribution sector.

- In order to liquidate the outstanding dues of CPSUs, a mechanism was evolved for one time settlement of these dues payable by states.
- In the programme of electrification of remote villages, there has been success in electrifying the Sagar Island situated in the Sundarban region of West Bengal through solar energy. About 1,400 families on this island are benefited from the community and individual solar photovoltaic systems. The community is totally involved in the operation and revenue collection in this programme.

APPROACH TO THE TENTH PLAN

Capacity Additions Required During the Tenth Plan

8.2.55. According to the Sixteenth Electric Power Survey (EPS), the electricity requirement at the busbar (utilities only) in 2006-07 will be as follows (Table-8.2.9):

Table No.- 8.2.9
Demand for power in 2006-07 as per Sixteenth EPS

Region	Energy Requirement (MKWh)	Peak Load (MW)
Northern	2,20,820	35,540
Western	2,24,927	35,223
Southern	1,94,102	31,017
Eastern	69,467	11,990
North-Eastern	9,501	1,875
Andaman & Nicobar Isl.	236	49
Lakshadweep	44	11
All India	7,19,097	1,15,705

Table - 8.2.10
Benefits from Sanctioned/CEA-Cleared and New Schemes During the Tenth Plan (MW)

Source	Ongoing/ sanctioned schemes	CEA- cleared schemes	New schemes	Total
Hydro	9,184	3,962	1,247	14,393
Thermal	8,175	5,231	12,011	25,417
Nuclear	1,300	-	-	1,300
Total	18,659	9,193	13,258	41,110

Table - 8.2.10 A
**Sector-wise *vis-a-vis* Mode-wise Capacity Addition
During the Tenth Plan (MW)**

Source	Central	State	Private	Total
Hydro	8,742	4,481	1,170	14,393
Thermal	12,790	6,676	5,951	25,417
Nuclear	1,300	-	-	1,300
Total	22,832	11,157	7,121	41,110

8.2.56. The Tenth Plan Working Group Report on Power has envisaged a capacity addition requirement of 46,939 MW during the Plan period, with 24,405 MW coming from the central sector, 12,033 MW from the state sector and 10,501 MW from the private sector.

8.2.57. However, keeping in view the status of the ongoing, sanctioned and new projects in the pipeline, the Planning Commission felt that a target capacity addition of 41,110 MW — 18,659 MW from ongoing projects, 9,193 MW from projects cleared by the CEA and 13,258 MW from new schemes — would be more realistic. Even under this lower estimate for capacity addition, only 27,852 MW appears to be firmed up so far. Vigorous and urgent steps have to be taken for the balance capacity addition programme. A summary on the feasible capacity addition of 41,110 MW is given in Table 8.2.10:

8.2.58. Out of the total addition of 41,110 MW envisaged for the Tenth Plan period, 22,832 MW (55.6 per cent) is accounted for by the central sector and 11,157 MW (27.1 per cent) is accounted for by the state sector. The balance of 7,121 MW (17.3 per cent) is expected to be

added by the private sector (Table 8.2.10 A). Thus, the public sector will continue to play a dominant role during the Tenth Plan while progress along the reform path helps clear the roadblock for greater private participation in the medium to long term.

8.2.59. A major portion of this incremental capacity can materialise only during the later years of the Tenth Plan. This implies the likelihood of power shortages increasing beyond current levels during the first three years of the Tenth Plan. To overcome this, at least partially, it is imperative that all-out efforts are made to take up R&M work at existing plants aggressively and operate the power system efficiently.

8.2.60. The capacity addition will be contingent upon fuel linkages being firmed up and early start of work on new projects. For the new projects, particularly in the central sector, it is essential to simplify and streamline procedures for input linkages/techno-economic clearance/investment clearance. Based on this, the cumulative generation capacity in the country by the end of 2006-07 will be as follows (Table 8.2.11):

Table-8.2.11
Generating Capacity Anticipated at the End of the Tenth Plan (in MW)

	Hydro	Thermal	Nuclear	Total
Installed Capacity as on 31.3.2002	26,261.22	74,428.82	2,720.00	1,03,410.04*
Addition During Tenth Plan	14,393.20	25,416.64	1300.00	41,109.84
Total Capacity on 31.3.2007	40,654.42	99,845.46	4,020.00	1,44,519.88

* excludes the capacity of 1,507.46 MW from wind

Power Supply Position

8.2.61 The energy and peaking shortages at the end of the Ninth Plan are 7.5 per cent and 12.6 per cent respectively. The Working Group on Power estimated that if capacity addition targets are met, the energy and peaking shortages would be 11.6 per cent and 9.5 per cent respectively by the end of the Tenth Plan. Lower capacity addition targets proposed above will raise these projected deficits unless there are significant improvements in management and plant operations.

Hydro Power Development

8.2.62. The share of hydel capacity in the total generating capacity of the country has declined from 34 per cent at the end of the Sixth Plan to 25 per cent at the end of the Ninth Plan. The share is likely to decline even further unless suitable corrective measures are initiated immediately. Hydel power projects, with storage facilities provide peak time support to the power system. Inadequate hydel support in some regions is adversely affecting the performance of the thermal power plants. In the western and eastern regions, peaking power is being provided by thermal plants. This is a costly and inefficient use of thermal capacity. It is proposed to add 14,393 MW capacity from hydro in the total capacity addition of 41,110 MW during the Tenth Plan period.

8.2.63. Geological uncertainty, contract management, resettlement & rehabilitation, delay in land acquisition and infrastructure development have been the main reasons for time and cost overruns in hydro projects. In order to avoid delays in project implementation, the following steps need

to be taken before the zero date of the project implementation.

1. Bankable detailed project report (DPR), based on a detailed survey, should be prepared to avoid geological uncertainty.
2. Contract monitoring, as distinct from project monitoring, should be emphasised.
3. Land acquisition and infrastructure development should be settled and completed before the start of the project.

8.2.64. Further, the following steps need to be taken in order to accelerate the pace of hydro development:

- Although the preliminary ranking study of the remaining hydro potential sites of all the basins in the country has been completed by the CEA, detailed ranking study and preparation of detailed feasibility report based on economic viability needs to be done.
- Adopt a national rehabilitation policy (supported by appropriate legislative changes and the apex court directives) and implement the policy uniformly.
- Streamline clearances for pursuing priority projects.
- Simplify approval procedures.
- Facilitate the early financial closure of projects through a concerted approach

(comprising centre, states, Indian financial institutions, private sector promoters) towards multilateral agencies and other international funding sources.

Nuclear Power

8.2.65. Atomic energy is an important source of electric power which has environmental advantages and is also likely to be economical in the longer run. At present, nuclear energy accounts for only 2.4 per cent of total primary energy consumption, against the global average of 13 per cent. This is far too low.

8.2.66. Nuclear power plants have shown progressive improvement in generating performance. The PLF of NPCIL stations has increased from 60 per cent in 1995-96 to 82 per cent in 2000-01. During the Ninth Plan, NPCIL completed the refurbishment and upgradation of Rajasthan Atomic Power Station (RAPS)-2 (200MWe), and commissioned Kaiga 1 & 2 (2x220MWe) and RAPS 3 and 4 (2x220 MWe). It is proposed to add 1,300 MWe of new capacity during the Tenth Plan period and 5,915 MWe during the Eleventh Plan so as to achieve about 10,000 MWe by 2011-12. The NPCIL has demonstrated the capability of setting up and operating nuclear energy power plants with high levels of technical efficiency and safety. It is desirable to plan for a significant expansion in nuclear power generation capacity. An expanded programme would also make it possible to reduce the costs of construction.

8.2.67. In the context of moderate uranium and vast thorium resources in India, a three-stage nuclear power programme is envisaged. This programme consists of setting up of Pressurised Heavy Water Reactors (PHWRs) in the first stage, Fast Breeder Reactors (FBRs) in the second stage and reactors based on the Uranium 233-Thorium 232 cycle in the third stage. It is also envisaged that in the first stage of the programme, capacity addition will be supplemented by electricity generation through Light Water Reactors (LWRs) initially through imports of technology with the long-term objective of indigenisation. PHWR technology was selected for the first stage, as these reactors

are efficient users of natural uranium for yielding plutonium fuel required for the second stage FBR programme. The FBRs will be fuelled by plutonium and will also recycle uranium for breeding more plutonium fuel for electricity generation. Thorium as blanket material in FBRs will produce Uranium 233 to start the third stage. An Advanced Heavy Water Reactor (AHWRs) is being developed by the Bhabha Atomic Research Centre (BARC), Mumbai, for demonstration of technology to utilise thorium for electricity generation. AHWR will be a forerunner of reactors to be set up under the third stage of the nuclear power programme.

8.2.68. The first stage programme of PHWR has progressed well and the technology has reached a state of maturity. A beginning has been made in the introduction of LWRs with the inter-governmental agreement between India and the Russian Federation for co-operation in setting up of 2x1,000 MWe LWRs at Kudankulam, Tamil Nadu. A 40 MWe Fast Breeder Test Reactor (FBTR) has been set up at Kalpakkam to gain experience in the technology. This has been followed by progress in the development of technology for the first Prototype Fast Breeder Reactor (PFBR) of 500 MWe capacity, which has reached an advanced stage. Pre-project activities for commencing construction of the PFBR are in progress as is research and development on the utilisation of thorium.

8.2.69. Aggressive nuclear power development is essential in the context of energy security, environmental advantages and changing perceptions about nuclear power in developed countries such as the United States and the United Kingdom. Improvements in nuclear technology are likely to make nuclear power more economical and total life cycle costs more competitive in comparison to other fuels. Therefore, India needs to:

- Aggressively build capabilities and capacity in nuclear power to progressively raise its share in India's fuel mix.
- Actively promote research and development on FBRs and thorium-based technologies.

- The reactor/dome in nuclear power plant facilities is highly technical and sensitive. This should be implemented by NPCIL/ Department of Atomic Energy. Other components of nuclear power plant area like turbo generator (TG) facilities etc. should be permitted for private sector participation. The Department of Atomic Energy should decide on the components of the nuclear power plant which could be entrusted to the private sector.
- Encourage innovative financing mechanisms (infrastructure debt from financial institutions/banks, supplier credit/ equity, long term bonds, private sector equity in non-nuclear island).
- Measure NPCIL's investment and operational performance against international benchmarks.

Private Sector

8.2.70. The initial response of domestic and foreign investors to the policy of private participation in the power sector had been encouraging. However, many projects have encountered unforeseen delays in the finalisation of power purchase agreements, guarantees and counter-guarantees, environmental clearances, matching transmission networks and legally enforceable contracts for fuel supplies. One of the most important impediments to private participation was the bankruptcy of the monopoly purchaser – the SEBs. That necessitated complex payment security mechanisms for achieving financial closure. Further, the high tariff of power from some of the commissioned independent power projects (IPPs) due to factors such as high cost of liquid fuels, risk factors involved and unrealistic forecast for future growth of demand etc. have prevented full utilisation of available capacities. With the power sector reforms already set in motion, these problems are expected to be sorted out in due course.

8.2.71. The status of private power projects as on 1 February 2002 is as follows:-

DESCRIPTION	NUMBER	CAPACITY (MW)
Projects techno-economically cleared by CEA	58	29,614.50
Private power projects fully commissioned	15	4,427
Private power projects under Construction	7	3,432

8.2.72. In addition, 18 private projects not requiring techno-economic clearance of the CEA, with a total capacity of about 2,340 MW, have been commissioned and two projects with total capacity of 36 MW are under construction.

Private Sector participation

The policy of inducting private investment into the power sector, initiated in 1991, was expected to result in the addition of 17,588 MW of power capacity in the Ninth Plan. The actual achievement was 5,061 MW, a mere 29 per cent of the target. The achievement ratio for the central and state sectors comparatively were higher at 38 per cent and 88 per cent respectively. The main impediments have been:

The chronic financial weakness of SEBs.

Unviable tariffs to IPPs, due to factors such as high cost of liquid fuels, risk factors involved and slow growth in demand for future power below the expected levels etc.

The absence of an enabling regulatory, legislative and market environment.

The slow pace of reform in the power sector and related sectors such as coal, transport.

The inability to deliver bankable contractual frameworks.

The lack of recognition of the fact that the distribution segment would need to be made efficient and bankable before private investment and competition emerges in generation.

Formation of National Grid

8.2.73. The National Powergrid will comprise a transmission system associated with the central generating projects and inter-regional lines. It is expected that the first phase of the National Powergrid will be completed with a 500 MW High Voltage Direct Current (HVDC) Transmission System back-to-back at Sasaram in Bihar coming up by December 2002 connecting the eastern and northern region. This will enhance the cumulative inter-regional power transfer capacity to a level of about 4,850 MW.

8.2.74. It is proposed that in the subsequent phase, a strong synchronous National Powergrid would be established, including schemes to evacuate the power from major generating resources, covering hydro projects in the north-eastern region and large-sized thermal power plants in Bihar, Orissa and Madhya Pradesh. The transmission scheme for the ultimate National Powergrid would involve the development of a high capacity transmission corridor in the Chicken Neck area in the northeast and the establishment of a ring of 765 KV lines interconnecting the eastern, western and northern regions. With the completion of these links, the cumulative inter-regional power transfer capacity would increase to a level of about 30,000 MW by 2012.

Captive Power Generation

8.2.75. The industrial sector is the largest consumer of electricity. Besides purchasing power from the utilities, a number of industries, viz. aluminium, cement, fertiliser, iron, steel, paper, sugar etc. have their own captive power plants either to supplement the electricity supply from the utilities or for generating electricity as a by-product through co-generation. Captive power plants are being set up by industries to meet their own power requirements to enable them to tide over problems due to power shortages and poor quality of supply. The Electricity Bill, 2001 proposes to free captive generation and enable captive generators to sell directly to other consumers by wheeling power through the grid under an open access regime. However, the Tenth Plan capacity addition has been finalised based on the demand as per the Sixteenth

Electric Power Survey that excludes the demand met by captive power plants.

8.2.76. In accordance with the guidelines issued by the Ministry of Power, the following categories would be eligible to install captive power plants:

- (a) A consumer of electricity.
- (b) A group comprising more than one consumer as a joint venture.
- (c) An actual user of power but not a consumer.
- (d) A group of actual users of power, but not consumers, as a joint venture.
- (e) A group comprising both consumers and actual users of power as a joint venture but excluding 'Generating Company' as defined under Section 2(4A) of the Electricity (Supply) Act, 1948.
- (f) If the captive plant falls under the category of hydro or co-generation plant, such plant may be permitted, irrespective of its size and the power supply position in the state.
- (g) If the captive power plant is based on coal or liquid fuel or gas and if the state is deficit in power supply, the installation of the plant could normally be allowed and the plant can be permitted to have a capacity up to 200 per cent of the requirement of the host industry.
- (h) If the captive power plant is based on coal, liquid fuel or gas and the state is surplus in power, the installation of such captive plants can still be considered in cases where the state/SEB cannot guarantee uninterrupted supply or stipulated quality of supply (within prescribed voltage and frequency variations) required by the industry or a particular process. Further, captive generation may also be permitted if it is found, after a review of costs and tariffs, to be more economical than grid supply.

- (i) Banking facilities may also be provided to the captive plants so that available capacities are utilised to the extent possible and when required. The rates for banking may be determined on mutually agreed terms.
- (j) Units in Special Economic Zones (SEZ) and industrial estates may be allowed to set up captive power plants liberally.

Rural Electrification

8.2.77. The rural electrification programme is one of the important components in rural development and as important as rural drinking water supply, health, nutrition, primary education, shelter and rural connectivity. The availability of power in rural areas will lead to economic development and its attendant spin-off benefits like food security, better health, literacy, etc. With this in view, the Government has been focussing on village electrification since the beginning of the planning process. While this has resulted in the electrification of around 86 per cent of the country's villages, the use of electricity in villages for productive and subsistence needs is still very limited. About 70 per cent of the rural households are yet to get electric connections and power-based economic activities in the electrified villages are minimal. The actual benefits of the investments made in the rural electrification programme can only be realised if the people are in a position to use electricity for their day-to-day activities as well as for industrial and commercial activity. Therefore, the second phase of the rural electrification programme, apart from seeking 100 per cent electrification, must also ensure more widespread use of electricity by the rural people in a time-bound manner.

8.2.78. The existing definition of an electrified village has been found to be inadequate as it does not meet the requirements of the rural people. The existing definition states that 'A village will be deemed to be electrified if electricity is used in the inhabited locality within the revenue boundary of the village for any purpose whatsoever.' There is need to change this definition so as to declare a village as electrified only if a minimum number of households in that village are provided with

electricity connections. According to the 1991 Census, there are 5,87,000 villages of which 5,00,000 (86 per cent) are declared to be electrified on the basis of the existing definition. Further, available data shows that only 31 per cent of the rural households are electrified. Finally, against the total estimated potential of 19.5 million electric pumpsets for irrigation, only 12 million pumpsets have been energised. The expansion of the programme of energising pumpsets needs to take into account issues like energy efficiency, water conservation, watershed management, rain water harvesting and other matters related to the optimum use of ground water and the danger of over exploiting this scarce resource.

8.2.79. Around 80,000 villages in the country are yet to be electrified even on the basis of the current definition of village electrification. Thirteen states have declared 100 per cent electrification of their villages. The villages yet to be electrified are mostly in Assam, Arunachal Pradesh, Bihar, Jharkhand, Madhya Pradesh, Meghalaya, Orissa, Rajasthan, Uttar Pradesh, Uttaranchal and West Bengal. Of these 80,000 villages, it may be feasible to electrify only around 62,000 through the conventional grid expansion. The balance 18,000 villages are located in remote areas, hilly terrains, islands, deserts etc. and are also thinly populated. Such villages can be electrified more economically through decentralised and non-conventional energy sources like solar, wind, small hydro and biomass.

8.2.80. The strategy and time-frame for rural electrification will be as follows:

- The Tenth Plan proposes to cover all 62,000 villages that can be electrified through grid extension. The balance 18,000 remote villages are to be electrified by 2011-12 through the use of non-conventional technologies. A survey to identify these villages is required.
- In order to facilitate the flow of funds, the Rural Electrification Programme was included as a component of the PMGY in 2001-02. Special category states are eligible to receive 90 per cent of the funds as grant and 10 per cent as loan. For other

states, the funds will be made available in a grant-loan ratio of 30:70.

- In addition, the funds available under Minimum Need Programme for Rural Electrification will be pooled to meet the objective of 100 per cent electrification.
- The funds available under Member of Parliament Local Area Development Scheme (MPLADS) and Jawahar Gram Siddhi Yojana (JGSY) should also be utilised for supplementing the funding of village electrification.
- Involvement of MPs through district-level committees in the selection and monitoring of village electrification may be made mandatory. The states would also be well advised to try and persuade MPs to provide funds under the MPLAD for extending village electrification. They could consider evolving arrangements where the provision of, say, 25 to 50 per cent of the cost of electrification of an area could ensure automatic provision of the remaining funds under PMGY.
- SEBs may receive an interest subsidy on debt raised for rural electrification through the proposed Accelerated Rural Electrification Programme. Interest subsidy would be provided for the loans to be taken by the state governments for the electrification of unelectrified villages including dalit bastis. Rural electrification could be done through conventional as well as non-conventional sources of energy.
- A suitable mechanism to disburse funds directly from the central government to states may be followed for which the states will be required to maintain a separate account so as to ensure that the funds are not diverted for purposes other than rural electrification.
- Given the positive impact of this programme on poverty alleviation it is a legitimate claimant for soft International Development Agency (IDA) funding. This should be pursued through the Department of Economic Affairs which may indicate to the World Bank the high priority that the Government gives to this programme.
- Village electrification would also include the electrification of dalit/tribal bastis, wherever applicable.
- The Kutir Jyoti programme to extend single point light connections to rural households below the poverty line (BPL) will be revamped so that 100 per cent coverage of such households will be achieved by 2012. The norms of expenditure for rural BPL households has already been enhanced from the present Rs. 1,000 to Rs. 1,800 per household in special category states and Rs. 1,500 in other states.
- The Rural Electrification Corporation (REC) will continue to carry out system improvement and load intensification activities in electrified villages. It will finance these activities through the Rural Infrastructure Development Fund (RIDF) and issue of bonds under Section 54 EC of Income Tax Act that provides tax exemption on capital gains.
- The proposals of the states for rural electrification will be scrutinised and appraised by the REC and the present arrangement of monitoring by the REC and the CEA will be continued with the Ministry of Power acting as the central nodal ministry.
- The participation of decentralised power producers will be encouraged specially for electrification of remote villages. Village-level organisations like PRIs, rural cooperatives and NGOs will play a crucial role in the rural electrification programme. Community participation is essential for the success of the programme. The concept of barefoot solar engineers may be adopted.

- States which are to electrify the left-out villages are required to finalise a year-wise action plan for completing the electrification of all villages to be connected through grid during the Tenth Plan. Local elected representatives should be involved by the implementing agencies both at the planning and implementation stage, which would ensure proper monitoring of the programme.
- Electrification of remote villages will be done through the Ministry of Non-Conventional Energy Sources in association with the Indian Renewable Energy Development Agency (IREDA), the financial institution under the Ministry.
- The Electricity Bill, 2001 contains an enabling provision in regard to decentralised generation so that cooperatives/PRIs and NGOs can also bid for and supply electricity to dispersed communities.

Environmental Management / Sustainable Power Development

8.2.81. The utilisation rate of fly ash in India is of the order of 2 per cent as compared to 80 per cent in Germany followed by 20 per cent in the Netherlands. The poor rate of utilisation is attributed to the non-availability of proper machinery, ignorance regarding the potential of the use of fly ash in various applications and lack of clear policies to promote fly ash utilisation, among other things. The following steps are necessary to promote the use of fly ash:

1. Private entrepreneurs should be encouraged to set up facilities to utilise fly ash in building materials such as bricks, cement etc. To this end, state governments may exempt the end products of ash from sales tax, on the lines of the excise duty exemption given by the central government to products having a minimum 25 per cent ash content.

2. Financial institutions may extend loans on a priority basis for the manufacture of ash-based industrial products.
3. In order to promote manufacture of fly-ash based Portland Pozzland Cement (FAPPC) government departments like the CPWD, DDA and power utilities should be advised to use FAPPC for a majority of applications.
4. All new thermal power stations should be advised to earmark land in the planning stage itself for ash-based industries.
5. Stowing of underground mines using fly ash in place of river sand is to be considered in all coal projects.

8.2.82. Concerns relating to pollution and the disposal of the large amount of ash from coal-based power stations, which are the mainstay of India's power generation, are being addressed through strategies to promote environmentally sustainable power development. In order to undertake fruitful channelising of investment for afforestation works, the project authority should actively involve the state government and set up a specific cell with a forest officer on deputation, if need be, to monitor the implementation of afforestation work.

Energy Efficiency/Conservation

8.2.83. Energy efficiency and energy conservation involve all the sectors of the economy. Although energy efficiency and energy conservation have been discussed for nearly ten years now, the efforts on the ground have been fragmented and half-hearted. There has also been a lack of adequate focus on the institutional arrangements which will devise suitable incentives and disincentives appropriate to each sector, backed by adequate statutory power of enforcement.

8.2.84. During the Ninth Plan, it was realised that it is necessary to have an Energy Conservation Act. Accordingly, the Government has enacted the Energy Conservation Act, 2001 to meet the legal requirement needed to enforce energy efficiency and conservation measures. The Act provides for:

- The establishment of the Bureau of Energy Efficiency (BEE) in place of the existing Energy Management Centre (EMC).
- Declaring a user or class of users of energy as a designated consumer.
- Laying down minimum energy consumption standards and labelling for identified appliances/equipments and norms for industrial processes for energy-intensive industries.
- Formulation of energy consumption codes.
- Establishment of an Energy Conservation Fund both at the central and state levels.
- Penalties and adjudication. No penalties would be effective during the first five years as the focus during this period would be on promotional activities and creating the infrastructure for implementing the Act.
- The BEE would facilitate the evolution of a self-regulatory system and organisations that will regulate on their own because saving energy also makes good commercial sense.

8.2.85. The central government has established the BEE with effect from 1 March 2002. Further, the provisions of Section 1 to 29 and Sections 46 to 62 of the Energy Conservation Act relating to this have come into force from the same date.

Demand Side Management

8.2.86. In India, demand side management measures have a key role in eliminating power shortages to a considerable extent. Demand side management would ultimately result in saving of electricity, in keeping with the concept of energy conservation. It also has an important role in the context of safeguarding the electrical power industry. The demand for electricity fluctuates within a 24-hour cycle as well as between seasons. This has an important implication for planning generating

capacities. In a developing country like India, where per capita availability of energy is very low, need-based demand for energy can be unlimited. But the supply side is limited by the lack of investible resources and the demand side is constrained by lack of purchasing power. In such a situation, it is clear that the capacity to provide additional energy is always likely to lag behind rising demand, unless the consumption of energy is also restrained. The new approach to mitigating power shortages is based on demand side management.

8.2.87. One of the basic reasons for energy inefficiency in India is energy pricing. Electricity rates, kept deliberately low for a large block of consumers, do not send correct price signals to consumers to alter consumption behaviour. There

Demand Side Management

The peaking problem can be reduced, if not eliminated, by adopting demand side management techniques to flatten the load curve i.e to reduce the peak load and shift demand to off-peak hours in the following way:

- Introduce differential pricing according to time of day, thus giving incentives to users to shift their demand to the off-peak period. This requires introduction of electronic time of day (T.O.D) metering.
- Institute a two-part tariff for all categories of consumers in which the consumers have to pay an amount that depends on the maximum demand for power, plus a charge for each unit of energy consumed.
- Segregate irrigation feeders so as to allow power to the agricultural load at off-peak hours.
- Staggering of office timings.
- Create incentives and commercial arrangements for the transfer of power between regions to take advantage of different peak times. Introduction of more than one time zone in the country would help this process. The development of the National Powergrid needs to be expedited to facilitate greater inter-regional transfer of power.

is, therefore, an urgent need to look into the issue of economic pricing that delivers the desired behaviour. Innovative pricing options which have proved successful in managing electricity demand in several developed and developing countries, such as time-of-day tariffs, interruptible tariffs and seasonal tariffs, should be taken up by the utilities.

8.2.88. The target for energy savings during the

Table – 8.2.12
Tenth Plan Energy Savings Potential

End-use type	Potential Energy Savings(MkWh)
Motors and drive systems (Industry and agriculture sector)	80,000
Lighting (domestic, commercial and industrial sector)	10,000
Energy intensive industries	5,000
TOTAL	95,000

Tenth Plan is given in Table 8.2.12:

8.2.89. The Tenth Plan programme on energy conservation would address issues like pricing of electricity for different categories of consumers, generating awareness on the necessity of energy conservation and the need for an institutional arrangement to coordinate the different programmes of energy conservation. It will also deal with mobilising resources for funding the energy conservation programmes.

Resettlement and Rehabilitation (R & R)

8.2.90. The setting up of large hydel and thermal plants often necessitates clearing of large tracts of land, affecting the lives of people, flora and fauna. Since displacement of people becomes unavoidable, the Government has already evolved certain compensation measures that need to be implemented rigorously. These include: (a) providing early financial compensation and settlement; (b) resettlement of people including construction of dwellings in new areas; (c) providing subsidy for farming in the new areas; (d) starting special training programmes in poultry, breeding, handicrafts and cottage industries; (e) providing employment opportunities in the project; and (f) provision of

education, medical and drinking water facilities.

Manpower Development

8.2.91. The additional manpower requirement for the power sector in the Tenth Plan has been projected to be to the tune of 1,25,000. The total manpower in the power sector is expected to reach around one million by the end of Tenth Plan. Different indices have been considered for thermal, hydro and nuclear capacity and power system to arrive at the above estimate.

8.2.92. The overall training load expected during the Tenth Plan is 4.37 lakh man-months per year against the available training infrastructure of only 74,000 man-months per year.

8.2.93. The major observations and recommendations of the Working Group on Manpower Development in 2001 are:

- The success of the process of power sector reforms requires human resource development (HRD) intervention to ensure its success. It is proposed that everybody be provided training of minimum one week per year. The level of training may be refresher/advanced/managerial, depending on the actual need. Induction-level training should also be made compulsory for T&D personnel. The duration of the training could be three months for executives and one month for non-executives. Training must also be arranged for each individual on promotion/transfer to assignments that call for performing new/different roles and working conditions.
- Backward integration of the power training programmes of National Power Training Institute (NPTI) with All India Council of Technical Education (AICTE) approved degree/diploma courses providing relevant education should be gainfully utilised by the power sector. A full-fledged Hydro Power Training Institute, with necessary training tools including a simulator, needs to be established. Networking with the

training/academic institutions like NPTI, Indian Institutes of Management (IIMs), Administrative Staff College of India (ASCI) and other reputed institutions for providing training to power sector personnel and other stakeholders is recommended.

- Central assistance should be provided for augmenting training facilities, procurement of simulators and diversification of existing recognised training institutes. At least 5 per cent of a power sector organisation's salary budget should be spent on training personnel.

Research and Development

8.2.94. Since the power sector is highly technology-intensive, technological upgradation and modernisation assume an important role, especially in realising economy in generation, T&D and efficient utilisation of electrical energy.

8.2.95. The research and development programmes must necessarily provide inputs to future power programmes relating to both generation as well as T&D. Full advantage should be taken of the large base of existing research and development capabilities. Emphasis must be laid on solving field problems adversely affecting the production of power, creating bottlenecks in the operation of the power system and affecting the quality of power supplied.

8.2.96. Various areas of research and technology development in the field of hydro, thermal, nuclear and power system have been identified where R&D activities could be focused on achieving improved performance of existing facilities, optimum utilisation of resources and to keep pace with the state-of-art technologies suiting our environment and prevailing conditions. Thrust areas identified are:

- a) Development of Integrated Gasification Combined Cycle (IGCC) as a demonstration project to prove the technology based on Indian coal.
- b) Coal beneficiation and use of alternate fuel

for power generation.

- c) Improvement in power station performance relating to availability, reliability, efficiency and safety.
- d) Studies on T&D networks relating to grid operation and control, geographical information system (GIS) and T&D losses.
- e) Hydro power generation related proposals covering silt erosion, and performances improvement.
- f) Renovation and modernisation.

8.2.97. The Working Group on Power has identified 71 projects - 23 in the thermal sector, 39 in the power system field and nine in the hydro sector – to promote research and development activities. It is suggested that 1 per cent of the power sector outlay may be included in the Plan for R&D.

8.2.98 The following action points have been identified for research and development in the power sector:

- a) Creation of a Research and Technology Demonstration Fund for demonstration projects with the major portion as grant and the balance as long-term interest-free loan for research and demonstration of new technologies.
- b) Making technology transfer mandatory in the case of foreign direct investment. The Government may consider liberalising the import of technology at par with the import of materials and capital goods.
- c) Encouraging the commercialisation of indigenous technology leading to their full-scale development.
- d) Enhancing bilateral / multilateral cooperation with developed countries for state-of-the-art technological transfer and exchange of technical experts.
- e) Enabling the CEA to oversee the progress and status of research and development facilities in the country.
- f) Networking and mapping the research and development resources, including intellectual capital.

Power Sector in Total Plan Outlay
Table - 8.2.13
Share of Power Sector Outlay in Total Plan Outlay (per cent)

Plan Period	Power sector share in total outlay of central and state governments	Share of state power sector outlay in total sector outlay of states	Central power sector outlay in total power sector outlay	Share of central power sector in total central sector outlay
1991-92	18.33	26.09	38.70	13.70
1992-93	18.50	27.19	38.12	10.88
1993-94	17.15	26.24	43.83	11.52
1994-95	16.45	23.77	41.40	11.43
1995-96	15.26	23.48	39.28	10.21
1996-97	13.38	19.14	35.99	9.03
Eighth Plan Actual	15.80	23.90	39.20	12.60
Ninth Plan(Approved)	14.49	19.26	42.80	10.80
1997-98	13.36	19.30	35.30	9.70
1998-99	13.85	18.50	38.10	9.70
1999-2000	13.95	17.57	42.90	12.10
2000-2001	13.09	17.81	43.72	9.90

8.2.99. Table 8.2.13 shows that while the power sector outlay as a proportion of the total outlay by the central and state governments has been declining, the central power sector outlay as a proportion of total power sector outlay has remained in the range of 38-43 per cent in the 1991-2001 period. The share of the state sector has shown a declining trend, coming down from 27 per cent in 1991-92 to 17 per cent in 2000-01. This has been mainly on account of the drive to enhance private sector investment in the power sector since 1991-92. The states have practically stopped investing in new generation projects. The share of the central power sector in the total central sector outlay has also declined from 13 per cent to 10 per cent during the same period. Keeping in view the low level of investment by the private sector, it would be desirable, in the short term, to step up public sector investment even as efforts continue to put the SEBs back on the rails in order to attract private sector investment. The schemewise break-up for the Tenth Plan outlay in respect of Ministry of Power & Deptt. of Atomic Energy (Power) is given in the Appendix.

THE PATH AHEAD

8.2.100. The roadmap for the Tenth Plan will have

the following reform objectives:-

- Rationalising power tariffs and making the tariff setting process transparent.
- Reflecting cost of service in the tariffs and transferring all subsidies explicitly to state budgets.
- Improving efficiency in all the three segments viz. generation, transmission and distribution, either by creating separate profit centres with full accountability within the vertically integrated structure, or unbundling SEBs into generation, transmission and distribution entities or through other models of reform depending on the choice of the state government.
- Encouraging competition and private participation in each element of the electricity value chain.
- Instituting open access by separating the carriage (transmission & distribution network) from the content (power and energy) thereby enabling customers to source their requirements from the most

- efficient source.
- Strengthening the T&D system to reduce losses, improve metering, instituting energy audits and improving billing & collection.
- Redesigning APDP as APDRP with provision for release of funds linked to the achievement of certain parameters and benchmarks.
- Integrating captive generation (especially co-generation) into the power system.
- Stepping up public funding for the sector even as steps are taken to attract private investment.
- Encouraging NTPC to take up projects through joint ventures with private

promoters and the state governments.

RENEWABLE SOURCES OF ENERGY

8.2.101. The development model followed so far, with an excessive reliance on fossil fuel resources like coal, oil and natural gas to meet the energy requirement of the country, is not only unsustainable in the long-run, but also has an adverse impact on the environment and ecology. The increase in land, water and air pollution levels during the energy conversion process in this model has become an area of serious concern. The depleting nature of these fossil fuel resources compels the search for other alternatives. It is in this backdrop that non-conventional or renewable sources of energy have attracted global attention as a viable option to achieve the goal of sustainable development. While it may not be possible, at this stage, to substitute conventional energy sources with renewable energy sources, the latter would help in supplementing energy supply efforts.

Table 8.2.14
Renewable Energy Potential and Achievements

Source/System Achievements	Potential	Approximate (as on 31.12.2002)
Biogas plants (No.)	120 lakh	32.62 lakh
CBP/IBP/NBP plants (No.)	-	3,520
Improved chulha (No.)	1,200 lakh	343 lakh
Biomass		
a. Biomass power	19,500 MW *	358 MW
b. Biomass gasifier		42 MW
Solar Photovoltaic		
	20 MW/sq.km.	
a. Solar street lighting systems (Nos.)	-	41,403
b. Home lighting systems (Nos.)	-	1,76,962
c. Solar lanterns (Nos.)	-	3,83,929
d. SPV power plants	-	1,172 kWp
Solar water heating system collector area	30 million sq.m.	0.59 million sq.km
Solar cookers (Nos.)	-	5,15,000
Wind power	45,000 MW	1,507 MW
Small hydro power (upto 25 MW)	15,000 MW	1,406 MW
Urban and municipal wastes	1,700 MW	17 MW
Battery Operated Vehicles (Nos.)	-	247

CBP=Community Biogas Plant, IBP=Institutional Biogas Plant,
NBP=Nightsoil Linked Biogas Plant, SPV=Solar Photo-Voltaic, kWp=kilo Watt Peak

* Including Biomass gasifier

8.2.102. The different renewable sources of energy include hydel power, wind power, solar power, biomass power and ocean energy etc. In addition, there is a significant potential to recycle the industrial, urban and agriculture waste to extract the energy content for useful application. This method leads to environment-friendly waste disposal and also helps to recover the energy contained in these wastes to supplement different energy supply options. Since the transport sector consumes huge quantities of hydro-carbons, alternate environment-friendly fuels such as electricity (stored in batteries), compressed natural gas (CNG) and fuel cells can be used.

8.2.103. The estimated potential of different non-conventional energy sources and the achievements up to 31 December 2001 are given in Table 8.2.14:

8.2.104. The economics and other constraints faced in development of the renewable energy programmes are:

Hydel Power

8.2.105. India is endowed with a vast and viable hydro potential for power generation of which only 17 per cent has been harnessed so far. The share of hydro power or hydro-electricity (hydel) in the country has been steadily declining from over 50 per cent in 1963 to 25 per cent in 2001-02. Based on a systematic survey carried out during the Seventh Plan, the hydro-electric potential in the country is estimated at 600 Bkwh per year as against 472.15 Bkwh per year assessed earlier. Out of the total potential available, about 30 per cent has either been developed or is being developed. Greater emphasis on hydro-electricity is important, particularly to meet the peak loads. Hydro-electricity is also a clean and renewable source of energy. The long gestation of the hydro projects due to delays in forest and environment clearances, rehabilitation of the project-affected people, inter-state disputes, construction delays in civil works etc. come in the way of accelerating hydro projects. Large hydro projects involving significant pondage have serious environmental impacts of their own that need to be evaluated and mitigated. Small hydro projects, therefore, assume importance since

they do not require large pondage and have the potential to provide energy in remote and hilly areas where extension of grid systems is either not possible or is uneconomical. Small hydro projects, especially run-of-the-river projects are economically viable, environmentally benign and have relatively short gestation periods. Hydro projects with up to 25 MW station capacity are classified as small hydro projects and are being implemented by the Ministry of Non-Conventional Energy Sources.

Wind Power

8.2.106 The harnessing of wind power for electricity generation in recent years has been quite impressive. The country has achieved an installed capacity of 1,507 MW for electricity generation through wind power. The estimated potential in the country has been revised upwards to 45,000 MW from the 20,000 MW estimated earlier in view of the technological advances and the availability of more modern equipment. Works are in progress to assess the wind resource potential at different locations and India is fifth in the world after Germany, the United States, Denmark and Spain in terms of wind power. The participation of the private sector in this area is highly encouraging. The economic viability of wind power projects depends a great deal on the capacity factor and, therefore, very careful site selection is called for. The unit size of wind turbine generators is also being enlarged. The unit size of machines has gone up from 55-100 KW in the first few projects to 750-1000 KW in recent projects. The productivity of the larger machines is higher than that of the smaller machines. The present capital cost of wind power projects ranges between about Rs. 4 crore to Rs. 5 crore per MW including local civil, electrical works and erection. This takes into consideration various central/state fiscal incentives available for wind power projects, which help to offset the low capacity utilisation. The life of a wind power project is estimated at about 20 years. Levelised costs over the life of the project compare quite favourably with those for new thermal power projects located away from coal mining areas, as there is no recurring cost on fuel. If environment and social benefits offered by the wind power projects are also considered, these projects would favourably compare with

conventional power projects.

Solar Power

8.2.107 There is abundant potential of solar radiation available during most part of the year for a tropical country like India. It has been estimated that a potential of 20 MW/sq.km is available through the Solar Photo-Voltaic (SPV) route and another 35 MW/sq.km through the Solar Thermal route. There are ongoing programmes to tap this potential both for stand-alone applications and for grid connected power systems. The stand-alone applications include the installation of solar-powered street lights, domestic lights, portable solar lanterns, solar-powered water pumps and solar power packs all based on the principle of conversion of solar energy directly into electricity through SPV cells. The cost of crystalline photo-voltaic (PV) modules at the international level is in the range of \$ 3-4 per watt. Despite extensive efforts, the cost of these cells and modules has not come down to commercially viable levels of below \$ 1 per watt. Other types of solar cells using amorphous silicon technology were developed with a view to bringing down the cost. However, the performance of amorphous silicon-based solar cells suffers over time. Elemental silicon continues to be the best material for PV and cost cutting is only possible with newer concepts and thin film materials. With the large scale production, the thin film PV technology could produce per watt cells at 5 per cent at 10 per cent efficiency. The future of PV technology for application as a decentralised energy source mainly depends upon the cost reduction of the PV modules. The utilisation of the SPV technology to meet the energy requirement of people living in far-flung areas for applications like lighting etc. is becoming attractive since extending conventional electricity grid to these areas is not cost effective.

8.2.108 The other route is to convert the heat energy contained in solar radiation to useful applications. Various types of solar thermal devices are now available in the country which include solar water heaters for industrial, commercial and domestic applications, solar cookers (both domestic and community type), solar stills, solar dryers etc. Besides, solar energy is also being used for space heating by including solar passive features in

buildings and for agriculture through solar greenhouses. Work is in progress to set up solar thermal power plants by utilising the heat from the sun to produce high temperature/pressure steam to generate electricity. An integrated solar combined cycle thermal plant is being set up in Rajasthan with a capacity of 140 MW. This type of plant would make it possible to generate electricity even during non-sunshine periods with the support of a combined cycle gas plant. However, the economic viability of such plants for commercial applications is yet to be established. It is expected that these plants may become economically viable in the future on life-cycle cost basis and also on the basis of indigenous technology development. In any case, the environment-friendly nature of solar plants and the renewable fuel source would justify the setting up of such plants in the future.

Biomass Power

8.2.109 Bio resources, such as firewood, agro-residues and animal wastes form an important component of the energy mix of a developing country like India, and account for nearly 30 per cent of the primary energy supply. These resources will continue to be used in order to meet the increasing demand for energy, though with higher end-use efficiencies. With a view to promoting efficient methods of using these energy resources the Ministry of Non-Conventional Energy Sources is implementing the National Project on Biogas Development (NPBD), National Programme on Improved Chulhas (NPIC), National Biomass Gasification Programme and Biomass Power/Co-generation Programme. It has been estimated that the country has the potential to set up 12 million biogas plants and install 120 million improved chulhas. However, only around one-fourth of the potential has been tapped so far. It has been estimated that there is a potential to install 19,500 MW capacity through biomass conversion technologies viz. combustion, gasification, incineration, pyrolysis and also bagasse-based co-generation in sugar mills. So far only around 381 MW of this potential has been tapped. There is scope for expanding the size of these programmes as they directly benefit the majority of the rural population and help them meet their

basic energy needs.

8.2.110 During the Tenth Plan, biomass production will assume an increasing and crucial role. Strategies for encouraging energy plantations on waste/degraded/marginal lands to feed biomass-based power projects need to be evolved. In addition, the technologies and projects for feed preparation relating to various agro residues also need to be encouraged.

8.2.111 Biomass offers an ideal option for rural electrification in remote areas and has been getting priority in certain areas in hilly states, islands etc. These schemes for decentralised power plants have particular relevance in the north-eastern states, Jammu and Kashmir and Sikkim. Some experiments have been carried out to install community-based biomass gasifier and biogas plants to meet the energy needs of a village. However, the replication of such programmes on a country-wide scale and their success would depend on the identification of the institutions, mobilisation of the community, method of collection of user charges etc.

Energy from waste

8.2.112. On a conservative basis, it is estimated that about 30 million tonnes of solid waste and 4,400 million cubic meters of liquid waste are generated every year in urban areas from households and commercial enterprises. In addition, the manufacturing sector also contributes a significant quantity to the country's waste. From the estimated availability of garbage, there is a potential to generate 1,700 MW of electricity — 1,000 MW from urban and municipal waste and 700 MW from industrial waste. Technologies are now available to treat the garbage to meet the required pollution control standards, besides generating power. A national programme under the Ministry of Non-Conventional Energy Sources seeks to promote such projects with suitable financial/fiscal incentives to encourage private sector participation. International financial institutions also take keen interest in these types of projects and come forward to support them. A United Nations Development Programme (UNDP)/Global Environment Facility (GEF) funded project called Development of High Rate Biomethanation Processes as a Means of

Reducing Green House Gases Emission is being implemented by the Ministry of Non-Conventional Energy Sources covering different waste sectors. It is expected that the demonstration projects taken up under this programme would provide the necessary awareness among entrepreneurs to take initiative to set up such projects.

Alternative Fuel for Surface Transportation

8.2.113. Hydrocarbons used as fuels for transportation are to be replaced by other eco-friendly fuels for surface transport vehicles. Many options such as compressed natural gas (CNG), battery-powered vehicles and fuel cells are currently available. Some of the measures to be taken up to promote such programmes include the upgradation of the existing technology, cost reduction and creation of an effective infrastructure network. A noteworthy feature of the fuel cell vehicles is that they are truly zero-emission vehicles. Hydrogen produced as a by product in chlor-alkali and fertiliser units, oil refineries and several chemical industries can be effectively used as a fuel in fuel cells. The cost of fuel cells needs to be reduced significantly in order to make them attractive for commercialisation. Efforts should be made to produce hydrogen from renewable sources such as solar energy and water in an eco-friendly manner. Hydrogen can be produced by the electrolysis of water, a well-established and environmentally benign technology. Efficient and economical storage of hydrogen is also possible. One method for storage of hydrogen is the use of rechargeable metal hydrides. Several metal alloys have been identified which are capable of storing hydrogen in a safe and environmentally clean manner. The large energy storing capacity in these metal hydrides per unit volume would make these storage devices compact in size.

Ocean Energy

8.2.114. The ocean covers 71 per cent of the earth's surface and it acts as a natural collector and store of solar energy. On an average day, 60 million sq. km. of tropical seas absorb an amount of solar radiation equivalent in heat content to about 245 billion barrels of oil. If this energy could be tapped, a large-scale renewable source would become

available especially for tropical countries. The energy available in the ocean is clean, continuous and renewable. There are various means for tapping ocean energy such as Ocean Thermal Energy Conversion (OTEC), wave energy, tidal energy, salinity gradient energy, marine currents, marine biomass conversion etc. Among these, the first three technologies are likely to be viable for the future.

8.2.115. Even though it is not possible to extract all the energy potential in the ocean, what can be extracted is still a vast source of power. Research activities are being undertaken in the areas of wave energy and OTEC. Studies are being carried out to establish tidal power plants in the Gulf of Kutch and in a creek in the Sunderbans area. Once this research establishes the commercial viability of ocean power, significant power generation capacity

based on the country's ocean energy potential can be expected.

REVIEW OF THE NINTH PLAN

8.2.116. The major thrust of the Ninth Plan programme for renewable sources of energy covered the following two areas:

- i. Restructuring of the existing programmes for non-conventional energy towards gradual commercialisation. Special initiatives were taken to exploit the large co-generation potential available in the country. A draft Renewable Energy Policy has been formulated which seeks the approval of the Government for follow-up action on this matter.
- ii. Restructuring the socially-oriented

Table 8.2.15

S.No.	Programmes	Units	Ninth Plan Target Fixed	Cumulative Likely Achiv. During Ninth Plan
1.	Biogas plants	Nos. in lakh	10	8.44
2.	Community/Institutional/Night soil based	No.	800	1,775
3.	Improved chulha	Nos. in lakh	150	102
4.	Biomass/Gasifier	MW	40	25.50
5.	Integrated Rural Energy Programme	Block Nos.	860	860
6.	Energy Parks	Nos.	200	190
7.	Solar Photovoltaic Programme (SPV)			
	SPV Home Light	Nos.	2,00,000	1,35,567
	SPV Lanterns	Nos.	3,00,000	3,04,528
	SPV Street Lighting Systems	Nos.		13,536
	SPV Power Plants	KWp	1,600	581
	SPV Pumps	Nos.	4,000	3,023
8.	Solar Thermal Energy Programme			
	Solar water heating system	m2 collector area	1,50,000	1,41,409
	Solar cooker	Nos.	1,50,000	1,02,000
9.	Wind Pumps and Hybrid System	Nos.	1,000	614
10.	Wind Power	MW	1,000	650
12.	Small Hydro (upto 25 MW)	MW	130	254
13.	Biomass Power	MW	314	295
14.	SPV Power	kW	1,500	1,475
15.	Waste to Energy Programme	MW	42	22.4

programmes in a manner that the direct capital subsidy provided by the Government is brought down. The continuation of these programmes during the Tenth Plan requires an evaluation study taking into account various incentives such as interest subsidy in place of capital subsidy and the implementation of some of the programmes as a part of the other rural development programmes. Some of the socially-oriented programmes which were continued under the central sector for a long period, i.e. more than two Five-Year Plans are being transferred to the states.

8.2.117. The physical achievements of the various renewable energy programmes are in Table 8.2.15:

TENTH PLAN

8.2.118. In the context of the Tenth Plan, an exercise for convergence, retention, retention with modifications, transfer, and weeding out of the central sector and centrally sponsored schemes under the Ministry of Non-Conventional Energy Sources was carried out jointly by the ministry and the power and energy division of the Planning Commission. Accordingly, 35 schemes implemented by the ministry have been converged under 11 major schemes. Besides, two of the three centrally-sponsored schemes under are to be transferred to the states. The two schemes relate to community-based plants and improved chulahs. It has been recommended that one scheme on animal energy be discontinued since it is not making any significant headway.

Approach for the Tenth Plan

8.2.119. There is a significant potential to meet the basic energy requirement of people (cooking, lighting and heating) in an economically efficient manner through non-conventional and renewable sources of energy. The emphasis has to be on preparing a time-bound plan for progressive electrification covering groups of users or a village as a whole. Wherever feasible, community systems have to be put up to meet

and manage the energy requirements in the villages. {{People's participation through panchayats, other local bodies, cooperatives and NGOs is to be secured in planning and implementation of such programmes. concepts as Barefoot Solar Engineers could be adopted. The approach has to be a decentralised one and based on a judicious mix of public and private investment.

8.2.120. At present, non-conventional energy sources accounts for a mere 3.4 per cent of the total installed power generating capacity. The strategy to enhance the grid supply of power from renewable sources of energy or from co-generation has to aim at improving the ability to despatch and cost-competitiveness. A suitable policy framework would need to be introduced for providing remunerative returns and encouraging private investments. Development and promotion of this sector, which is environmentally benign, should not be constrained by intrusive regulation.

THE PATH AHEAD

8.2.121. The following steps need be taken in the Tenth Plan:

- Identify remote areas where power supply from the conventional grid will be prohibitively expensive and make it a priority to provide off-grid supply from renewables for these areas. Create provisions for integrated generation and distribution of off-grid energy supply.
- Conduct a comprehensive review of programme objectives, achievements to date, and efficacious use of funds by all concerned.
- Clarify the framework for supply to main grid by providing regulatory certainty on tariff, off-take agreements, and direct/contracted sale to bulk users.
- Encourage private sector investments in renewable energy sources by promoting a bidding process for available subsidies. Award contracts to private entrepreneurs

who provide maximum benefit with the lowest amount of subsidies.

- Promote local/private sector management of both generation and distribution for off-grid supply from renewable sources.
- Integrate renewable energy technologies in all buildings.
- Optimise energy plantation by raising plants on degraded forest and community land.

generation capacity from renewables has been set for Tenth Plan, as per the following details:

Wind	1,500 MW
SHP	600 MW
Biomass power/co. generation	700 MW
Biomass gasification	50 MW
Waste to Energy	80 MW
SPV Power	5 MW
Solar Thermal Power	140 MW
Total	3075 MW

Village Electrification

8.2.122. It is proposed that around 18,000 villages located in remote and difficult areas will be electrified through decentralised and non-conventional energy sources. A time frame has been set to complete the electrification of all the remote villages by the end of the Eleventh Plan i.e. 2012. Accordingly the Tenth Plan would accord top priority to this activity.

8.2.123. A physical target of 3075 MW of power

8.2.124. It is proposed to electrify 5,000 villages through decentralised energy sources, 4,000 of them by solar and the remaining villages by biomass and small hydro and to install 10 lakh biogas plants, 2.5 lakh domestic plus 6 lakh solar lantern SPV lighting systems, 5 MW of SPV power plants, 8,000 SPV pumps and 10,000 SPV generators. In addition, solar water heating systems, solar cookers, solar air heating systems etc. are also proposed to be encouraged.

8.2.125. The schemewise break-up of the Tenth Plan outlay for Ministry of Non-Conventional Energy Sources is given in the Appendix.

**RESOLUTIONS OF THE CHIEF MINISTERS/POWER MINISTERS
CONFERENCE ON 3rd MARCH' 2001.**

The following Resolutions of the Chief Ministers/Power Ministers Conference held on 3rd March, 2001 were adopted:-

A. COMPLETING ELECTRIFICATION OF ALL VILLAGES AND HOUSEHOLDS

- i. Rural Electrification may be treated as a Basic Minimum Service under the Prime Minister's Gramodaya Yojana;
- ii. Rural Electrification may be completed by the end of the Tenth Plan i.e. by year 2007;
- iii. Full coverage of all households may be targeted for the end of the Eleventh Plan i.e. by year 2012.
- iv. For the attainment of full electrification, States may be given flexibility for using funds under Rural Development Programmes with the consent of the Village/ Block Panchayats for undertaking the task of electrification where it is required.
- v. It was agreed that electrification of remote villages in the States would need a special mode of financing including an element of grant.

B. DISTRIBUTION REFORMS

The real problem of management and the challenge of reforms lies in the distribution sector.

- i. Energy audit at all 11 KV feeders must be made effective within the next 6 months and accountability fixed at the local level.
- ii. An effective Management Information System for this purpose needs to be made operation.
- iii. On the basis of the above, an effective programme needs to be launched for identifying and eliminating power thefts in the next 2 years.
- iv. Full metering of all consumers had been targeted for completion by December 2001. Special efforts should be made to complete the programme.
- v. The quality of power supplied especially in rural areas needs to be improved through the APDP and other programmes quickly;
- vi. Commercial viability has to be achieved in distribution in 2-3 years through any or all of the following:
 - Creating Profit centres with full accountability
 - Handing over of local distribution to Panchayats/Local Bodies/Franchisees/Users Associations, wherever necessary.
 - Privatisation of distribution
 - Or any other means
- vii. Efforts by States, if necessary, at inviting private investment in the power sector need to be focused towards the distribution sector.
- viii. Current operations in distribution would need to reach break even in two years and achieve positive returns thereafter.

C. TARIFF DETERMINATION BY REGULATORY COMMISSIONS AND SUBSIDIES.

- i. State Electricity Regulatory Commissions may be made functional in the next six months and tariff filings made. Tariff orders issued by Central Electricity Regulatory Commission and

State Electricity Regulatory Commissions need to be implemented fully unless stayed or set aside by Court order.

- ii. Subsidies may be given only to the extent of State Government's capacity to pay the subsidies explicitly through budget provisions.
- iii. It is necessary to move away from the regime of providing free power. The past decision of CMs of a minimum agricultural tariff of 50 paise may be implemented immediately.

D. GENERATION

- i. Special efforts need to be made to increase the PLF of existing plants through Renovation & Modernisation.
- ii. In the short run, there is no alternative to increase in public sector investment in generation, as large-scale private investment in generation would flow only after reforms succeed in restoring financial viability. The Centre and the States need to take suitable decisions regarding increase in outlays for the Tenth Plan. Priority should be given for investments at those locations which produce the cheapest power. CEA has estimated the requirement for an additional 100,000 MW of generating capacity by 2012. Emphasis may be given for the development of hydro and other renewable sources.
- iii. Where the States and Financial Institutions are in agreement about the need for development of IPPs, they need to work together to achieve financial closure at the earliest. The Centre would facilitate the finalization of reforms based multi-partie agreements.
- iv. The evolution of a National Grid for inter-regional transfer of power needs to be taken up on priority.
- v. Some provisions of the Forest Conservation Act may require to be revised for expeditious completion of power and other projects.

E. ENERGY CONSERVATION AND DEMAND SIDE MANAGEMENT

An effective programme in the field of demand side management through

- energy efficient bulbs, tube lights and agricultural pumpsets,
- time of the day metering and differential tariff for peak and off peak hours.

needs to be implemented with suitable mass awareness and extension efforts.

F. SUPPORT FROM GOVERNMENT OF INDIA

- i. The Government of India would support the States in their reform efforts. This support would be linked to time bound power reform initiatives in the States and achievement of definite milestones towards restoration of financial viability.
- ii. Interest rates of PFC and REC should be brought down to reflect market conditions.
- iii. An Expert Group would be set up to recommend one time settlement of all power sector past dues CPSUs to State Power Utilities. This would be linked to implementation of reforms with time bound milestones. The Group will give its report within three weeks of its constitution.

G. SUPPLY FROM CENTRAL GENERATING STATIONS

Continued supply of power from Central Generating Stations would have to be linked to demonstration of capacity to make payments for current purchases and securitisation of past dues.

H. HIGH LEVEL EMPOWERED GROUP

A High Level Empowered Group comprising of Minister of Power and Chief Ministers of some States may be set up to co-ordinate, monitor and review the implementation of Reforms.

CHAPTER 8.3

TRANSPORT

8.3.1 An efficient transport system is a prerequisite for sustained economic development. It is not only the key infrastructural input for the growth process but also plays a significant role in promoting national integration, which is particularly important in a large country like India. In a liberalised set-up, an efficient transport network becomes all the more important in order to increase productivity and enhancing the competitive efficiency of the economy in the world market. The transport system also plays an important role of promoting the development of the backward regions and integrating them with the mainstream economy by opening them to trade and investment.

8.3.2 Worldwide, transport growth has been consistently higher than the economic growth due to specialisation, sourcing of material on a wider scale, the use of just-in-time strategies, increase and dispersal of retail and wholesale activities etc. Prices of transport services have also been falling as a result of increased productivity due to competition among suppliers of transport services as well as pressure from users. The transport system in India has not been able to keep pace with these developments and considerable effort is required to correct the shortcomings.

8.3.3 India's transport system comprises a number of distinct modes and services. These include railways, roads, road transport, ports, inland water transport, coastal shipping, airports and airlines. The sector has expanded manifold in the first fifty years of planned development, both in terms of spread and capacity (see annexure 8.3.1). Along with the increase in quantity, there have been several developments of qualitative nature, such as emergence of a multi-modal system in the form of container transport, marked reduction in arrears of obsolete assets, improvement in the self-financing

capacity of the sector and the establishment of new centres of excellence for manpower development. Impressive as this progress is, the country's transport system is far from adequate both in terms of spread and capacity and suffers from a large number of deficiencies and bottlenecks. The quality and productivity of the transport network and resources also needs improvement.

8.3.4 Considering the inadequacies and imbalances in the transport system, the Ninth Plan envisaged a comprehensive package to address various transport sector issues. It emphasised the need for improving the capacity and quality of the transportation system through technological upgradation and removing distortions in the inter-modal mix by evolving a rational tariff and investment policy. It also laid stress on improvement of the self-financing capacity of this sector and on the need for ensuring an improved transport system to provide speedy, efficient, safe and economical carriage of goods and people. While the achievement of objectives and targets set for some sub-sectors, particularly roads and ports, have been encouraging, the progress in the case of others has not been as good. This is particularly true of railways where shortfalls in achievement of physical and financial targets as well as policy objectives are anticipated. The Tenth Plan has to address these shortcomings and also reinforce the achievements. It also has to provide a framework for the long-term development of the transport sector and focus on inter-modal complementarities and competitiveness.

8.3.5 While capacity shortages on both the main road and rail links continue to be a serious constraint to overall growth, even the existing infrastructure is inefficiently utilised. This is because over the years, a large number of distortions have appeared in the

transport sector because of a deliberate policy or lack of it. Another reason for this state of affairs is inadequate maintenance of the existing assets. The condition is pervasive across various modes of transport. The productivity of freight trains is constrained by the condition of tracks and rolling stock. The net tonne km. per route km. for rail is 4.21 million km in India whereas it is 23.4 million km. in China. Though the Indian road network appears very large, only about half of the roads are paved and only 20 per cent of paved roads are estimated to be in good condition. The average productivity of a truck is 200 km. a day against a potential of 350-400 km. that could be possible through reduction of road congestion. Although, various productivity indices in the ports sector have been looking up including reduction in the waiting period for the ships, increase in the turn time etc., there is still scope for further improvement. The delay in the installation of modern instrument landing or traffic control facilities have constrained the capacity of our major international airports while inadequate draft in our waterways limit the use of inland water transport.

Transport and Energy

8.3.6 Some of the demand for transportation is due to administrative policies that are often at variance with the pattern of demand that would emanate from the market economy. Presently coal and POL together constitute around 55 per cent of total rail traffic. The movement of coal by railways is mainly for power generation. This is the result of the insistence by State Electricity Boards on locating power plants within the geographical boundaries of the State regardless of the distance from the source of fuel supply. The problem was redressed to some extent by the creation of the National Thermal Power Corporation. It may diminish further with the onset of reforms in the energy sector, the emergence of strong grid to transfer power from one location to another, development of mechanism that will permit the trading of power across State boundaries etc. As a result, in the near future, there may be change in the pattern of setting up of power plants. This would create an opportunity for the transportation sector, particularly for the railways to move towards

more high value cargo traffic such as container traffic.

Transport and Environment

8.3.7 Creating transport infrastructure and operating transport services have major implications for the environment. With rapid economic growth, increase in population and increasing integration of the economy, the demand for transport services is rising at a fast pace. This is, however, leading to the use of scarce land and contributing to the atmospheric pollution in a big way. Sound pollution, road congestion, etc., are other environmental hazards due to transport. Water transport, in addition, leads to pollution of sea and coastal waters and also endangers marine life. While steps are necessary to minimise the environmental impact of transport infrastructure and services in general, priority attention needs to be given to the road transport sector, particularly in large cities, where the adverse impact on the environment is maximum.

8.3.8 All major projects, including those in the transport sector require environmental clearance before they are taken up. In large cities like Delhi, initiatives have been taken to enforce Bharat Stage II norms for vehicular emission. Stricter norms conforming to Euro III-IV are also under consideration. However, what is required is a nation-wide policy on the use of clean fuel and phasing out of old vehicles. There is also need to improve the quality and efficiency of the public transport system in order to reduce dependence on private vehicles. In the larger national interest, it is also important that rail transport, which is a cleaner and more fuel-efficient system vis-a-vis road transport is accorded higher priority.

Safety

8.3.9 Safety of operation is an area of concern in all modes of transport. Though the accident rates have come down over the years, the number of fatalities remains high. In the road sector, the sheer magnitude and severity of road accidents require immediate attention. The number of fatalities has increased to over 70,000 per annum. India's share

in the world vehicle population is only 4.3 per cent whereas its share in fatality is 13 per cent. The severity of accidents in India is evident from the fact that on an average 1 person gets killed in 5 accidents, whereas in developed countries a fatality occurs in 10 to 85 accidents. The total estimated social cost on account of accidents in the country is estimated at Rs. 55,000 crore per year. A multi-pronged attack, encompassing engineering, education and enforcement of regulatory provisions, is required to tackle the problem. In addition, there is a need to prepare a realistic National Road Safety Policy to bring down the number of accidents within a fixed time frame.

8.3.10 In the railway sector, the incidence of train accident per million train kms, which is the universally accepted safety index, dropped from 5.5 in 1960-61 to 0.65 in 1999-2000. Nevertheless, the frequency of rail accident has been an area of concern. To a large extent, train accidents could be attributed to obsolete railway equipment. As a result, a Special Railway Safety Fund with a corpus

of Rs.17,000 crore has been approved to meet the requirement of track renewal rehabilitation of bridges, replacing overaged rolling stock. In order to minimise accidents due to oversight /negligence of staff, there is need for more automation of railway signalling and monitoring of train movement.

8.3.11 There is also high incidence of accidents in the Inland Water Transport (IWT) sector which caters mainly to passenger traffic. The IWT however, is in the unorganised sector and there is absence of proper data on such accidents. In the civil aviation sector, the stress on safety would mean better equipment for scanning passengers and luggage. The Government accords a very high priority to security of civilian aircraft.

Structural Changes in the Economy

8.3.12 The Indian economy is going through structural changes. The share of value added by the primary sector is consistently declining whereas the share of non-primary sector has been increasing as indicated in table 8.3.1.

Table 8.3.1
Sectoral composition of Gross Domestic Product
(Percentage distribution at 1993-94 price)

Proportion in total (%)

GDP at factor cost at 1993-94 prices

S.No.	Sector	1993-94	1996-97	1990-00 QE	2000-01 RE
1.	Agriculture, forestry & fishing	31.0	28.5	25.2	24.0
2.	Mining and Quarrying	2.6	2.4	2.3	2.3
3.	Manufacturing	16.1	18.2	17.1	17.1
4.	Electricity, gas & water supply	2.4	2.4	2.5	2.4
5.	Construction	5.2	4.8	5.1	5.1
6.	Trade, hotel& restaurant	12.7	14.0	14.6	14.6
7.	Transport, storage & communication	6.5	7.0	7.3	7.7
8.	Financing, ins., real estate & bus servs.	11.5	11.3	12.7	13.2
9.	Community, social & pers. Servs.	12.0	11.4	13.2	13.5
10.	TOTAL	100	100	100.0	100.0

8.3.13 The demand for transport is influenced by these structural changes. For example, a decline in the share of agriculture and an increase in the share of manufacturing may lead to an increase in demand for transport. Slower growth in population, however, may reduce demand for transport, which may partly be offset by the fact that the share of mobile population (ages 15-60) is likely to increase. Taking all factors into account, it is expected that traffic elasticity with respect to GDP will continue to decline in line with the past trends but will still be around 1. This growth in transport demand has to be met by expanding domestic supply as transport infrastructure is non-tradable. Investment in transport must, therefore, reflect the need to make up for existing capacity shortages and also to allow for growth in demand.

Data Base

8.3.14 It is necessary to develop an adequate transport database comprising traffic flows and cost, which must be systematically collected and updated. In spite of recommendations of various committees, such data is not collected regularly. The efforts made in the past related only to collection of inter-regional traffic flows, and the growing intra-regional traffic has not been studied. The cost data is limited to a few commodities and does not take into account perspective technological improvement. The study of the past traffic flows also did not consider the impact of urbanisation. It is essential that data on traffic flows and cost should be collected regularly, preferably under the aegis of Planning Commission. These studies would not only be useful in formulating a transport policy but also in planning and implementing projects, both by the public and private sector.

Transport and Budgetary Allocation

8.3.15 Budgetary resources for the transport sector are likely to be limited, especially when fiscal prudence is the overriding consideration. However, within the budgetary constraints, transport infrastructure development needs to be treated as a high priority area for continued resource allocation. Despite these efforts, the total resource requirement would greatly exceed the capacity of the budget to meet the costs of maintenance and expansion.

Internal generation of resources through rational pricing and user charges is, therefore, essential for the successful development of transport infrastructure. Increasing participation of the private sector would also be necessary to augment the resource base and increase competitive efficiency. In view of the resource constraint, it is also necessary to give priority in public investments to projects that sustain agricultural and industrial growth and support the country's foreign trade. Further, for the purpose of policy planning, the transport system must be viewed as an integrated structure in which various modes complement each other, have an appropriate interface and, where possible, provide healthy competition to each other. This competition must be conducted within a framework in which each mode is able to operate on a level playing field so that its comparative advantages and economic efficiencies are properly reflected in costs to the users.

Technological Upgradation

8.3.16 Despite impressive expansion over the years, the entire Indian transport network is characterised by many deficiencies and a major exercise in expansion of capacity and modernisation is necessary. This will have to be accompanied by technological upgradation in many critical areas. The need for new technology acquires greater urgency because the transport sector in India has been suffering from slow technological development for a long time. This has led to a situation of high cost, low energy efficiency, higher pollution and slow movement of passenger and freight traffic. The magnitude of the task of capacity augmentation and replacement of overaged assets offers an opportunity for technological upgradation in each of the transport sub-sectors.

Regulatory Frameworks

8.3.17 The basis of the market economy argument is that an optimum allocation of resources will take place if the prices are allowed to reflect the real economic cost, and consumers of intermediate and final products make their choices on the basis of these prices. This presumes that the market must

be competitive and all costs pass through the market. These conditions do not prevail in the transport sector anywhere in the world, much less in India. There are a number of factors which contribute to market failure in the transport sector. Some of the transport services and infrastructure are more in the nature of public goods. The economies of scale, an element of sunk cost, need for coordination and presence of externalities, all stand in the way of effective functioning of the market. The presence of externalities leads to over-production or under-production of transport, depending on whether the externalities are negative or positive. Therefore, there is need to take regulatory measures to correct distortions in the transport sector.

8.3.18 The broad policy thrust of the Tenth Plan towards the transport sector has to be on the following:

- ☒ Meeting the transport demand generated by higher growth of gross domestic product (GDP).
- ☒ Ensuring transport growth in a manner that all regions of the country participate in the process of economic development and is paid special attention to integrating remote regions such as the North-East into the economic mainstream.
- ☒ Capacity augmentation, quality and productivity improvements through technology up-gradation and modernisation.
- ☒ Emphasis on higher maintenance standards so as to reduce need for frequent reconstruction of capacity.
- ☒ Higher generation of internal resources and increased private sector participation in providing transport services.
- ☒ Increase in overall economic efficiency by bringing in competition into the provision and maintenance of transport infrastructure and services wherever possible.
- ☒ Higher emphasis on safety, energy efficiency, environmental conservation and social impact.
- ☒ Developing an optimal inter-modal mix, where each mode operates efficiently and according

to its comparative advantage, and complements services provided by other modes of transport.

RAILWAYS

8.3.19 The Indian Railways, with a capital base of about Rs. 55,000 crore, is the principal mode of transportation for carrying bulk freight and long distance passenger traffic. Given India's continental size, geography, resource endowment and diversity, the Railways play a key role in not only meeting the transport needs of the country, but also in binding together dispersed areas, thus, promoting national integration. It also plays a key role during war and emergencies when huge quantities of material and men are required to be moved across the country at short notice. In spite of these inherent advantages, the Railways, which is the sole high capacity transport mode capable of meeting the long-term transport needs of the country, has not maintained its market share.

REVIEW OF NINTH PLAN

8.3.20 During the Ninth Plan, the financing pattern of the Railways shows a greater reliance on the gross budgetary support. While the Ninth Plan had emphasised the need for financing the Railway Plan mainly through internal resources, the actual mobilisation of internal resources dropped from Rs. 3,452 crore in 1997-98 to Rs. 2,463 crore in 2001-02. (Table 8.3.2)

8.3.21 The market borrowings of Indian Railways began in 1987-88, when it was strapped for funds for its annual plans. At present, market borrowing is done through three different sources viz. (i) leasing of rolling stock through the Indian Railway Finance Corporation (IRFC); (ii) leasing of wagons under the Own Your Wagon Scheme (OYWS) and (iii) private participation in execution of projects through Build Operate Lease Transfer/Build Operate Transfer (BOLT/BOT). The nature and extent of borrowing during the Ninth Plan is given in Table 8.3.3.

Table 8.3.2
Resource Mobilisation for the Ninth Five Year Plan

(Rs. crore)

Year	Internal Resources		Market borrowings through IRFC, OYWS & BOLT		Capital from General Exchequer		Total
1997-98	3452	42%	2795	34%	1992	24%	8239
1998-99	3455	39%	3217	36%	2185	25%	8857
1999-2000	3550	39%	2919	32%	2588	29%	9057
2000-01	2901	31%	2897	31%	3597	38%	9395
2001-02 (RE)	2463	23%	2753	25%	5641	52%	10857
Total (Provisional)	15821	34%	14581	31%	16003	35%	46405

Table 8.3.3
Total Borrowings During the Ninth Five Year Plan

(Rs.Crore)

Year	Borrowing Through							
	IRFC		OYWS		BOLT/BOT		Total	
	Amount	%age	Amount	%age	Amount	%age	Amount	%age of total outlay
1997-98	2236	27%	236	12%	323	16%	2795	34%
1998-99	2941	33%	193	2%	83	1%	3217	36%
1999-00	2785	31%	134	1%	0	0%	2919	32%
2000-01	2818	30%	79	1%	0	0%	2897	31%
2001-02(RE)	2743	25%	10	0%	0	0%	2753	25%

8.3.22 During the Ninth Plan period, the sum total of budgetary support provided in the various annual plans exceeded the total budgetary support. However, generation of internal resources and borrowing plan fell short of the targets. (Table 8.3.4)

Physical Targets and Achievements

8.3.23 Table 8.3.5 indicates Ninth Plan targets and achievements.

8.3.24 The Indian Railways exceeded the Ninth Plan projection of passengers in terms of passenger km. There is a shortfall in originating freight to the extent of 36 million tonnes (mt) in the terminal year

of Ninth Plan due to the recessionary trends in the economy.

Productivity

8.3.25 The Indian Railways has had a healthy tradition of sustained improvement in the utilisation of assets. Table-8.3.6 shows wagon utilisation registered a continuous improvement from 1996-97 to 1999-2000. It increased from 1,840 net tonne km. (NTKM) per wagon per day in the last year of the Eighth Plan to 2,027 NTKM per wagon per day in 1999-2000, i.e., an increase of about 10 percent. The wagon turn-round also improved from 8.5 days in 1996-97 to 7.7 days

Table 8.3.4
Outlay and Expenditure of the Railways during the Ninth Five Year Plan

(Rs.Crore)

Year	GBS	Borrowing	IR	Total
1997-98 B.E	1831	3050	3419	8300
Actual	1992	2795	3452	8239
1998-99 B.E	2200	2900	4400	9500
Actual	2185	3217	3455	8857
1999-00 B.E.	2540	3000	4160	9700
Actual	2588	2919	3550	9057
2000-01 B.E.	3840	3668	3492	11000
Actual	3597	2897	2901	9395
2001-02 B.E	3840	4000	3250	11090
R.E.	5641	2753	2463	10857
TOTAL OUTLAY	14251	16618	18721	49590
Likely Exp. During Ninth Plan	16003 (35%)	14581 (31%)	15821 (34%)	46405

Table 8.3.5
Ninth Five Year Plan Growth in Freight and Passenger Traffic

Traffic Category	Unit	Ninth Plan	
		Target	Achievement
Originating Freight	Million Tonnes	525	489
Freight Net Tonne kms.	Billion	353	323
Originating Passengers	Million	4782	5000
Passenger km.	Billion	399	473

in 1999-2000. Track utilisation improved from 6.45 NTKM to 6.85 NTKM (6.2 per cent). The improvement in track utilisation in terms of passenger km. was even higher (16 per cent).

8.3.26 In terms of manpower productivity, the performance levels in 1999-2000 are significantly better than in 1996-97. The manpower productivity in passenger km. improved by more than 17 per cent and in terms of net tonne km. by almost 6 per cent over this period.

OBJECTIVES FOR THE TENTH PLAN

8.3.27 There is a need for a strategic shift in the objectives of the Railways so that it can regain some of the market it has lost over the past few decades to other competing modes of transport. In the light of massive investment taking place in the highway and pipeline sectors, the Railways must reorient their objectives in order to cope with a more competitive market. Indian Railways will have to become a more user-friendly and market-savvy

Table 8.3.6
Ninth Five Year Plan Productivity Indicators of Railways

Sl. No.	Item	1996-97	1997-98	1998-99	1999-2000	% increase/ decrease
1.	Net tonne km. per wagon per day (B.G.)	1840	1894	1904	2027	(+)10.16
2.	Wagon turn-round (in days)(B.G.)	8.5	8.1	19.0	7.7	(+)9.41
3.	Net tonne km. per route km. (million)	6.45	6.52	6.32	6.85	(+)6.20
4.	Passenger km. per route km.(million)	7.73	8.04	8.40	8.98	(+)16.17
5.	Engine km. per day per engine in use for freight (B.G.)					
	(i) Diesel	403	400	396	393	(-)2.48
	(ii) Electric	401	422	444	442	(+)10.22
6.	Engine km. per day per engine in use for passenger (BG)					
	(i) Diesel	569	544	552	569	No increase or decrease
	(ii) Electric	533	550	550	551	(+)3.38
7.	Manpower Productivity					
	(i) Net tonne km. per employee (million)	0.18	0.18	0.18	0.19	(+)5.56
	(ii) Passenger km. per employee (million)	0.23	0.24	0.26	0.27	(+)17.39

organisation, which responds quickly to customer needs.

8.3.28 The thrust has to be on modernisation and technological upgradation of the Railway system, particularly along the Golden Quadrangle and its diagonals. With a view to augmenting its capacity and improving the safety and reliability of railway services, the Indian Railways need to run primarily on commercial lines. While it could continue to play its social and developmental role, it should be suitably compensated for such services. At the same time, Railways needs to shed those activities which are not connected to the core business of passenger and freight.

POLICY ISSUES

8.3.29 It is now well-acknowledged that the Railways policy framework has some inherent

weaknesses that prevent its healthy growth. As a result of these policy distortions, the Railways are not able to meet the increasing competition from the road sector.

8.3.30 These policy distortions are reflected in the deteriorating financial position of the Railways. The share of internal resources in the total Plan has been declining and Indian Railways today is on the verge of financial crisis. For the first time in 17 years, in 2000-01 and 2001-02, Indian Railways was unable to pay dividend on its past investment to the Government. In 2000-01, a sum of Rs. 1,823 crore as dividend was deferred and in 2001-02, Rs. 1,000 crore was deferred. The Mid-Term Appraisal of the Ninth Plan had spelt out the need for stringent corrective measures. The necessity of correcting the prevailing policy structure is felt to a much greater extent now. Several policy reforms are

essential so as to introduce greater financial discipline in the functioning of the Railways.

Rationalisation Of Rail Tariff

8.3.31 The most important policy distortion is the skewed tariff policy which overcharges freight movement in order to subsidise ordinary passenger traffic. Freight rates increased by around 12 per cent in 1997-98, 4 per cent in 1999-2000 and further by 5 per cent in 2000-01. The passenger fares have hardly increased during the Ninth Plan period. As a result, the cross subsidisation has actually increased with the total subsidy on Second Class fares and suburban passenger fares increasing to almost Rs. 3,800 crore.

8.3.32 In the Tenth Plan, a major exercise to rebalance the rail tariff would be undertaken. Such an exercise would include marked improvement in the fare-freight ratio, readjustment of the relativity index in different classes of travel and reduction in cross subsidy within the freight segment.

Increased Share In Freight Traffic

8.3.33 One of the contributing factors for the decline in the financial fortunes of Indian Railways is the loss of freight market share. Freight has been the key earner for Railways. The Railways cannot afford to continue the historical rate of growth of 3-4 per cent in freight traffic movement and needs to pursue a high growth rate. Otherwise, not only will the Indian Railways get marginalised but this would also lead to an economic slowdown due to infrastructural bottlenecks.

8.3.34 In order to increase its market share, the Railways has to improve the quality of its services. Door to door service through the process of containerisation with necessary road links as a part of service would provide a major boost in this regard. Reducing the time taken in delivery of goods through introduction of faster freight trains and steps towards making freight service 'user friendly' would help in increasing the share of Railways in freight traffic.

Technological Upgradation

8.3.35 Upgrading technology in all spheres of activities needs greater attention so as to improve reliability, reduce maintenance cost and increase customer satisfaction. Technological improvements are, therefore, envisaged in tracks, wagons, coaches, Electric Multiple Units (EMUs) and locomotives. Tracks would be improved to cater to higher axle load and speeds together with better methods to detect rail defects. Wagons with improved axle loads, speeds and payload-to-tare ratio would be introduced. The cost of maintenance of coaches and EMUs is to be reduced by introducing stainless steel coaches. For greater comfort, air-springs are to be used in EMUs. Higher horse power (HP) locos and three-phase technology in already introduced locomotives would be continued.

8.3.36 The application of information technology (IT) to various activities of Railways also deserve special attention. In the passenger segment, the Railways has taken a number of initiatives in this respect. The massive passenger reservation system managed by CRIS - an organisation of the Indian Railways, is the world's largest reservation system

Box 8.3.1 Opportunity to Regain Freight Traffic

Indian Railways has experienced continuous decline in its position vis-a-vis the road transport system. To some extent, this could be explained by the fact that as the economy progresses, the share of low-volume high-value commodities increases and that of high-volume low-value commodities decreases which puts the Railways in a disadvantageous position. But considering India's continental size, geography and resource endowment, the Railways should continue to play a lead role in the transport sector. At present, Railways carry only 65 per cent of the long distance bulk traffic. By increasing the share to 80-85 per cent and through an accelerated programme of containerisation, it could substantially step up its share in non-bulk traffic. The failure of Railways to increase the market share is, therefore, not due to lack of opportunities.

Box 8.3.2 Technological Improvements

The Railways must concentrate on reducing the speed differentials between freight and passenger services by raising speeds of freight cars to 100 km/hr. This will help improve traffic throughput in the system. It is also necessary to improve freight car designs to secure higher payload-to-tare ratio for freight and to improve speed. Locomotive technology is being improved through the adoption of state-of-the-art locos as well as upgrading the existing fleet through retrofit. This process must be accelerated. Mechanisation of track maintenance is another area which should receive higher priority. Introduction of modern signalling and telecom facilities should get a fillip as this would help in augmenting track capacity.

that connects about 2500 terminals in different cities to facilitate reservation of passenger seats and issue of tickets. However, the use of IT in the freight segment has not been very satisfactory. The Indian Railways have completed the first phase of the computerised Freight Operation Information System to enable online tracking of cargo. The second phase of the project covering Terminal Management System, when completed, would improve the quality of services substantially. It is, therefore, necessary that the computerisation of the freight system is given the highest priority. The increased use of IT by Indian Railways would lead to optimal utilisation of the existing infrastructure, rolling stock and man-power and, in the process, not only increase revenue from freight traffic but also effect substantial reduction in operational cost. Application of IT to various activities of Railways would also improve the image of the Indian Railways.

Investment Strategy

8.3.37 At present, the investment strategy of Indian Railways suffers from several weaknesses. The main flaw is that the

investment in the projects is not properly linked to the augmentation of capacity and improvement in quality of service. The Expert Group on Indian Railways (Rakesh Mohan Committee) has submitted its report to the Ministry of Railways which is studying the recommendations.

8.3.38 The Railways has a large number of ongoing projects, which require huge funds for completion. The requirement of funds for completing these projects under various categories is indicated in Table 8.3.7.

Table 8.3.7
Throw forward Position of Railway Projects
as on 01st April, 2002

(Rs. crore)

Type of Projects	Number of Projects Total	Estimated Throw-forward
New lines	83	21305
Gauge conversion	70	10467
Doubling	92	3930
Electrification	23	932
Metropolitan transport projects	18	1295
Total	286	37929

8.3.39 The Ninth Plan and the Mid-Term Appraisal of the Ninth Plan stressed the need for prioritisation of these projects. However, no head-way could be made in this direction. The available resources continue to be spread thinly over a large number of projects. It is high time that a greater commercial orientation is given in allocating funds for the completion of projects.

8.3.40 In the Tenth Plan, a detailed exercise aimed at screening and prioritising of projects would be taken up keeping in view the viability of these projects, their contribution towards augmenting capacity of the system, operational considerations and availability of resources.

8.3.41 In the new investment strategy, the emphasis would be on capacity augmentation and improvement of the quality of services. The Golden Quadrangle and its diagonals, which comprise 25 per cent of the total broad gauge route km. carry more than 65 per cent of the total freight traffic and more than 55 per cent of the total passenger throughput, would be given priority. The capacity augmentation of the system and improvement in quality of services would be carried out through technological upgradation and modernisation. While augmenting capacity in various sections, route-wise study based on origin and destination survey would be carried out. This would help in selecting the projects on the basis of expected returns.

8.3.42 An important requirement for carrying traffic is the availability of adequate terminal facilities, both for coaching as well as freight traffic for quicker release of rolling stock. Development and modifications in terminal facilities are required to cater to improved design of rolling stock, both freight and coaching. During the Tenth Plan, major thrust will have to be given on terminal facilities.

8.3.43 As a step towards strengthening the Railway system, the Prime Minister on 15th August 2002 has announced National Rail Vikas Yojana through a “non budgetary investment initiative”. The salient features of the Yojana are as under :

- A. Capacity bottlenecks in the critical sections of the railway network will be removed at an investment of Rs. 15,000 crore over the next five years i.e., Tenth Plan period. These projects would include :
- (i) Strengthening of the Golden Quadrilateral and its Diagonals to enable the Railways to run more long-distance mail/express trains and freight trains at a higher speed of 100 kmph, at a cost of Rs. 8,000 crore;

(ii) Strengthening of rail connectivity to ports and development of multimodal corridors to hinterland, at a cost of Rs. 3,000 crore;

- B. Construction of four mega bridges - two over River Ganga, one over River Brahmaputra, and one over the River Kosi, at a cost of Rs. 3,500 crore.
- C. Accelerated completion of last mile and other important projects, at a cost of Rs. 763 crore.

Reduction in Operating Cost

8.3.44 In future, the major part of resources for the development of Railways would have to come from internal generation. This would mean improvement in the financial health and self-financing capability of the Indian Railways, which is largely a matter of revenue generation and reduction in cost. While it may be necessary to effect reduction in various components of operating cost, the most important factor requiring attention is the staff cost.

Box 8.3.3

Unsustainable Staff Cost

The ordinary working expenditure of Indian Railways has gone up from Rs. 12,000 crore in 1994-95 to over Rs. 30,000 crore in 2001-02. The pension charges has registered a 3.5-fold increase during the same period. While expenditure on staff wages and salaries experienced a 2.6-fold increase, the total expenditure on pension, staff wages and salaries constitute about 53 per cent of the total ordinary working expenses. One of the reasons for this high percentage is the fact that the Railways carry excess manpower to the extent of 25 per cent. A reduction of 2-3 per cent per annum in the overall strength should be targeted in the Tenth Plan.

Organisational Restructuring

8.3.45 In the last 25 years, a number of major railways in the world have gone through the process of restructuring. The approach followed by various railways was not uniform but the process governing restructuring and goals were similar. The main objective of change was to regain the loss of market share and improving the financial viability of railways.

8.3.46 The Approach Paper to the Tenth Five-Year Plan suggested that the need for setting up a Railway Tariff Regulatory Authority for tariff fixation on technical and commercial considerations may be considered. It emphasised that the non-core sector and peripheral activities such as manufacturing units may be spun off as individual corporations. These could remain in the public sector for the time being but should operate as other public sector units do, using commercial accounting principles. Restructuring of core activities of Indian Railways appears desirable in order to improve efficiency and to help meet the objectives of the organisation.

8.3.47 The Expert Group on Railways considered the issue relating to restructuring. The Group recommended that the Indian Railways should function on commercial lines and its management may be given a degree of autonomy considered desirable and available to any other commercial organisation. It suggested that the Railways should be compensated for meeting obligations that are purely social and developmental in nature. The Group felt that the Railways may be corporatised, to enable it to work as an independent commercial organisation.

8.3.48 The Group further recommended that the Central Government continue to formulate policy and an Indian Railways Regulatory Authority be set up to regulate the activities of the Indian Railways as a monopoly supplier of Railway services, particularly, related to tariff settings.

8.3.49 The present system of accounting followed by Indian Railways is not transparent. While this system has worked well for the internal management of the Railways, it is not well understood in the business world outside the Railways. The Expert Group on Railways has suggested that the accounts of the Railways should be in accordance with the standard business procedures. It is important that the accounts of the Indian Railways are recast. This could be under taken irrespective of any form of governance of the Indian Railways.

Participative Project Funding

8.3.50 Private sector participation in various projects of Railways has not been forthcoming. The Railways had initiated the OYWS and BOLT so as to mobilise private sector funds. The response to these two schemes has been somewhat lukewarm. During the Tenth Plan various options for private/public partnerships in Railway projects would be explored.

8.3.51 The Railways has evolved a policy for a public-private partnership and a few schemes are already functioning. Port connectivities have been planned through this model. This envisages equal participation by the Railways, project beneficiaries and the financial institutions. The old BOLT scheme has been replaced by new BOT scheme which envisages private participation by a consortium of construction contractors and financiers.

8.3.52 Various models of participation by State Governments in railway projects are available. Some States have contributed two-thirds of project cost while some are on a 50:50 sharing basis with Railways. In a few cases, Special Purpose Vehicles (SPVs) have been formed for specific execution. This cost-sharing model needs to be further pursued in the Tenth Plan.

Railway Safety

8.3.53 Railway safety is important because it concerns human lives. Besides, poor safety record reduces the reliability of assets which imparts a poor image of the Railways in the market for transport services.

8.3.54 Since the Indian Railways is a labour-intensive organisation, proper training and motivation of its labour force would also contribute to improving railway safety. More than 65 per cent of railway accidents are attributed to failure of the railway staff. While the staff is disciplined and dedicated, it lacks adequate training. However, there is scope for improving the same and extending it to areas not yet fully covered. The Railways also have a very extensive training infrastructure. The other causes of accidents include failure of equipment, such as, rolling stock, tracks, etc., and sabotage.

8.3.55 Recognising the significance of improving railway safety, a non-lapsable Special Railway Safety Fund worth Rs.17,000 crore has been created. It is expected that this fund would help in clearing the arrears of track renewal and replacement of overaged railway assets over a period of six years from 2001 to 2007. The work to be covered includes

renewal and replacement of tracks, bridges, rolling stock and signalling gear including communication and safety enhancement works.

Rationalisation of Power Tariff

8.3.56 The abnormally high tariff on power charged by state electricity boards (SEBs) has put an extra burden on the Railways. In the long run, in the interest of energy and environmental policy, tariff for electric traction needs to be streamlined to bring about uniformity and rationalisation in the tariffs charged by different SEBs in order to ensure that resources are optimally utilised and Railways retain their comparative advantage. The Railways have now initiated measures for the direct purchase of power from the producers at a considerably lower tariff.

8.3.57 In view of the high electricity tariff being charged by the State Governments, the Railways are exploring the possibility of setting up dedicated captive thermal power plants to meet their needs and to reduce expenditure on electric traction energy bills.

Physical Targets

Freight

8.3.58 The freight traffic projections for the terminal year of the Plan has been based on the demand projection and the users' forecast. The freight traffic is expected to increase at the rate of 5 per cent per annum. The projections in terms of originating freight traffic and freight tonne kms. are given in Table 8.3.8.

Table 8.3.8**Tenth Five Year Plan Projection for Freight Traffic**

Freight Traffic	2001-02	2006-07
Originating Freight (Million Tonnes)	489	624
Freight Tonne Km. (Billion Tonnes)	323	396

8.3.59 In order to carry additional freight traffic, a number of steps would be taken. These include introduction of high speed rolling stock, elimination of differential speed between passenger and freight trains, introduction of higher axle load at selected routes, improvement in connectivity to ports and asset reliability, improvement in terminal operations, etc.

Passenger Traffic

8.3.60 Passenger traffic is expected to increase at the rate of 5.7 per cent in the Tenth Plan. Table-8.3.9 indicates traffic projections for the passenger traffic.

Table 8.3.9**Tenth Five Year Plan Projection for Passenger Traffic**

Passenger Traffic	2001-02	2006-07
Originating Passengers (Million)	5000	5885
Passenger km. (Billion)	473	625

In order to meet the additional traffic demand, the mail and express trains would be augmented to run with 24 coaches. This will also necessitate augmenting terminal facilities, particularly in metropolitan cities and other major stations.

Tenth Plan Programmes**Rolling Assets**

8.3.61 The requirement of rolling assets during the Tenth Plan will depend upon the volume of traffic and the efficiency with which they are utilised. In addition, significant improvement will be

achieved by reducing the frequency of scheduled maintenance and improving reliability of assets on line. This should be possible, especially in view of transfer of technology that has been initiated in the Ninth Plan with respect to high horse-power electric and diesel locomotives as well as coaches. During the Tenth Plan, upgrading of technology is envisaged in EMUs coaching stock and introduction of high speed and higher axle load wagons.

8.3.62 Based on projected traffic and improvement in utilisation, requirement of rolling stock in the Tenth Plan is given in Table 8.3.10.

Table 8.3.10**Tenth Five Year Plan Requirement for Rolling Stock (Numbers)**

Item	Plan for Procurement
Wagons (Nos. in FWUS) (excluding deptt.)	65,000
Electric locos (Nos.)	343
Diesel locos (Nos.)	444
BG Conventional coaches (VUS)	9160
EMUs (VUS)	1965

The stress will be on procurement of high horsepower, state-of-the-art electric and diesel locos.

8.3.63 Technological upgradation and modernisation of rolling assets are proposed during the Tenth Plan period. This would cover introduction of more track-friendly bogies that require less maintenance. Reducing the speed differential between freight and passenger trains is also planned. It is proposed that all new acquisitions should be of high speed freight stock (fit to run at 100 kmph) to eliminate the speed differential between freight and passenger trains and introduce rolling stock fit to run at 120 kmph over selected routes. This would enhance the capacity with minimal inputs.

8.3.64 Apart from acquisition of rolling stock through market borrowings, the possibility of private sector participation through innovative leasing schemes would be explored.

FIXED INFRASTRUCTURE

Track

8.3.65 The total arrears of track renewal at the beginning of the Tenth Plan and including those arising during the Tenth Plan would be 34,990 km. (Table 8.3.11).

New Lines

8.3.69 Given the large portfolio of ongoing projects, emphasis in the Tenth Plan would be to accord priority to projects that are in an advanced stage of completion. The new lines which are likely to be completed during the Tenth Five Year Plan

Table 8.3.11
Arrears in Track Renewals : Physical

Track	Total track length (km)	Arrears of renewal at the beginning of Tenth Plan (km)	Arisings during the Tenth Plan period (km.)	Total due for renewal (km.)
Broad gauge	61000	11200	8800	20000
BG, yard and sides		2750	3280	6030
Metre gauge	15,000	6870	950	7820
Narrow gauge	3,600	640	500	1140
Total	79,600	21990	13000	34990

8.3.66 While taking up the programme of renewal, the tracks would be upgraded particularly on Golden Quadrangle routes so as to facilitate the running of freight trains at 100 km. per hour.

Bridges

8.3.67 It is planned to clear all arrears of rebuilding/rehabilitation of distressed bridges as well as meet additional requirements that may arise during the Tenth Plan period. It is also planned to rebuild/strengthen old bridges with maximum risk of failure which were identified and recommended for replacement/strengthening by a Technical Committee of Railway Board on Bridge Rehabilitation in March 1989.

Signalling and Telecommunication

8.3.68 Under this programme, the arrears of replacement of signalling gear at all stations on important routes would be liquidated. It is also proposed to provide track circuiting so as to cover all high density routes.

include: Banspani-Daitari; Hubli-Ankola; Jammu-Udhampur; Udhampur-Katra; Qazigund-Baramulla; and Kolayat-Phalodi.

8.3.70 Indian Railways is taking up construction of new lines under cost-sharing arrangement and through the SPV route in association with the State Governments.

8.3.71 As against 662 km. of new lines completed in the Ninth Plan, a total of 1310 km. of new lines are expected to be completed during the Tenth Plan period which will give connectivity to some mineral rich areas, ports and strategic areas.

Gauge Conversion

8.3.72 The thrust would be on completing the works that provide connectivity to ports/industry and those projects which enhance the capacity of saturated sections and remove bottlenecks in the movement of traffic. A total of 2365 km. of gauge conversion is planned during the Tenth Plan period as against 2103 km. converted to broad gauge during the Ninth Plan period.

Doubling

8.3.73 In order to augment the capacity, particularly on the Golden Quadrangle, it will be necessary to take up projects relating to multi-plexing of selected sections. In the Tenth Plan, it is proposed to complete the work on 1500 km. under this head.

Metropolitan Transport Projects

8.3.74 There are a number of Metropolitan projects in progress in various States. The cost sharing arrangements are already agreed to by some State Governments. This will be a necessary condition for all the new projects in view of the negative return on most of the Metropolitan projects.

Terminal Facilities

8.3.75 An important requirement for carrying the traffic is adequate terminal facilities, both for coaching as well as freight traffic. Development and modifications in terminal facilities are also required to cater to improved design of rolling stock. During the Tenth Plan, major thrust will have to be given on terminal facilities. The scheme-wise break up of the Tenth Plan outlay for Ministry of Railways is given in the Appendix.

Path Ahead

- ☒ Rebalance tariff to make Indian Railways competitive, market sensitive and a user-friendly organization.
- ☒ Augment capacity through technological upgradation and modernisation.
- ☒ Re-orient investment strategy, focusing on projects that aim at improving capacity in high-density corridors.
- ☒ Spin off non-core activities as separate entities.
- ☒ Constitute a Railway Regulatory Authority to de-politicise fixation of rail tariffs and also regulate railway activities.
- ☒ Determine and identify the social and commercial roles of Indian Railways.
- ☒ Alter accounting practices of Indian Railways into company format.

- ☒ Re-structure the core business activities of Indian Railways on sound commercial lines.

ROADS

8.3.76 Roads are the key to the development of an economy. A good road network constitutes the basic infrastructure that propels the development process through connectivity and opening up the backward regions to trade and investment. Roads also play a key role in inter-modal transport development, establishing links with airports, railway stations and ports. In addition, they have an important role in promoting national integration, which is particularly important in a large country like India.

8.3.77 The country's road network can broadly be divided into three categories viz. (a) National Highways including the National Highway Development Project stretches (b) State Highways and Major District Roads and (c) rural roads. The National Highways, running across the length and breadth of the country, have a length of 58,112 km. Though they comprise only 1.7 per cent of the road network, they carry about 40 per cent of the road-based traffic.

8.3.78 State Highways (SHs) and Major District Roads (MDRs) constitute the secondary system of road transportation in the country. The State Highways provide linkages with the National Highways, district headquarters, important towns, tourist centres and minor ports. Their total length is about 1,24,300 km. Major District Roads run within the district, connecting areas of production with markets, rural areas to the district headquarters and to State Highways/National Highways. It is assessed that the secondary system carries about 40 per cent of the total road traffic and comprises 12 per cent of the total road length. By acting as the link between the rural and urban areas, the State Highways and Major District Roads contribute significantly to the development of the rural economy and industrial growth of the country.

8.3.79 The last link in the chain is rural roads. Rural connectivity is a key component of rural

development and contributes significantly to generating higher agricultural incomes and productive employment opportunities besides promoting access to economic and social services. Studies show that rural roads have a significant impact on poverty reduction.

8.3.80 However, despite their importance to the national economy, the road network in India is grossly inadequate in various respects. The existing network is inadequate and is unable to handle high traffic density at many places and has poor riding quality. The main reason for these shortcomings is the inadequacy of funds for maintenance and improving the quality of the road network. Efforts are now underway to address these issues and improvement in the road network has been accorded a very high priority in development planning in the country.

8.3.81 To bridge the resource gap and to instil competitive efficiency, efforts are being made to associate the private sector with road projects. However, the initial response has not been very encouraging and it is felt that more innovative methods are needed to ensure greater participation of the private sector. Simultaneously, it is also necessary to prioritise road projects according to resource availability so that resources are not spread thinly among large number of projects leading to unwarranted delays.

Review of the Ninth Plan

National Highways

8.3.82 In absolute terms, there has been considerable growth in the National Highways network since Independence. Table 8.3.12 provides a snapshot of various achievements over the years.

8.3.83 The achievements relating to four-laning, two-laning, strengthening of roads during the Ninth Plan period have been satisfactory, keeping in view the availability of funds. There have, however, been some shortfalls in construction of bypasses and bridges primarily due to the time-consuming process of land acquisition and shifting of utilities in the case of bypasses. Construction and design problems have also been noted, especially for major bridges. A large number of deficiencies, however, remain in the network in terms of inadequate capacity, insufficient pavement thickness, weak, narrow and distressed bridges/culverts, rail overbridges (ROBs) etc. Table 8.3.13 provides an overview of targets and achievements during the Ninth Plan period.

8.3.84 The National Highway network, however, is under considerable pressure. Out of the total length of 58,112 km., about 25,000 km is under severe strain due to high volume of traffic. One of the main factors responsible for this is the upgradation of large segments of State Highways to

Table 8.3.12
Achievements on National Highways

Period	Total Length* (km)	Widening to two lanes (km)	Widening to four lanes (km)	Strengthening of pavement (km)	Major Bridges (Nos)
1947-1969	24,000	14,000 **	Nil	Nil	169
1969-1990	33,612	16,000	267	9,000	302
1990-2001 (August 2001)	58,112	3,457	1,276	7,000	87
Total		33,457	1,543	16,000	558

* Length at the end of the period.

** Includes a length of 6,000 km which were already two lane at the time of declaration as National Highways

Table 8.3.13
Targets/Achievements during Ninth Plan

S. No.	Scheme	Unit	Ninth Plan Target (1997-2002)	Ninth Plan Achievements (1997-2002)
Normal NH works				
1	Widening to two lanes	Km	1791	1955
2	Widening to four lanes	Km	944	797
3	Strengthening weak 2 lanes	Km	3042	3511
4	Bypasses	No.	59	30
5	Major Bridges / Minor Bridges including ROB's	No.	633	442

National Highways during the Ninth Plan. Available resources are, therefore, spread too thinly, resulting in poor maintenance and riding quality of the National Highway network. Annexure 8.3.2 provides details of increase in the National Highway network since Independence.

8.3.85 The cost of removing all deficiencies in National Highways at current prices is estimated at Rs.1,64,345 crore. The break-up among various constituent parts is given in Table 8.3.14. This staggering resource requirement necessitates the prioritisation of projects on the basis of traffic density,

Table 8.3.14
Total estimated cost of removing deficiencies on National Highways

(At current prices)

S.No.	Category	Length to be covered	Amount required (Rs. Crore)
1.	Widening from single lane to two lanes	22,522 km.	28,150.00
2.	Improvement of two lane roads:		
	a) Strengthening weak pavement	19,250 km.	14,450.00
	b) Widening to 4 lanes/6 lanes	22,000 km	88,000.00
3.	Construction of expressways	2,000 km	16,000.00
4.	Construction of access controlled bypasses (average 20 km length of bypass @Rs. 7.5 crore per km.	60 Nos	9,000.00
5.	Construction of bridges	210 Nos	425.00
6.	Rehabilitation of bridges	425 Nos	320.00
7.	Miscellaneous (Missing links, Road safety etc)	Lump-sum	8,000.00
Total :			1,64,345.00 (Say Rs.1,65,000.00 crore)

development needs and requirement for national integration through better connectivity. The most important project taken-up in this regard is the National Highways Development Project (NHDP) comprising the 5,846-km Golden Quadrilateral connecting the four metropolitan cities of Delhi, Mumbai, Chennai and Kolkata and the 7,300-km North-South and East-West corridors connecting Srinagar-Kanyakumari, with a spur from Salem to Kochi, and Silchar- Porbandar respectively.

National Highways Development Project

8.3.86 The NHDP envisages four-laning/six-laning of the existing two lanes and its implementation

has been entrusted to the National Highways Authority of India (NHAI). The NHDP would involve an investment of Rs.54,000 crore and the Government has made arrangements to ensure availability of funds through cess on petrol and diesel, multi-lateral funding, normal budgetary allocations and market borrowing. In addition, the NHAI will also take up four-laning of about 1,000 km, which includes port connectivity of 400 km and other projects of 600 km at a cost of about Rs. 4,000 crore.

8.3.87 The physical status of NHDP and other roads including port connectivity projects as on July 31, 2002 is given in Table 8.3.15.

Box- 8.3.4

National Highway Development Project

One of the most ambitious projects launched in independent India is the National Highway Development Project (NHDP) comprising the 5,846-km Golden Quadrilateral (GQ), and the 7,300-km North-South, East-West (NS-EW) corridors. Being implemented by National Highway Authority of India (NHAI), the GQ connects Delhi, Mumbai, Chennai and Kolkata and NS- EW Corridors link Kashmir to Kanyakumari and Silchar to Porbandar. The project envisages four /six-laning of the existing network and would involve an investment of Rs.54,000 crore. In addition, NHAI is also taking up four-laning of about 1,000 km of road network that includes port connectivity of 400 km and other projects of 600 km at a cost of Rs.4,000 crore.

2. The financial package for the GQ has been fully tied-up through cess on petrol and diesel, multilateral funding, normal budgetary allocations and market borrowing. Some gaps, however, remain in funding the NS-EW corridor projects. The options for bridging the gap are additional cess on petrol and diesel, toll on roads and market borrowings. Such borrowings could be resorted with the support of a Government of India guarantee or through collateralisation of future cess/toll receipts. Other choices are Build-Operate-Transfer (BOT) and BOT Annuity Schemes. BOT in road construction activities, however, has not received the expected response from the private sector, the concern apparently being uncertainty about future toll receipts. The relatively better response of the private sector to BOT (annuity), which involves a guaranteed annuity payment by NHAI to the investor is a pointer to this fact. The concern of private investor regarding uncertainty of future toll receipts needs closer examination in order to make BOT 'investor friendly'. The sharing of downside risk of traffic flows is one possibility on this regard.

3. The NHAI is also beginning to experiment with private sector participation in road maintenance for NHDP stretches that have been already completed. The move could herald the beginning of a new era in road maintenance, which could be emulated widely for non-NHDP National Highways and State Highways maintenance, which are often in a bad way for want of funds.

4. The GQ is scheduled for completion by the end of 2003 and the NS-EW corridors by 2007. Except for a few slippages, the programme is largely on track and is also expected to be a source of major fiscal stimulus to the economy. The revolution in the road sector is expected to go a long way in promoting the economic development of the country and integrating remote regions with the mainstream economic activity.

Table 8.3.15
Status of NHDP and Other NHA1 Projects as on 31 July 2002

Project	Length (km)	Already 4-laned	Under Implementation	Yet to be awarded
Golden Quadrilateral	5846	1159*	4551	136
North-South & East-West	7300	773*	715	5812
Port connectivity	363	56	113	194
Others	653	103	212	338
Total	14162	2091*	5591	6480

* Includes a common stretch of 210 km

8.3.88 The GQ and NS-EW corridors are targeted for completion by December 2003 and December 2007 respectively. Though considerable progress has been made on the GQ project, the award of contracts is falling behind schedule, and this carries the risk of the project not being completed on time. A major streamlining of the monitoring and implementing mechanism is, therefore, necessary to ensure timely completion of the project. Progress of various segments of the GQ including number of contract position is given in Table- 8.3.16.

State Highways

8.3.89 The present condition and stage of development of State Highways and Major District Roads varies widely from State to State. The status of Major

District Roads is particularly worrisome. The main reason for this state of affairs is that the funds for the development of this secondary system are very inadequate. The National Highways are provided with reasonable funds for their development at the Central level, while the rural roads receive the lion's share at the State level. In the process, the secondary system of roads is neglected.

Rural Roads

8.3.90 The Ninth Plan set a target of connecting all villages as per the 1991 Census by the end of the Plan period. However, on the basis of information received from States/Union Territories (except five States and one Union Territory for which data on the basis of the 1981 Census has

Table 8.3.16
Corridor-wise details of Golden Quadrilateral

Corridor	4 laned length (km)	Under Implementation Length (km) (No. of contracts)	Balance for award length (km) (No. of contracts)	Total length (km)
Delhi-Kolkata (NH-2)	322	1047(19)	84 (3)	1453
Kolkata-Chennai (NH-5,6 & 60)	146	1538 (37)	–	1684
Mumbai-Chennai (NH4,7 & 46)	197	1093 (23)	–	1290
Delhi-Mumbai (NH8,76 & 79)	494	873 (16)	52 (1)	1419
Total	1159	4551 (95)	136 (4)	5846

been used), about 56.55 per cent of total villages are estimated to have been connected by all-weather roads by the end of the Eighth Plan. Notwithstanding the efforts made over the years at the State and Central levels through different programmes, about 40 per cent of the villages in the country still remain to be connected by all-weather roads. According to the information provided by the State Governments, there were about 2.62 lakh unconnected villages/habitations in the country on 1st January 2000.

8.3.91 In order to give a boost to rural connectivity, a rural roads programme, the Pradhan Mantri Gram Sadak Yojana (PMGSY), has been launched in October 2000. The primary objective of PMGSY is to provide connectivity, by way of all-weather roads, to the unconnected habitations in the rural areas, so that habitations with a population of 1,000 and above are covered in three years (2000-2003). All unconnected habitations with a population of 500 persons and above are to be covered by the end of the Tenth Plan Period (2007). In respect of the hill States (North-East, Sikkim, Himachal Pradesh, Jammu and Kashmir, Uttaranchal) and the desert areas, the objective is to connect habitations with a population of 250 persons and above. The programme, as a related objective, also aims to achieve an equitable development of the rural roads network in different States/districts so as to fully exploit the latent potential for rural growth. The PMGSY is being implemented as a 100 per cent centrally sponsored scheme.

Road Maintenance

8.3.92 A study by the World Bank showed that US\$ 45 billion equivalent invested in main roads in 85 countries has been eroded over the last 20 years through lack of maintenance. This loss would have been averted by preventive maintenance at a cost of less than US\$ 12 billion.

8.3.93 In India, the riding quality of the National Highways, State Highways and Major District Roads network is often very poor due to lack of maintenance. Though attention has been given to

maintenance work in the Ninth Plan, there is need to considerably step up efforts in this direction, in view of the fact that the cost of *rehabilitation* would be several times more than the cost of maintenance. The availability of resources has been the main constraint in regular maintenance. To overcome this bottleneck, there is need to find ways for associating the private sector with such activities. This would also mean a review of the existing arrangement where State Public Works Departments (PWDs) carry out maintenance work through their road gangs. In certain areas where private sector maintenance has been tried (a 143 km State Highway stretch between Bhopal and Dewas), the results have been encouraging.

8.3.94 Following the 73rd Constitution Amendment Act, rural roads have been placed in the Eleventh Schedule and their upkeep has become the responsibility of the Panchayati Raj institutions (PRIs). Henceforth, all rural roads constructed/upgraded should be transferred to the concerned PRIs and they should be maintained by them. The state authorities ought to remit the requisite cost of maintenance to the identified PRI, from the State Government funds. Since the Central Government has taken up the responsibility of providing funds to the States as grants for the construction of new rural roads under the PMGSY, it is imperative that the State Government clearly set aside adequate funds for the maintenance of existing rural roads as well as those constructed under the PMGSY. The State Governments must give an undertaking that, apart from meeting the maintenance requirements of existing rural roads, they would set apart a sum equivalent to 5-10 per cent of the funds provided by the Centre from their own resources every year in a separate Maintenance Fund for Rural Roads. This step will help improve the situation of rural roads over the years.

Goals and Objectives for The Tenth Plan

8.3.95 The main objective relating to the road sector for the Tenth Plan is balanced development of the total network. The task would include widening of roads, improvement in riding quality

Box 8.3.5

HIGHWAY MAINTENANCE

The existing road network is under severe strain due to rapid traffic growth, overloading of vehicles and lack of sufficient funds for road maintenance. A broad assessment of highways indicates that about 30% of National Highway network and 60% of State Highway network has poor riding quality.

Riding quality of about 14,300 km of National Highways has been improved in the last two years and improvement in 7,700 km was planned for 2001-02. The basic cause for poor maintenance is lack of funds for maintenance as per norms. They do not exceed 60 per cent of normal requirements for main roads and the amount is much less in the case of rural roads.

Norms for maintenance for different categories of roads have been revised by a Committee set up by the Ministry of Road Transport and Highways (MORT&H) and accepted by the Government. These norms, which take into account the expected level of service from various categories of roads have since been published by the Indian Roads Congress (IRC) and made applicable from 1 April 2001 for National Highways. Copies have also been sent to the State Governments for considering adopting these norms.

The MORT&H needs to institute a comprehensive Highway Management system and Bridge Management System for National Highways in India. These systems would encompass database management system, socio-economic model, HDM 4, Geographic Information system and a computer system platform to support the integration of these components. This approach may also be followed for proper upkeep and maintenance of State Highways.

The present system of financing maintenance is both inadequate and erratic. There is weak accountability and poor monitoring of the maintenance activities. In order to raise efficiency, road administration should explore ways to contract out more and more of their road maintenance activities to the private sector. In certain areas where private sector maintenance has been tried (a 143 km State Highway stretch between Bhopal and Dewas), the results have been encouraging. The possibility of introducing a five-year maintenance requirement in civil construction contracts should also be explored, a beginning for which could be made with National Highway contracts.

The NHAI is also beginning to experiment with private sector participation in road maintenance for completed NHDP stretches. The move could herald the beginning of a new era in road maintenance, which could be emulated widely for non-NHDP National Highways and State Highways maintenance, which are often in a bad way for want of funds.

and strengthening, road safety measures and providing wayside amenities to cater to the growing demand for road services. In addition, 100 per cent rural connectivity with all-weather roads is a priority objective in national planning. Inter-modal issues like road connectivity with airports, railways, ports etc. are also priority issues. The broad goals and objectives for road sector development in the Tenth Five Year Plan are given in Box – 8.3.6.

Mobilising Resources

8.3.96 The main issue in development of roads is mobilising resources for meeting various goals

and objectives. This is the most difficult part of the exercise, especially because the demand for funds for the road sector has to compete against claims of other transport, infrastructure and social sectors. The exercise also has to be done in the context of utmost fiscal prudence. Given the limitation of gross budgetary support for road sector projects, emphasis therefore, has to be on (i) generation of resources through the levy of appropriate user charges and (ii) active participation of the private sector in financing and maintenance activities.

8.3.97 Funds for road development have basically been provided though the Government

Box 8.3.6**ROAD SECTOR OBJECTIVES FOR THE TENTH PLAN**

The following broad goals and objectives for road sector development have been set for the Tenth Plan:

1. Balanced development of the total road network comprising three functional groups viz., the primary system (National Highways (NH) and expressways), secondary system (State Highways and Major District Roads) and rural roads.
2. Development of roads to be considered an integral part of the total transport system supplementing other modes, integrating the development plans with railways and other modes of transport.
3. Completion of the National Highways Development Project comprising the Golden Quadrilateral and the North-South and East-West corridors.
4. Phased removal of deficiencies in the existing NH network in tune with traffic for the next 10-15 years with emphasis on four-laning of high-density corridors.
5. To plan and take preliminary action for expressways to be built in future in those sections where these can be economically justified.
6. To make long distance travel safer and faster so as to give a boost to the economy.
7. Priority is to be accorded to areas like overloading of trucks, control of encroachments and unplanned ribbon development, energy conservation and environment protection.
8. Greater attention to be paid to rehabilitation and reconstruction of weak/dilapidated bridges for traffic safety.
9. Special attention is to be paid to the development of roads in the North-Eastern region.
10. Particular emphasis needs to be given to the commercialisation of highways particularly the National Highways and State Highways and bringing in the concept of user-charges for sustainable financing of the road sector. Further steps must also be taken to encourage private sector participation in the highway sector. It is necessary to implement the policy of levying toll on all four-lane roads on the National Highway network. States must adopt a similar strategy in respect of State Highways etc.
11. High-density corridors within the network of National and State Highways and Major District Roads should be identified. Such corridors and major inter-state roads should be developed on a priority basis.
12. To improve the quality of life in rural areas and ensure balanced regional development by achieving the PMGSY target of providing connectivity through all-weather roads to all habitations with a population of over 500 persons (as per the 2001 Census).
13. To encourage industry and export by providing sufficiently wide roads leading to industrial centres, ports, mining areas and power plants.
14. To encourage tourism by improving roads leading to centres of tourist importance.
15. To provide wayside amenities along highways.
16. To reduce transportation costs by providing better riding surface and popularising the use of containers and multi-axle vehicles in the haulage of goods.
17. Utmost attention to the proper upkeep and maintenance of the existing road network.
18. To ensure road connectivity where rail link is not available or possible.
19. Integrating the development plan with railways and other modes of transport and to:
 - (a) identify feeder roads to important railway routes and undertake needed improvement including periodic maintenance;
 - (b) link minor important ports with minimum two-lane NHs/SHs;
 - (c) link all Inland Container Depots/container freight stations with minimum two-lane NHs/SHs.
20. Use of modern management techniques for scientific assessment of maintenance strategies/priorities.
21. Development of a road data bank and computerised project monitoring system and promotion of the use of information technology in the highway sector.

budget. The Central Government provides funds for the National Highways and State Governments for other roads. Fees/tolls are levied by the Central Government on bridges on National Highways and the proceeds are utilised for upgradation/improvement of roads. Funds for rural roads to be constructed under the PMGSY are being provided through the Central Road Fund. The Central Road Fund Act, 2000 was notified on 27th December 2000. As per this Act, additional excise duty of Rs. 1.00 per litre on petrol levied since 2nd September 1998 and Rs. 1.00 per litre on high-speed diesel (HSD) levied since 1st March 1999 will accrue to this fund. The annual accrual through this source for 2001-2002 is estimated to be Rs. 5,962 crore. The allocation of cess among various constituent categories is as under:

1. 50 per cent of cess on HSD for the development of rural roads;
2. 50 per cent of HSD +100 per cent of petrol:
 - (i) Out of this development and maintenance
Of National Highways 57.5%
 - (ii) Road bridges under/over railway lines/safety work at unmanned railway crossings 12.5%
 - (iii) Development and maintenance of state roads 30.0%

Resources for National Highways

8.3.98 In addition to the Central Road Fund, other existing and potential sources for financing National Highways projects are:

- (i) In the face of the huge requirements of funds for both development and maintenance of all categories of roads, there is a need for setting up a Highway Infrastructure Savings Scheme on the lines of National Savings Scheme to tap the savings of individuals and companies.
- (ii) The Central Government and the State Government both collect substantial

revenue through the levy of different taxes on road user related activities. The collection of these taxes is estimated to be Rs. 40,000 crore in the 2001-2002. It is necessary that the Government utilise such funds principally for the development of roads.

- (iii) Some part of resources needed for road links to industries, power plants, large colonies etc. could be raised from the beneficiaries of such mega projects.
- (iv) A special purchase tax of Rs. 5,000 on two wheelers (excluding mopeds) and Rs.10,000 on passenger cars including multi-utility vehicles would generate a revenue of Rs. 2,000 crore a year. This amount can be utilised for urban transportation schemes covering the strengthening of public transport traffic management and safety measures.
- (v) The multilateral financing agencies like the World Bank, Asian Development Bank (ADB) have been providing loan assistance for highway projects. This source would continue to be tapped in the years to come.
- (vi) Toll Roads : Levy of tolls on roads is another alternative for generating additional resources for their upgrading. The major attractions of toll financing is speedier construction of roads which may otherwise be delayed due to budgetary constraints. Further, being implemented on a pay-as-you-use principle, they are usually constructed and operated on commercial principles implying efficiency in execution and better level of service to users.
- (vii) Private sector participation : With a view to attracting private investment in road development, the Government approved the concept of private sector participation in the development, maintenance and operation of National Highways, including expressways. To provide the enabling legal framework, the National Highways

Box 8.3.7 Toll on Roads

Toll collection for the maintenance and development of road projects is a means of introducing the 'user charges' concept to the road sector. Toll revenue is particularly useful for large value projects like bridges, expressways, four/six-laning of roads etc. In most instances, levying tolls pre-supposes the existence of an alternative route, so that the public has the option of choosing between the toll-based route that saves time and fuel and an alternative that is longer, relatively poor and congested.

2. The toll system is an integral part of schemes like build-operate-transfer (BOT). Here, the concessionaire builds the road, maintains it for a fixed number of years and charges tolls as service fee from vehicle using the road. In publicly-funded road projects, tolling becomes a conscious decision for generating revenue for maintenance and development of roads projects. The Union Cabinet has approved tolling on all sections of National Highways that have been four/six-laned. A ceiling toll rate based on Passenger Car Unit (PCU) has also been approved.

3. There are various estimates of the toll potential of the National Highways in general and the NHDP in particular. According to the Working Group on Road Sector for the Tenth Five-Year Plan, the toll potential of the Golden Quadrilateral from 2004 is Rs. 3,700 crore per annum and that of the North-South, East-West corridors Rs. 4,500 crore per annum from 2008. Not only can such a magnitude of money meet the maintenance requirement of roads but it can also generate substantial surplus for new road projects. The earnings could be leveraged through borrowing against the security of such future inflows, which could later be used for debt servicing. Such a financing mechanism, through securitisation of future receivables, has already been successfully tried by the NHDP for future cess receipts.

4. The most important requirement for the success of tolls as a source of revenue is the need to change the mind-set of the people, who inherently resist the concept of toll charging. However, such resistance can be minimised when viewed in the context of better road service and saving in time and fuel. The role of the tolling authority is to ensure that the toll mechanism does not lead to long queues and delays. Adoption of modern technology and modern ways to manage traffic on toll roads is, therefore, necessary.

Act, 1956 was amended in June 1995. The private sector can now invest in National Highway projects, levy, collect and retain fee from users and is empowered to regulate traffic on such highways in terms of the provisions of the Motor Vehicles Act, 1988.

8.3.99 In addition, two model concession agreements for major projects costing more than Rs.100 crore and for projects costing less than Rs.100 crore have been finalised. Such standardisation of terms and conditions is considered a major step in encouraging private sector participation.

Resources for State Roads

8.3.100 The following are the major sources of funds for the development of State Highways and Major District Roads.

- (i) The Central Government has already created a Central Road Fund and about Rs. 962 crore was available during 2001-02. However, accrual to the Fund is quite low, keeping in view the requirement of the road sector.
- (ii) BOT projects have to be encouraged to meet financing requirements of State

Highways. For this purpose, it is necessary to ensure that a well thought out legislation is passed in each State to prevent legal objections to the imposition of toll on the users of the development facilities. At present, at many places the existing Motor Vehicles Act, 1988 is being used for the purpose. It would be more appropriate to enact a special legislation keeping in view all the requirements of the BOT projects. The Central Government has already extended several fiscal and other tax facilities to the entrepreneurs undertaking infrastructure projects and has also prepared model BOT agreements. States may also adopt these agreements for road projects.

- (iii) Since railway over-bridges are constructed at level crossings where heavy traffic crosses the railway line, toll funding of such works is a possibility. Such an experiment is already underway in Maharashtra where a large number of such ROBs have been taken up on toll basis.
- (iv) External funding is also a source for financing. Institutions like the ADB, World Bank, Japan Bank for International Co-operation (JBIC) etc should be approached for funds to be used for the development of selected State Highways.
- (v) Additional funds can be generated by the levy of surcharge on transport of minerals by roads. Since substantial transport is done through roads, considerable revenue could be generated through this source.

Resources for Rural Roads

8.3.101 The available source of funds for the PMGSY is 50 per cent share of the cess on HSD amounting to approximately Rs. 2,500 crore per annum, which is inadequate to finance the programme of such magnitude in a definite time frame (2002-07). For achieving the target, it would be imperative to generate additional sources, which could involve borrowings from the external funding agencies.

8.3.102 The priority under the PMGSY would be to provide connectivity to unconnected habitations. Only after all unconnected habitations in a district have been covered, can the upgradation of roads in already connected habitations be taken up. In these cases also, priority would be accorded to habitations connected by gravel roads.

8.3.103 For augmenting the availability of funds for rural roads, some States are adopting the practice of levy of market fee on agriculture produce. A similar approach can be considered by other States particularly to generate enough resources for the maintenance of rural roads.

Physical Targets For The Tenth Plan

8.3.104 The specific objectives, including physical targets, for the Tenth Plan are:

National Highways

- (i) The top priority during the Tenth Plan is the completion of the NHDP. The GQ is scheduled for completion by the end of 2003 and N-S, E-W corridors by 2007. The N-S, E-W corridor project would, therefore, spill over into the beginning of the Eleventh Plan.
- (ii) A number of physical targets have been set for stretches other than the NHDP. Details of these are at Annexure 8.3.3. These, however, have to be prioritised according to their importance to the national economy so that the available resources do not have to be spread thinly among a large number of competing projects, leading to avoidable delays. The major physical targets for non-NHDP components include:
 - (a) Accelerated efforts to bring the National Highway network to a minimum of two lane standards within the next ten years. A target of about 4,000 km has been set for two-laning during the Tenth Plan. Four-laning of 800 km of non-NHDP stretches is also to be taken up.
 - (b) Removal of existing deficiencies in the road network. The targets set include strengthening 2,000 km of the National

Box 8.3.8**Road Sector: Problems in Mobilising Resources**

While the NHDP is the priority project and every effort is being made to meet the resource requirements for meeting the targets, the problem in meeting the physical targets for the non-NHDP component is the mobilisation of sufficient resources. The targets and the available sources of funds indicate a very big financing gap and, given the need for fiscal prudence and the competing claims of other sectors, it would not be possible to generate budgetary resources of the magnitude indicated. The solution would lie in prioritising the projects according to their importance in the national economy and emphasis on non-budgetary sources like private sector participation and levy of user-charges for transport services. The scope of increasing cess on petrol and diesel could also be explored to supplement resources for financing high priority projects like NHDP.

2. It is also important to understand that market borrowing has its limitations. First, the market appetite for road projects may act as a constraint, especially when a number of competing projects like PMGSY, NHDP etc. may target the same investor kitty. The Government therefore, has to prioritise the borrowing requirements in the context of claims from other infrastructural and transport sectors as well as other socio-economic requirements.

3. Further, the borrowings from external agencies like the World Bank, ADB, bilateral and commercial sources also contribute to the fiscal deficit. They also add to the country's external and public debt. The scope of such borrowing is also limited as most institutions have country exposure limits and the available resources have to be allocated among different sectors.

4. The argument also applies to extending Government guarantees on market borrowings by public and private sector entities. Such guarantees are a *contingent liability* and therefore, constitute fiscal risk for the Government. Therefore, while the emphasis has to be on IEBR, market borrowings by the public and private sector entities has to be done on the basis of their own strength. Here, financing schemes like asset-securitisation, which provide a measure of confidence to the investor, would be useful. These would include financing mechanisms like borrowing against future toll receipts through their collateralisation.

5. While there is need to augment resources for the development of roads, it is equally important to optimally utilise the existing infrastructure. In this context, the possibility of developing canal banks as roads needs to be explored.

Highway network, improving the riding quality of 10,000 km. rehabilitation of 200 bridges etc.

- (c) Plan expressways for high-density corridors and simultaneously create limited expressways where such investment could repay itself by toll financing. Therefore, land acquisition and feasibility studies of about 1,000 km of expressways has been planned for the Tenth Plan to provide unhindered and high-speed movement of traffic.
- (d) Special attention for the developments of roads in the North-Eastern region.

State Roads

- (i) All State Highways should have a minimum single-lane black-topped surface. Where traffic is more than 1,000 commercial vehicles (CVs) per day, hard shoulders with 1.75 m width should be invariably provided to Major District Roads and State Highways. Wherever possible, hard shoulders should be black topped. About 6,800 km on State Highways and 40,000 km on Major District Roads are targeted to be covered.
- (ii) State Highway links carrying very heavy traffic should be four-laned. 'Heavy traffic' may be defined as the one in excess of 6,000 CVs

per day. A modest target of 1,000 km is suggested for the Tenth Plan

- (iii) About 25 per cent of the State Highways length has a two-lane or wide carriageway. It is suggested that at least 45 per cent of the existing State Highway length should have a two-lane pavement by the end of the Tenth Plan period. For this purpose, stretches where traffic volume is more than 2,500 CVs per day should be chosen. About 13,000 km of existing length of Major District Roads is targeted to have two-lane black-topped carriageway.

BOX 8.3.9

Wayside Amenities: Looking Beyond NHDP

1. The revolution in the road sector ushered by the NHDP is expected to go a long way in promoting the country's economic development and in integrating remote regions with the mainstream economic activity. With the emphasis on GQ and N-S, E-W corridors, roads are also likely to emerge as a viable alternative for short and long distance travel, a situation that already exists in advanced countries. To support such development, complementary services in the form of wayside amenities need to be provided through commercialising such activities and integrating them with plans for tourism development.

2. The present state of wayside amenities, however, is abysmally poor. There is need for a comprehensive blueprint for developing such facilities together with plans for tourism development of various regions. Mandatory standards need to be stipulated for various facilities at wayside petrol pumps and restaurants. Apart from motels, restaurants and recreational facilities, there is also scope for encouraging the shopping malls off the city limits, drawing lessons from the successful experience of other countries in this regard. Such a push would give a big boost to the economic development of the regions bordering GQ, NS-EW corridors and high-density non-NHDP National Highways and State Highways.

3. With the Government strapped for cash, the resources and the initiative for such endeavour has to come mainly from the private sector. The role of the Government is to be restricted essentially to that of a facilitator. The success of NHDP could be a spring-board for attracting private investment in the area.

Rural Roads

- (i) The main objective for the Tenth Plan is achieving the PMGSY targets of providing rural connectivity through all-weather roads.
- (ii) According to preliminary estimates, there are around 100,000 unconnected habitations with a population of more than 500 persons. The requirement of funds would, therefore, be substantial. State Governments however, have also been allocating substantial money for rural road works. The actual requirement under the centrally sponsored scheme therefore, needs to be worked out on net basis. There are multiple agencies for implementing road sector projects in various States, both for State Highways and Major District Roads and PMGSY. This needs to be streamlined for improving efficiency and the work should be carried out by one/two agencies only.

Outlay for the Tenth Plan

8.3.105 The outlay for Central Sector roads for the Tenth Plan is Rs. 59,490 crore. This includes Rs. 34,790 crore of budgetary support and Rs. 24,700 crore of internal and extra budgetary resources (IEBR). The scheme-wise break up of the Tenth Plan outlay for Ministry of Road Transport and Highways is given in the Appendix.

THE PATH AHEAD

- ☒ Mobilise resources through direct and indirect user charges to bridge the gap between requirement and availability of funds.
- ☒ Monitor and review the performance of the BOT annuity scheme and take steps including bridging the information gap to encourage private sector participation. Sharing the downside risk of traffic flows could also be considered.
- ☒ Accord higher priority to the maintenance of roads and associate the private sector in this activity.
- ☒ Place emphasis on the development of the existing network rather than on declaration of new National Highways.

Box-8.3.10

Major Policy Issues in the Road Sector

1. The NHDP is the flagship project in the road sector with the highest priority. However, there have been slippages in the award of contracts for various segments of the GQ. Maximum efforts therefore, have to be made to ensure that the GQ is completed by the stipulated deadline of December 2003. This would mean a more effective monitoring system and strict enforcement of accountability. The lessons learnt from GQ would also provide useful inputs for the NS-EW corridor projects, which have to be completed by 2007.
2. While the NHDP is the national priority, there is also need to remove deficiencies in the non-NHDP National Highway network. The emphasis on removing such deficiencies began in the Ninth Plan and has led to substantial improvement in the riding quality of the National Highway network. However, it will take a long time before the network is brought up to the desired level. It is estimated that the cost of removing deficiencies in National Highways at current prices would be Rs. 1,64,345 crore.
3. The road sector is facing considerable funds constraint, especially in view of massive expansion, maintenance and upgradation requirements. While the need for according overriding priority to the road sector in the allocation of budgetary resources has to be emphasised, there is need to look at alternative means for bridging the resource gap. Private sector participation in road building activities has, therefore, to be encouraged.
4. Private sector response however, has been poor particularly in the BOT mechanism, which was expected to be the mainstay of private sector participation. This has happened despite the fact that the legal formalities have long been completed and Model Agreements are available for BOT operations. Under BOT, the investor is expected to build the road, maintain it for a fixed term and thereafter transfer it to the Government. The return to investor is in the form of toll charges. However, uncertainty about revenue from tolls has discouraged investors from coming forward with BOT proposals. Other mechanisms of private sector participation like the annuity-based BOT, where the Government commits a fixed annual payment to the investors in return for construction and maintenance for a pre-defined term, have received more encouraging response. There is, therefore, need to examine the reasons for poor investor response, assessment of investor risks in BOT projects and measures to make earnings from tolls more predictable.
5. User-charges through levying tolls on roads remains an effective means of supplementing funds. It could pay for maintenance and also provide funding for projects through leveraging resources by borrowing against future tolls receipt. However, the toll collection mechanism needs to be streamlined.
6. Funds are also the major constraint for road maintenance. There is need to find ways for associating the private sector with such activities also. The measures also apply equally to State Highways and Major District Roads, which are often in a bad state. Associating the private sector would also mean a re-look at the existing arrangement where State PWDs carry out the responsibility of maintenance through their road gangs.
7. A related issue is the need for prioritising National Highway projects. While the NHDP is the over-riding priority, there is need for prioritising non-NHDP national highway projects so that the available resources are not spread thinly among too many competing projects as it leads to delay in project completion due to funds constraint later on.
8. Equally important is the need to exercise restraint on the declaration of new National Highways. It is important to emphasise that the upgradation of large segments of State Highway to National Highway during the Ninth Plan has been a contributory factor to poor maintenance and riding quality of the non-NHDP National Highway network as the available resources are spread thinly. In order to de-politicise the process and to focus on the existing National Highway network, it is recommended that any new declaration should be approved by the Cabinet after due approval of the Planning Commission and the Ministry of Finance.
9. There are multiple agencies for implementing road sector projects in various States, both for State Highways and Major District Roads and PMGSY. This needs to be streamlined for improving efficiency and the work should be carried out by one/two agencies only.
10. To reinforce the achievements of the NHDP, emphasis has to be laid on providing world-class wayside amenities on highways. Associating the private sector in providing such services and integrating such activities with the tourism development of various regions would be the necessary steps in completing the revolution in the road sector brought about by NHDP.
11. The NHDP, however, may not be the answer on very high traffic density National Highway stretches in the long run. There is, therefore, need to look at expressways for meeting such requirements. The planning for such expressway projects also has to begin at the earliest. All the expressways have to be in the private sector. The role of the Government would be restricted to that of a facilitator.
12. While the PMGSY would create an all-weather rural road network, there is need for further emphasis on the subsequent maintenance so that the assets created in rural areas do not wear out. Further, a missing link in the rural roads network is the lack of proper connection between villages and institutions like hospitals, schools etc.

- ☒ Prioritise the projects and programmes relating to development of National Highways.
- ☒ Initiate planning for expressways.
- ☒ Develop wayside amenities by associating private sector and integrating the development of these amenities with the development of tourism in various regions.

ROAD TRANSPORT

8.3.106 Road transport has close linkages with the economic development and social integration of the country. It is the prime motorised mode of transport linking the remote and hilly areas with rest of the economy. The easy accessibility, flexibility of operation, door-to-door service and reliability have earned road transport an increasingly higher share of both passenger and freight traffic vis-a-vis other transport modes. Substantial investment being made in the improvement of highways and an increase in the share of high value commodities in total freight would further boost the demand for road transport services.

8.3.107 The freight and passenger traffic carried by road transport is increasing at a rapid pace. While the freight traffic carried by road transport is estimated to have increased from six billion tonne km. (BTKM) in 1950-51 to 520 BTKM in 1999-2000, the passenger traffic increased from 23 billion passenger km (BPKM) to 2220 BPKM during the same period.

Review of Ninth Plan

Central Sector

8.3.108 Against an outlay of Rs. 60 crore in the Ninth Plan for the road transport sector, the expenditure was Rs. 42.78 crore. The shortfall in the expenditure was primarily attributed to less expenditure under the schemes of training for drivers, strengthening of the Central Institute of Road Transport (CIRT), Pune, and National Data Base Network and pollution control. The scheme-wise outlay and expenditure during the Ninth Plan are at Annexure-8.3.4.

Goods Transport

8.3.109 The freight operation in the country is almost wholly owned and operated by private operators. The State Road Transport Undertakings (SRTUs) of Jammu and Kashmir, Manipur, Mizoram, Sikkim and Tripura provide freight services in a limited way with the small number of trucks they own. The truck fleet strength of the Corporations/ Undertakings was estimated at 671 at the end of Annual Plan 2001-02. The number, however, is depleting rapidly for the want of adequate funds for replacement of over-aged vehicles.

8.3.110 The number of registered goods motor vehicles have grown from 82,000 in 1951 to 25.29 lakh in 1998. The bulk of the freight traffic services is operated by individual owners with one to three trucks. Such truck operators are estimated to be handling over 80 per cent of the freight traffic. The share of transport companies and agencies is less than 20 per cent.

Passenger Transport

8.3.111 Passenger transport services are provided both by SRTUs and private operators. Following liberalisation, the share of SRTUs has declined with the entry of private operators to meet the incremental passenger traffic demand. The share of the private sector in the total number of buses has increased from 57 per cent in 1980-81 to 77.26 per cent in 1997. Taking into account the traffic carried by other commercial and personalised vehicles, the share of the private sector in total passenger traffic is estimated at about 90 per cent.

State Road Transport Undertakings

8.3.112 There is no uniformity in the organisational structure of the public sector undertakings. Out of 62 SRTUs, 22 have been set up under the Companies Act, 1956, 24 have been registered under the Road Transport Corporations Act, 1950 and eight are municipal undertakings. The remaining eight are government departments. The reported fleet strength of the SRTUs as on 31 March 2001 is estimated at 1.15 lakh with a total

capital investment of Rs. 8,200 crore. They also employ 7,43,000 persons.

Physical Performance of SRTUs

8.3.113 There has been overall improvement in the performance indicators of SRTUs in the Ninth Plan. Vehicle productivity has increased from 275 revenue earning km per bus held per day in 1996-97 to 305 revenue earning km per bus held per day in 2001-02. Staff productivity has increased from 40.2 km per worker per day in 1996-97 to 47.8 km per worker per day in 2001-02. Bus staff ratio to fleet operated and fuel efficiency have also improved from 1 : 7.63 and 4.49 km per litre in 1976-77 to 1 : 7.16 and 4.61 km per litre in 2001-02 respectively.

8.3.114 The performance of the undertakings has varied from State to State. The undertakings in Andhra Pradesh, Karnataka, Haryana, Himachal Pradesh, Maharashtra and Tamil Nadu performed very well in physical terms while those in the northeast, Bihar and Orissa lagged behind. State-wise position of the physical performance of SRTUs is given in Annexure-8.3.5.

Financial Performance of SRTUs

8.3.115 Almost all the SRTUs incurred net loss. According to the latest estimates, the total loss by the undertakings had increased to Rs. 8,843 crore in the Ninth Plan from Rs. 2,679.71 crore in the Eighth Plan. However, two Corporations in Karnataka (Northwest Karnataka Road Transport Corporation (NWKRTC) and Bangalore Metropolitan Transport Corporation (BMTCC)) have started generating profits from 1998-99 after reorganisation.

Policy Issues

Need For Strengthening Public Transport Services

8.3.116 The public transport service has failed to live up to the expectation of providing mobility with choice, comfort, frequency and safety. The

Mass Rapid Transit System in the metropolitan cities have also proved to be inadequate in meeting the growing traffic demand. All this has led to an increase in personalised motor vehicles and the introduction of unsafe and polluting vehicles to cope with the rise in traffic demand. This has caused complete chaos in the system, leading to traffic congestion, increase in the accident rate and violation of regulatory provisions. The situation is particularly alarming in large cities. The increased urbanisation and concentration of population in large cities have put heavy pressure on the already saturated vehicular transport network, thus adversely affecting productivity in urban areas.

8.3.117 In order to deal with this situation, it is necessary to strengthen the public transport system. The bus-based road transport system provides the cheapest mode of transportation both in terms of capital and operational cost. The system has served the road passenger requirement in the past and would continue to play a dominant role in the foreseeable future. In order to ensure that the public transport system caters efficiently to the growing demand, a number of steps would need to be taken. These include improvement in the technology of vehicles and the quality of fuel, use of alternative fuels and improvement in inspection and maintenance practices. While the introduction of high capacity bus systems in the high-density corridors could be considered, it would be better to introduce an electricity-based transportation system in congested areas. The strengthening of the bus-based passenger transport system should be done in a manner that it could become an attractive substitute to the use of personal two-wheeler and motor vehicles.

Financial Health of SRTUs

8.3.118 The poor financial performance by the SRTUs, despite an improvement in the physical parameters, is a matter of concern. High rate of taxation, low fare structure, concessions to meet social responsibility, over-staffing, increasing interest burden and unhealthy competition among private operators have put an extra burden on SRTUs making their operations uneconomic.

Box 8.3.11**Reducing Metropolitan Congestion**

Traffic congestion in a large city like Delhi is a major environmental concern. The problem is acute during the rush hours. Such congestion leads to (i) slow movement of traffic and consequent delays; (ii) high level of pollution due to vehicular emissions; and (iii) over-stretching of the public transport system.

The problem is not unique to India. Several other countries have experimented with methods to reduce such congestion in big cities. These methods range from restricting the use of vehicles to levying a fee on private vehicles.

In India, a possible solution to the problem of traffic congestion during peak hours could be to identify 'high-traffic zones' in the metros and stipulate that no motor vehicle with less than four persons (or two-wheeler with only one person) could ply in the zone during the peak hours. People could buy daily, weekly, monthly permits to avoid the stipulation. The major advantages of the scheme would be as under:

- (i) easing congestion during the peak hours;
- (ii) more economic use of private vehicles;
- (iii) re-distribution of traffic to non-peak hours (some offices may shift working hours);
- (iv) less pollution;
- (v) saving on petrol and diesel, a substantial part of which is imported; and
- (vi) revenue mobilisation.

8.3.119 It is necessary that SRTUs are run on commercial lines. Though they are inefficient, they do not necessarily provide poor quality service. They are also particularly useful in connecting remote areas, which the private sector may not find profitable to service. To improve their financial health, they should be given more autonomy, particularly in the matter of fixing fares.

Private Sector Participation

8.3.120 Involvement of the private sector in providing passenger transport services has eased the pressure on the SRTUs. However, there is need for further decontrol in the road transport service sector. Restrictive Government policies should be eschewed and the role of the Government should only be to ensure better transport services for the public. The removal of restrictions would also ensure more revenue for the exchequer in the form of higher tax payment by private operators. The strategy should be a judicious mix of public and private services, mainly because the existing public sector assets and manpower resources have to be utilised. The public sector need not operate on all routes in

competition with the private operators. Its area of operation could gradually be restricted to less profitable routes which are required for socio-economic reasons. The private sector could also be encouraged to operate services on unprofitable routes through tax incentives. The long-term objective should be the pre-eminent role of private sector in providing all passenger transport services.

8.3.121 Private sector involvement in providing passenger transport services has not been without its share of problems. Rash driving, overtaking, unscheduled operation, tax evasion and unhealthy competition are common. It is, therefore, important to regulate private sector operations. State Governments should set up a regulatory body/authority for the purpose. The main task of such a body should be to ensure safety of road transport operations, adherence to schedule by the various operators and fixing the tariff. The road transport passenger operators also need to be organised on sound corporate lines especially to promote safety, reliability and provision of services in remote and backward areas. The State Government should issue guidelines on the minimum viable size

of the fleet, criteria for technical and financial soundness of the operator's etc. The formation of such companies of private operators with a minimum fleet size of 50 in the metros and a size that is economically viable in other areas would help in the effective implementation of laws and regulations governing the tariff.

8.3.122 In the road transport freight segment, it is necessary for State Governments to take action for enabling the creation of cooperatives of small truck operators. These cooperatives could link up with large undertakings to reduce their cost and improve fleet utilisation.

Rationalisation of Motor Vehicle Taxation

8.3.123 A number of committees in the past have examined the motor vehicles tax structure. The major recommendations of these committees related to simplification of tax procedures and single point taxation. However, over the years, several distortions have crept into the motor vehicles taxation. There is a wide variation in the taxation rate among States and Union Territories. This leads to irrational pricing of services and loss of revenue to the states. This also affects movement of goods and passengers across inter-state borders and are a source of harassment to the operators. There is an urgent need to rationalise the tax system with a view to make it simpler.

8.3.124 Octroi and sales tax lead to unnecessary detention of vehicles, apart from causing harassment and adding to operating cost. At present, only a few states levy octroi. Beginning with small localities, these states should phase out levy of octroi. While sales tax barriers may be necessary to check tax evasion, these barriers may be put up only at the entry and exit points of States and not along the route. Streamlining procedures and computerisation of sales tax posts may help in reducing detention time and curbing malpractices.

Technological Upgradation

8.3.125 There has been substantial induction of new technology in the passenger transport

segment, particularly in personalised vehicles. However, there has been almost no progress in this regard in the bus transport segment. More importantly, there has been a technological stagnation in the field of road freight transport. Low diesel prices, extreme overloading of trucks, lax implementation of rules and regulations (which are not very stringent in any case), unhelpful tax regimes and congested roads – all militate against the introduction of new technology in the trucking sector. There is an urgent need to shift to the increased use of low tare weight and heavy haul multi-axle trucks, which are more fuel-efficient.

8.3.126 Multi-axle vehicles cause much less damage to roads than two-axle trucks. These vehicles are cost-effective not merely in terms of lower line-haul cost per tonne km, but also in terms of increased loading/unloading efficiency and higher inter-changeability of loads between vehicles and modes. Since the benefit in terms of lower road damage does not accrue to the user, it is necessary to apply differential taxation to encourage the use of multi-axled vehicles.

Road Safety

8.3.127 Safety on roads has become a major area of concern. The number of persons killed in road accidents in India has been increasing. In 1999 as many as 81,000 persons died in road accidents, which represents a 13-fold increase in 30 years. The fatalities per 10,000 vehicles in India are 21 as against one to two in high-income countries and four to six in some lower income countries. The economic cost of road traffic accidents in India is estimated to be Rs. 55,000 crore in 1999-2000. The Working Group on Road Accidents, Injury Prevention and Control set up by the Planning Commission has estimated the social cost of road accidents in India in 1999-2000 at about 3 per cent of GDP.

8.3.128 About 65 per cent of the casualties occur on the National Highways and State Highways, which constitute 7 per cent of the total road length in the country. There is a direct relationship between the average speed of vehicles and the rate of accidents. With the improvement of highways

which is underway, the rate of accident may go up unless some remedial measures are taken. About 83 per cent of road accidents occur because of the fault of drivers. The most vulnerable group consists of pedestrians and users of non-motorised transport, the majority of which are poor. They are not only unable to protect themselves from accidents but find it extremely hard to cope with the adverse consequences of accidents.

8.3.129 Measures need to be taken to minimise road accidents through the introduction of road safety devices, training of drivers and instructors, awareness programmes for the public and transport users, computerisation of the licensing system, creation of pedestrian and cycle paths, exclusive bus lanes and automated parking lots in major cities. The measures taken in this regard earlier have proved to be inadequate in reducing the accident rate. A multi-disciplinary and dynamic approach covering engineering, education and enforcement of regulatory provisions is needed.

Pollution Control and Alternative Fuels

8.3.130 The growing automobile population combined with lower quality of fuels is contributing to an increase in air pollution in India. The share of the transport sector in total emissions is increasing and is a matter of concern. There are serious respiratory health problems associated with air pollution. The main causes of vehicular pollution are outdated engine technology in heavy motor vehicles, poor maintenance, large number of overage vehicles, over loading, traffic jams and absence of checks on emission standards.

8.3.131 Steps have been taken to fix emission norms. Bharat Stage II norms, which are equivalent to Euro-II norms, have been extended to all the four major metros. Stricter norms conforming to Euro-III and IV are proposed to be notified in the near future. What is required is a comprehensive national policy on road-worthy vehicles keeping the need to contain pollution in mind. Transport operators should be encouraged to switch over to less polluting fuels such as compressed natural gas (CNG), liquefied petroleum gas (LPG), Ethanol,

particularly in the public sector transport fleet to improve the air quality.

Database

8.3.132 Comprehensive data on traffic flows and costs of different modes of transport is essential for operational and planning purposes. The gap in traffic flow data relating to inter-regional commodity flows are far more serious in relation to the road transport sector vis-a-vis other modes of transport. Data on resource cost of various modes of transport also need to be collected at regular intervals.

8.3.133 Information on the travel pattern of passengers is equally important. There is need to collect information on a sample basis on inter-city traffic, both between mofussil towns and between metropolitan cities and mofussil towns.

8.3.134 In addition to data on traffic flows and costs, it is necessary to collect information on the operation of road transport, particularly in the private sector as also develop a database on non-mechanised vehicles operating in urban areas, particularly in the metropolitan cities.

8.3.135 In the Tenth Plan, efforts would be made to bridge the data gaps so as to make planning and project formulation more scientific.

Outlay for the Tenth Plan

8.3.136 The Central Sector outlay for road transport sector for the Tenth Plan is Rs. 210 crore, which would be budgetary support.

THE PATH AHEAD

- ☒ Initiate low cost measures to improve the public transport system in general and in urban centres, in particular, to ease congestion on road and conserve fuel.
- ☒ Associate the private sector with the provision of public transport services. The basic requirement is a corporate culture in passenger traffic services so as to provide

safe, reliable and quality service to commuters. This would require encouraging medium and large fleet operators to get into the passenger transport service sector.

- ☒ Reduce traffic congestion in the metros through innovative measures including introduction of user charges on private vehicles in the high traffic zone areas, particularly during peak hours.
- ☒ Encourage higher capacity and better technology vehicles both for the passenger and goods sectors so that development of road transport operations could keep pace with development of high quality roads.
- ☒ Encourage the adoption of low tare weight multi-axle commercial goods vehicles to minimise damage to roads.
- ☒ Rationalise the motor vehicle tax regime across States.
- ☒ Adopt a national policy on roadworthy vehicles together with a policy on clean fuel. A nation-wide policy is important instead of restricting these steps to selected metropolitan centres.
- ☒ Reduce non-physical barriers including check posts, octroi, sales tax posts etc. to allow freer movement of road transport.
- ☒ Adopt a multi-disciplinary approach covering engineering education and enforcement of regulatory provision to reduce the increasing number of road accidents.

PORTS

8.3.137 There are 12 major ports and 184 minor/intermediate ports along India's 5,560-km coastline. The major ports are Kolkata/Haldia, Mumbai, Jawaharlal Nehru Port Trust (JNPT) at Nhava Sheva in Mumbai, Chennai, Kochi, Vishakhapatnam, Kandla, Mormugao, Paradip, New Mangalore and Tuticorin. A new major port, Ennore Port, has started functioning near Chennai from 1 February 2001. The ports at Kolkata, Mumbai, Chennai and Marmugao are more than hundred years old, while the Kochi and Visakhapatnam Ports are over 60 years old. The ports at Kandla, New Mangalore, Tuticorin, Paradip and Haldia were developed after Independence and the JNPT was commissioned in 1989. Major ports handle about 75 per cent of the country's port traffic of the country, with the minor/state ports handling the remaining 25 per cent.

Review Of The Ninth Plan

Traffic and Capacities

8.3.138 The Ninth Plan had projected a traffic of 429 million tonnes (mt), including throughput by minor ports. A traffic of 290 to 300 mt was expected at major ports by the end of Ninth Plan. The actual traffic handled as on 31 March, 2001 was 281 mt. Commodity-wise traffic handled by major ports during the first four years of Ninth Plan and estimates for the year 2001-02 are in Table – 8.3.17.

Table 8.3.17
Traffic handled (Million Tones)

Year	POL & its products	Iron ore	Fertiliser and FRM	Coal	Container	Other cargo	Total
1997-98	102.64	40.69	8.78	38.85	23.26	37.44	251.66
1998-99	107.41	32.54	9.00	39.02	23.78	39.97	251.72
1999-00	116.71	36.09	10.10	37.09	27.69	44.24	271.92
2000-01	106.68	40.21	9.22	47.81	32.44	44.73	281.09
2001-02 (Target)	110.0	42.40	10.50	46.00	35.30	46.90	291.10

POL = petroleum, oil and lubricants; FRM = fertilisers raw material

8.3.139 The major shortfall (about 38 mt) will be in petroleum crude and product traffic, coal and fertilisers. Containerised cargo too will be slightly lower than the projected volume. However, iron ore and other break bulk cargo are expected to exceed the target. The reasons for the shortfall, particularly in petroleum crude, is the delay in commissioning of Essar Ltd.'s refinery at Jamnagar and in the expansion of the Kochi of the Kochi Port Trust and New Mangalore refineries of New Mangalore Port Trust.

8.3.140 The aggregate traffic handled by state ports in the terminal year of the Eighth Plan (1996-97) was 27.83 mt, which increased to 86.58 mt during 2000-01. The rise is attributed to the phenomenal cargo throughput of state ports in Gujarat. Their share increased from 19.8 mt in 1996-97 to 71.10 mt during 2001-02. During the Ninth Plan, the growth of traffic at major ports, state ports and overall traffic was 4.9 per cent, 27.9 per cent and 8.5 per cent respectively. This shows that performance of state ports was much better than that of major ports.

8.3.141 The total capacity of major ports at the end of the Eighth Plan i.e. 31 March 1997 was 219.55 mt. The Ninth Plan visualised a capacity addition of 159 mt at major ports to take the total to 374 mt. However, the actual capacity at the end of the Ninth Plan is likely to be only 344.4 mt, showing an increase of 124.85 mt during the Plan period. Such capacity addition would be achieved by projects executed by the ports and those taken up under BOT schemes and with private sector investment. The break up of capacity added by ports and BOT schemes and

other projects would be 92.35 mt and 32.5 mt respectively. The capacity of 344.4 mt at the end of the Ninth Plan will be more than adequate to meet the targeted traffic of 289.10 mt. The capacity addition of 124.85 mt in the Ninth Plan is given in Table 8.3.18. The details of the schemes taken up during the Ninth Plan for capacity addition are given at **Annexure-8.3.6** and **8.3.7**.

Ninth Plan Outlay and Expenditure

8.3.142 The details of Ninth Plan outlay and expenditure from 1997-98 onwards are given at **Annexure-8.3.8**.

8.3.143 During the Ninth Plan, an outlay of Rs. 9428 crore (excluding Rs. 262 crore for survey vessels) had been approved for the port sector. Out of this, Rs. 6,316 crore (67 per cent) was allocated for ongoing schemes and the remaining Rs. 3,112 crore (33 per cent) for the new schemes. However, the aggregate of this five Annual Plan outlays during the period was Rs. 6,963.92 crore. Against this, a sum of Rs. 4,838.92 crore is expected to be spent. This includes an expenditure of Rs. 994.74 crore on account of gross budgetary support as against the provision of Rs. 2,162 crore.

8.3.144 In respect of major ports, there has been a heavy shortfall in expenditure as compared to the outlay during the Ninth Plan. The main reasons for shortfall have been delays in sanctioning the schemes, slow progress of work by the contractors, adverse weather conditions, contractual disputes/litigation, delays in tender finalisation, award of contracts and deferment of projects/schemes etc. and weeding out of some schemes.

Table 8.3.18

Sl. No.	Name of the Scheme	Capacity addition in Ninth Plan (in mt)
1.	Capacity addition schemes taken up in the Ninth Plan through port/Government funding (31 schemes)	92.35
2.	Capacity addition schemes completed/likely to be completed in the Ninth Plan through BOT/captive users (10 schemes)	32.50
GRAND TOTAL (1+2)		124.85

Private Sector Participation

8.3.145 The Ninth Plan envisaged a crucial role for the private sector/captive users in augmenting capacity at various ports. A number of steps had been taken and these have borne fruit now. Several projects are being taken up in the private sector or through the resources provided by the captive users.

Box 8.3.12

Private Sector Participation in Ports

- The Ninth Plan envisaged private sector/captive users investment of Rs. 8,000 crore with capacity addition to the tune of 76 mt. Seventeen private sector/captive port projects of 60.05 mt capacity with an investment of Rs. 3,480.20 crore have already been approved and they are at different stages of construction.
- Nine more private sector/captive user port projects with 32.86 mt plus 9 lakh twenty equivalent units (TEUs) and an investment of Rs. 3,608.20 crore are in the pipeline.

Details are given in **Annexure 8.3.9** and **8.3.10**.

Policies and Programmes for the Tenth Plan

Productivity

8.3.146 The targeted traffic of 289.10 mt and the anticipated capacity of 344.4 mt at the terminal year of the Ninth Plan indicate that port capacity is no more a constraint. Hence, in the Tenth Plan there is a need to improve productivity at the major ports to improve the quality of service and reduce the turnaround time of ships to the minimal level.

8.3.147 Although productivity in terms of ship turnaround time, waiting time and average ship berth day output has slightly improved over the last decade, the performance continues to be modest when compared with generally accepted international standard and performance of regional ports.

Box 8.3.13

Port productivity at major ports

Port productivity, in terms of average output per ship berth day output, average pre-berthing waiting time and average turnaround time registered an improvement during the Ninth Plan. Average pre-berthing waiting time has come down from 1.7 days in 1996-97 to 0.50 days in 2000-01. Average turnaround time has come down from 7.5 days in 1996-97 to 4.7 days in 2000-01. Output per ship berth day has increased from 4,497 tonnes in 1996-97 to 6,469 tonnes in 2000-01. Labour productivity has increased from 307 tonnes in 1997-98 to 413 tonnes in 2000-01 in terms of output per gang shift.

Corporatisation of Major Ports

8.3.148 The functioning of major ports under various Port Trusts is operationally inflexible, and they are unable to respond quickly to changing market situation due to delays inherent in the decision making process. Steps are, therefore, being taken by the Government towards corporatisation of major ports.

Box 8.3.14

Corporation of Major Ports

- A new major port, Ennore Port Company Limited, has started functioning from 1 February 2001.
- It has been decided that existing major ports would be corporatised, starting with JNPT and Haldia. To enable speedy corporatisation of the existing major ports, the Major Port Trusts Act, 1963 needs to be amended. The amendment needs to provide for vesting undertaking of the major ports in successor companies, define the scope of transfer of assets and liabilities, protect the right of successor companies in relation to the licenses etc. granted to the erstwhile port trusts, vest the land and waterfront in the Central Government, provide consideration for transfer of assets and liabilities, protect the guarantees enjoyed by the port trusts and lay down the terms and conditions of leasing the land and waterfront to the companies. The Major Port Trusts Amendment Bill, 2001 has been introduced in Parliament.

Private Sector Participation

8.3.149 The broad objectives of the participation of private sector in port development have been to bring about an improvement in efficiency, productivity, quality of service as well as to usher competitiveness in the provision of port services. In addition, the private sector is expected to mobilise adequate resources required for capacity augmentation and introduce the latest technology and management techniques in the ports sector.

8.3.150 The Government has identified the following areas for private sector participation:

- (i) Leasing out assets of the ports.
- (ii) Construction and operation of container terminals, multiple cargo berths and specialised cargo berths, warehousing, storage facilities, tank farms, container freight stations, setting up of captive power plants etc.
- (iii) Leasing of equipment for cargo handling and leasing of floating rafts from the private sector.
- (iv) Pilotage.
- (v) Captive facilities for port based industries.

8.3.151 During the Tenth Plan, an ambitious investment plan for private sector participation is

to be initiated. In addition to Plan allocations for major ports, investment to the tune of Rs. 11,256 crore is expected from the private sector.

Joint Ventures

8.3.152 The objective of setting up joint ventures is to attract new technology, introduce better managerial practices, expedite implementation of schemes, foster strategic alliances with minor ports for the creation of optimal port infrastructure and enhance the confidence levels of the private sector in funding of ports.

8.3.153 A scheme for joint ventures between major port and foreign ports, between major port and minor ports, without tender, as well as major port and companies following the tender route has been approved by the Cabinet and guidelines on joint venture formation have been issued. Amendments to the Major Port Trusts Act, 1963 for this purpose have come into effect from 1 September 2000.

Development of Gateway Ports

8.3.154 International trade is witnessing an increasing trend towards containerisation. JNPT and Chennai Ports, which are capable of berthing mother vessels, need to be developed as mainland gateway ports connected by a rail/road bridge and

Box 8.3.15

Development of Gateway Ports

At present, about 70 per cent containers are trans-shipped at Colombo, Dubai, Singapore etc. benefiting those ports. This has made India's imports costlier and exports less competitive due to longer transit time and additional port cost. Trans-shipment through Indian ports by way of establishing two hub ports would result in a saving of Rs. 1,000 crore per annum, in addition to cutting transit time. The policy to avoid trans-shipment at foreign ports should lay emphasis on:

- Increased thrust on private sector participation;
- simplifying customs procedures;
- starting a round-the-clock working regime in customs;
- stopping the payment of multiple overtime to customs officials;
- relaxation in the cabotage law for export/import container cargo;
- implementing Electronic Data Interchange (EDI) for trade facilitation;
- relaxing bank guarantee and bond formalities for transshipment of cargo; and
- an integrated approach to be adopted by railways, roads and ports so as to ensure hinterland connectivity.

equipped with efficient, modern container handling facilities. The availability of such inter-modal facilities will result in considerable savings in cost and time for ships from the east carrying containers destined for Chennai and beyond and those from the west carrying containers for Mumbai and beyond.

Tariff Policy and Regulatory Authority

8.3.155 Currently, the tariff structure is determined by the cost-plus approach, which is not an appropriate pricing mechanism for cargo services. While fixing tariff, the improvement in productivity and efficiency needs to be taken into account. It needs to be ensured that the users do not pay for the inefficiencies of the ports.

Box 8.3.16

Tariff Policy and Regulatory Authority

The tariff policy needs to be revised, with the overall objective of moving towards competitive pricing. For this, the tariff policy may also be used as a leverage to prescribe standards of service, thus contributing to enhanced productivity and operational efficiency. Cross subsidisation needs to be phased out. The tariff policy should also be used as an instrument for rationing port capacity i.e., higher tariffs should be charged for the most congested facilities/periods. In the same way, differential tariff needs to be introduced for discouraging old vessels. At present, the Tariff Authority for Major Ports (TAMP) determines the tariff structure for all the major ports. Minor ports, however, are not covered by such an arrangement. In order to have a level playing field among all ports, both major and minor, and to introduce competitive pricing, the tariff could be internally determined by the port authorities and the present regulatory authority (i.e. TAMP) could be restructured as an appellate body to take care of stakeholders' interests. It should not only cover issues relating to fixing of freight charges but also quality of services etc. The orders of the regulatory authority should be enforceable.

Manpower Planning

8.3.156 Initially, the cargo handling and loading/unloading of ships in the Indian ports was done manually and was highly labour-intensive. This scenario has changed with the advent of technology in the maritime transportation system. The emphasis has shifted towards carriage of goods in larger vessels and mechanised loading/unloading. This has led to a larger quantity of cargo being handled by lesser number of workers at the Indian ports.

8.3.157 The manning scales were evolved over a period of time, based on local conditions and other factors in individual ports. The existing norms of productivity of both labour and equipment can be stepped up and the manning scales revised, based on a more rationalised categorisation of cargo, introduction of mechanical aids and cargo handling techniques. Innovative initiatives, including private sector participation in maintaining and leasing equipment, need to be taken to improve the productivity levels at ports.

Development of Hinterland/Port Connectivity

8.3.158 The lack of proper connectivity with the hinterland has hampered the development of ports. Hence, the development of other modes of transport – railways, highways, inland water transport and even pipelines is essential. The cost of connectivity could be shared by the modes or funded through some innovative methods, viz. privatisation/joint ventures.

Information Technology in Ports

8.3.159 The maritime industry world-wide is undergoing rapid technological changes mainly because of innovations in information and communication technology. Automation leading to improved efficiency will help in the management of the growing demand of port services. During the Tenth Plan, efforts at automation will be concentrated on three major areas:

- (a) Use of the Vessel Traffic Management System (VTMS) for navigation of ships within port limits.

- (b) Use of computers in cargo/container hand-ling operations.
- (c) Use of e-commerce/EDI for trade-related document transactions.

Environmental Clearance/Security/Safety Issues

8.3.160 The environmental issues that need to be addressed in port development projects include: (i) the impact of dredging and disposal of dredged material on the marine environment; (ii) impact of a project on shore line stability i.e. accretion/erosion; (iii) impact on ecologically sensitive areas like mangroves, coral reefs, sand dunes, breeding and nesting grounds, migratory path of turtles etc.; (iv) impact on the hydrological balance of the area, including quality of ground water; (v) impact on coastal water due to pollution (liquid effluents and solid waste) from port activities; (vi) impact on fisheries and the fishermen; (vii) risk analysis and its impact on both aquatic and terrestrial ecology, including humans; and (viii) disaster management/contingency plans to meet emergency situations, if any.

8.3.161 The procedure with regard to environmental clearance needs to be reviewed and simplified.

8.3.162 In order to ensure security at ports, there should be regular interaction between the navy, coast guard, customs and port authorities for exchange of information. It would also help if guide-lines could be formulated on the course of action to be taken for reporting suspected activities and be widely publicised.

Physical Targets for the Tenth Plan

Traffic

8.3.163 The traffic through the major ports is projected to increase from 289.10 mt at the end of Ninth Plan to 415 mt at the end of Tenth Plan, a growth rate of 6 per cent per annum. Traffic projections (commodity-wise) for major ports and other ports are given in **Table – 8.3.19**. The table 8.3.19 shows that the major hike in traffic during the Tenth Plan will be in case of petroleum oil lubricants (POL), coal and containerised cargo traffic. Details of the commodity-wise traffic target are given in **Annexure-8.3.11**.

Capacity

8.3.164 The Tenth Plan visualises physical capacity addition of about 126.20 mt – 52.60

Table 8.3.19
Traffic Projections (commodity-wise) for Major Ports and Other Ports

(In million tonnes)

Commodity	Traffic as on 31.3.2002	Projections	
		Major Ports	Other Ports
I. POL	110.00	154.30	81.00
II. IRON ORE	42.40	51.50	13.00
III. COAL	46.00	71.30	17.00
IV. FERTILISERS	10.50	13.45	5.00
V. OTHER CARGO (Non-containerised)	46.90	62.35	29.00
VI. CONTAINERISED CARGO	35.30	61.10 (5.09 Mill. TEUs)	5.00 (0.60 Mill. TEUs)
TOTAL	289.10	415.00	150.00
GRAND TOTAL		565.00	

Table 8.3.20
Port-wise Traffic and Capacity Projections at the end of the Tenth Plan

(In million tones)

Sr. No.	Name of Port	Traffic as on 31.3.07	Capacity as on 31.3.02	Capacity addition as on 31.3.07	Planned capacity augmentation by the end of 31.3.07		
					New schemes	Spillover of Ninth Plan	Improvement in productivity
1.	Kolkata	21.40	9.20	—	—	—	
2.	Haldia	33.40	32.40	2.00	—	2.00	
3.	Paradip	28.90	37.45	0.60	0.6	—	
4.	Visakhapatnam	60.00	36.20	10.50	7.50	3.00	
5.	Chennai	40.00	27.87	4.20	—	4.20	
6.	Tuticorin	18.70	14.95	3.35	1.00	2.35	
7.	Kochi	17.20	14.40	13.50	13.50	—	
8.	New Mangalore	32.70	28.45	12.00	8.00	4.00	
9.	Mormugao	26.30	19.98	7.00	2.00	5.00	
10.	Mumbai	30.40	37.50	11.50	4.00	7.50	
11.	JNPT	34.50	29.00	14.00	9.00	5.00	
12.	Kandla	51.00	41.00	19.55	—	19.55	
13.	Ennore	20.50	16.00	13.00	13.00	—	
	GT (All Major Ports)	415.00	344.40	111.20 + 15.00 126.60	58.60	52.60	15.00

mt from schemes continuing from the Ninth Plan, 58.60 mt from new schemes and 15.00 mt from improvement in productivity. The details of port-wise traffic and capacity projections at the end of the Tenth Plan are in Table – 8.3.20. The major capacity additions during the Tenth Plan will be at Visakhapatnam, Kochi, New Mangalore, Mumbai, JNPT, Ennore and Kandla Ports.

Programme

8.3.165 The projected capacity addition of 126.20 mt is proposed to be achieved in the following way (Table 8.3.21):

Details of the scheme-wise break-up of the capacity generation on account of spillover

schemes of the Ninth Plan and new schemes to be taken up during Tenth Plan are given in Annexure-8.3.12 and 8.3.13.

Development of Intermediate and Minor Ports

8.3.166 Minor/intermediate ports are subjects in the Concurrent List of the Constitution. The primary responsibility for their development and management rests with the concerned State Governments. There are 184 minor/intermediate ports in India. Most of these are located in Maharashtra, Gujarat, Kerala, Tamil Nadu and Andhra Pradesh. Out of these, only 53 are well developed and provide all weather berthing facilities for cargo handling. The remaining cater to fishing boats, passenger boats etc. The cargo handled by these ports comprise mainly fishery products, food grains, fertilisers,

Table 8.3.21
Ports – Capacity to be increased during Tenth Plan

(In million tones)

A	Ninth Plan (as on 31.3.2002)	Expected Capacity	344.40
B.	Tenth Plan (as on 31.3.2007)	(i) Through spillover schemes	52.60
		(ii) Through new schemes	
		(iii) Through productivity Improvement measures	58.60 15.00
		Total (B):	126.20
		Overall capacity by the end of Tenth Plan (A + B) =	470.60

building materials, coal, cement, petroleum crude and products and edible oil.

8.3.167 The traffic handled by minor ports is continuously on the rise, increasing from 27.83 mt in 1996-97 to 86.58 mt in 2000-01. Currently, nearly 25 per cent of the total traffic is being handled by the intermediate/minor ports.

8.3.168 The role of minor ports is becoming increasingly important owing to the development of coastal shipping and they are viewed as an alternative to congested major ports. Therefore, there is an urgent need for the concerned States to provide adequate funds for the development of minor ports so that they could effectively cater to coastal vessels and assist in development of the hinterland.

Andaman Lakshadweep Harbour Works (ALHW)

8.3.169 The Andaman Lakshadweep Harbour Works (ALHW) was set up in 1965 for planning, execution and maintenance of the port and harbour facilities in the Andaman and Nicobar Islands and Lakshadweep Islands. At the Andaman and Nicobar Islands, harbour facilities have been created at most of the inhabited islands with breakwaters, jetties and allied facilities. In the Lakshadweep Islands, jetties have been constructed at all the ten inhabited islands, the approach channel dredged and navigational aids provided. It is recommended that ALHW establishments at the Andaman and Nicobar Islands

be merged with Port Management Board of the Andaman and Nicobar Islands Administration and ALHW establishments at Lakshadweep Islands be merged with Port Department of the Lakshadweep Administration. During Ninth Plan, Rs. 141.15 crore is expected to be spent on the schemes run by ALHW.

8.3.170 In the Tenth Plan, emphasis has been laid on completion of spillover schemes of the Ninth Plan and the new schemes based on future requirement of port facilities in both the Andaman and Nicobar Islands and Lakshadweep Islands.

Minor Ports Survey Organisation (MPSO)

8.3.171 The Minor Ports Survey Organisation (MPSO) was created in 1962 to carry out hydrographic surveys for the minor ports and inland waterways. The organisation works on a no profit-no loss basis. It is presently carrying out hydrographic surveys required for construction and extension of ports and harbours, inland waterways, surveys of rivers for navigation and flood control, coastal erosion etc. and general navigational surveys of harbours, creeks and approaches, including those of the Andaman and Nicobar Islands and Lakshadweep Islands. During the Ninth Plan, the MPSO has spent Rs. 2.38 crore on its survey related activities.

8.3.172 It has been decided that the administration of MPSO, which is located at Mumbai, may

be transferred to Director General of Shipping, Mumbai in the Tenth Plan period.

Dredging Corporation of India (DCI)

8.3.173 The Dredging Corporation of India (DCI) was established in 1976 to provide integrated dredging services to major and minor ports.

8.3.174 An outlay of Rs. 695 crore has been approved for DCI during the Ninth Plan, which includes a gross budgetary support of Rs. 65 crore. The DCI has important schemes like the acquisition of two Trailer Suction Dredgers (TSD) of 6,500 cubic meter (cu.m.), Cutter Suction Dredger (CSD) of 2000 cu.m./pump hour, three TSDs of 4,500 cu.m. and replacement of CSD aquarius. The Corporation is expected to incur a total expenditure of Rs. 626.09 crore during the Ninth Plan.

8.3.175 Against the Ninth Plan projection for capital dredging of 91 million cu.m. for major ports and the Indian Navy, the anticipated achievement would be about 36 million cu.m. The reason for the major shortfall is non-materialisation of capital dredging projects at Kolkata, Chennai and Kochi Ports amounting to 47.23 million cu.m. The Ninth Plan projection for maintenance dredging was 338 million cu.m. Out of this, 67 million cu.m. was to be carried out by the ports with their own dredgers and the balance 271 million cu.m. by outside agencies. The likely achievement during Ninth Plan would be about 277 million cu.m., leaving a shortfall of 61 million cu.m.

Development Programmes of Dredging Sector

Dredging requirements

8.3.176 The maintenance dredging requirement of all major ports and the Indian Navy during the Tenth Plan is estimated at 319.43 million cu.m. Similar estimates for capital dredging is 138.087 million cu.m. While the ports have targeted to carry out maintenance dredging of 29.035 million cu.m. utilising their own craft, the balance 290.395 million cu.m. and the complete capital dredging of 138.087 million cu.m. will have to be outsourced.

8.3.177 The requirement of capital and maintenance dredging for state Ports and fishing harbours is estimated at 5.8 million and 11.7 million cu.m. respectively on the basis of projections by Director of State Ports, Andhra Pradesh for Kakinada, Ports Department, Pondicherry, Gujarat Maritime Board and the Department of Animal Husbandry. The requirement of dredging at state ports and fishing harbours would be minimal and could be met by the indigenous dredging companies.

8.3.178 The Tenth Plan has been formulated keeping in view the following factors:

- (a) DCI should retrofit its dredgers once every ten years to upgrade the dredger equipment and instrumentation at par with international dredging companies;
- (b) DCI possesses sufficient maintenance dredging capacity to meet the annual requirements of major ports and the Indian Navy;
- (c) execution of capital dredging are through open tendering by the ports/navy in which DCI also participates from time to time, subject to the availability of capital dredging capacity to DCI;
- (d) the maintenance dredging requirements of minor ports and fishing harbours could be created by various indigenous dredging companies in the private sector, dredgers with the Gujarat Maritime Board etc; and
- (e) DCI should continue efforts for improving the productivity and quality of service.

Plan Outlay

8.3.179 An outlay of Rs. 5418.29 crore has been allocated for port sector during the Tenth Plan, schemewise break up of which is given in the Appendix.

THE PATH AHEAD

- ☒ Increase the scope of private sector participation.
- ☒ Effect organisational changes in the form of corporatisation for efficient management,

institutional funding and attracting private investment.

- ☒ Make the TAMP an appellate body and extend its jurisdiction over all comparable non-major ports.
- ☒ Improve productivity of major ports through technological upgradation.
- ☒ Rationalise manning scales to improve the productivity.
- ☒ Establish two major gateway ports and provide for inter-modal linkages through efficient rail and road services.
- ☒ Simplify procedural formalities including customs procedures to encourage transshipment of containers at Indian ports.
- ☒ Ensure provision of efficient inland transport infrastructure connecting ports.

SHIPPING

8.3.180 The role of shipping in promoting trade and economic development has been well-recognised. The shipping sector assumes special significance in India as over 90 per cent of the country's overseas trade in terms of volume and 68 per cent in terms of value is sea-borne.

8.3.181 India's 102 shipping companies together own a fleet of 562 vessels with a GT (Gross Tonnage) of 6.91 million as on 1 March 2002. The Shipping Corporation of India (SCI), the country's largest carrier, owns 97 ships with 2.64 million GT and accounts for 40 per cent of national tonnage. The share of Indian flagships in the country's overseas sea-borne trade has been hovering around 30 per cent during the last few years.

Table 8.3.22
Progress of Tonnage Acquisition Programme

Item	Ninth Plan	1997 (Dec)	1998 (Dec)	1999 (Dec)	2000 (Dec)	2001 (Dec)
Total tonnage (million GT)	9.00	7.052	6.878	6.785	7.052	9.5
Of which SCI		3.123	3.013	3.074	3.056	2.64
No. of Ships (Total)		484	476	484	510	557
Of which SCI		121	117	120	117	97

Table 8.3.23
Outlay and Expenditure of Shipping (Central Sector)

(Rs crore)

Year	SCI	DG (S)	Total
1997-98 (Outlay)	885.19	12.99	898.18
1997-98 (Actual)	315.00	7.69	322.69
1998-99 (Outlay)	1162.61	12.99	1175.60
1998-99 (Actual)	872.00	9.06	881.06
1999-2000 (Outlay)	1478.86	12.09	1490.95
1999-2000 (Actual)	160.00	10.77	150.77
2000-01 (Outlay)	567.01	18.00	585.01
2000-01 (Actual)	345.00	13.50	358.50
2001-02 (Outlay)	835.71	20.00	855.71
2001-02 (RE)	692.00	20.00	712.00

Review Of The Ninth Plan

8.3.182 Liberalisation and simplification of ship acquisition, a process which was initiated in the Eighth Plan, continued in the Ninth Plan. The earlier requirement of approval by the Ship Acquisition Licensing Committee of the Ministry of Shipping has been dispensed with. All vessels have been put under open general license (OGL) from 1 April 2001 to make their imports easier. In spite of this, considerable shortfall in the achievement of Ninth Plan targets is likely. Against a target of 9 million gross tonnage (GT) for the Ninth Plan, the achievement as on 1 March 2002 was only 6.91 million GT which is at par with the target achieved during the Eighth Plan. Thus, there has been almost no net addition to tonnage during the Ninth Plan. Till the Seventh Plan, tonnage growth was very tardy. After reaching the level of 7 million GT in 1995 from 5 million GT in 1975-76, it has stagnated again. The slow progress in tonnage acquisition was mainly due to:

- ☒ Lack of fiscal incentives to remain internationally competitive.
- ☒ Difficulty in raising external commercial borrowings.
- ☒ Prevailing market condition is depressed and charter/freight rates have fallen considerably, especially in the dry-bulk and liner sector.
- ☒ Considerable changes in the trade pattern, which has compelled the SCI to abandon many of its projects.

8.3.183 In February 2001, the SCI was granted the status of mini ratna which meant an enhanced delegation of financial power for investment decisions up to Rs. 300 crore. However, this limit has been found to be inadequate when acquisition of two or three large vessels are necessary for one project.

8.3.184 In addition, it is expected that the SCI would be able to register its presence in the transportation of liquefied natural gas (LNG) by taking equity participation in joint ventures. The SCI is already operating an LNG vessel 'Laxmi' jointly with

Japanese firm, M/s Mitsui OSK Lines and the Government of the Sultanate of Oman. The SCI is also partner in the two joint ventures for providing vessels to Petronet LNG Ltd.

Approach To The Tenth Plan

8.3.185 Shipping is an extremely volatile sector characterised by long periods of depression and short periods of boom. It is always difficult to predict the share of Indian vessels in the total trade and, therefore, estimate the target for acquisition of ships by Indian companies. Recent liberalisation in Government policy ending the compulsion to use Indian fleet has further contributed to the uncertainties in forecasting the demand for ships. Indian ships have significant presence in the oil and POL trade. With the dismantling of the administrative price mechanism (APM) for the petroleum sector and freedom granted to oil companies to set up their own captive facilities for crude import, it would be difficult to indicate the share of Indian shipping in this trade as well. In the circumstances, it is advisable to facilitate the growth of Indian shipping through appropriate policy measures so that the Indian shipping industry could remain competitive. Presence of Indian shipping is necessary for a number of reasons, the most important being its beneficial impact on the freight rates and availability of fleet during emergencies.

8.3.186 In order to facilitate acquisition of ships during the Tenth Plan, it may be necessary to take the following steps:

- ☒ Adoption of a tax regime such as tonnage tax, which is followed by many countries.
- ☒ Continuation of the present policy of cargo support and its extension to LNG.
- ☒ Tax incentives for the crew in order to retain good quality staff.
- ☒ Simplification of procedures for the acquisition of ships by the public sector.

Tonnage Acquisition Programme

8.3.187 At the present stage of economic development, India's liner trade is expected to grow

rapidly as there will be increased imports of crude oil, machinery/parts and finished products as well as exports of value added items. As per an estimate by RITES, the liner cargo traffic at Indian ports would increase from 45.31 mmt in 1996-97 to about 118.62 mmt in 2006-07, showing a compound growth of about 10 per cent per annum. To cater to a reasonable share of this trade, there is an urgent need to induct additional tonnage of suitable size/type and composition in the Indian liner fleet.

8.3.188 Table – 8.3.24 indicates the proposed acquisition in the Tenth Plan:

Coastal Shipping

8.3.189 Coastal shipping is one of the most energy efficient and cheap modes of transport for the movement of bulk commodities over long distances. Considering the vast coastline and congestion on land routes, coastal shipping offers an effective alternative means of transport. The land route, particularly from Chennai to Visakhapatnam on the east coast and also a section on the west coast, is parallel to the coast. This offers the potential of diversion of railroad cargo to the sea route, which would result in immense savings.

Table 8.3.24
Projections for Tenth Plan – Acquisition of Vessels

Sl. No.	Type of Vessels	Fleet strength as on 31.3.1997 (end of Eighth Plan)		Fleet strength as on 1.4.2001		Balance of existing fleet as on 31.3.2007 (end of Tenth Plan)		Suggested acquisition during Tenth Plan period	
		No.	GT	No.	GT	No.	GT	No.	GT
1.	Dry Cargo Liners	83	0.49	82	0.32	50	0.12	20	0.10
2.	Cellular Containers	7	0.09	10	0.14	5	0.1	5	0.12
3.	Dry Bulk Carriers	133	3.02	115	2.66	98	2.1	40	1.00
4.	OBOs	3	0.17	4	0.20	1	0.03	-	-
5.	Crude Tankers	33	1.84	36	1.93	25	1.61	20	1.50
6.	Product Tankers	47	0.83	54	1.02	14	0.26	15	0.30
7.	Chemical Tankers	6	0.10	7	0.10	3	0.06	3	0.06
8.	LPG Carriers	4	0.07	6	0.12	3	0.06	3	0.06
9.	Tugs	32	0.01	90	0.03	84	0.02	-	-
10.	Timber Carriers	4	0.01	2	0.01	2	0.01	-	-
11.	Passenger Vessels	16	0.06	25	0.07	36	0.7	-	-
12.	Ethylene Carriers	3	0.01	3	0.01	3	0.01	-	-
13.	RO – RO	1	-	1	-	1	-	-	-
14.	Dredgers	11	0.04	15	0.06	7	0.03	-	-
15.	OSVs	71	0.09	69	0.07	11	0.02	30	0.04
16.	Specialised OSVs	27	0.08	27	0.07	2	-	20	0.08
17.	LNG	-	-	-	-	-	-	-	-
		481	6.91	546	6.81	345	4.25	156	3.26

OBOs = Oil Bulk Ores; OSVs = Offshore Supply Vessels; RO-RO = Rollover-Rollover

8.3.190 During the Ninth Plan period, a physical target of addition of 75 vessels of 0.265 MMT GRT was proposed in addition to 25 vessels as replacement. Although, 79 vessels have been added to the coastal fleet during the above period, which exceeded the Plan target of 75 vessels on 'additional tonnage' account, the pay load capacity in GRT terms grew only marginally and is lower than the target by almost 200 per cent. This is mainly because a large number of tugs were added to the coastal fleet, having almost no impact on the cargo/passenger carrying capacity. The pressure on land-based modes, therefore, has not been reduced.

8.3.191 Presently, the cargo moved by coastal shipping, which is entirely reserved for Indian vessels, mainly comprises coal, klinker, cement, crude oil, POL and iron ore. However, the development of coastal shipping has been slow. The ship owners are reluctant to acquire dedicated coastal vessels due to various impediments such as complex customs procedures, time-consuming port clearances, high manning scales at par with overseas shipping, poor port infrastructure etc.

8.3.192 The following policy measures need to be considered for the development of coastal shipping:

- ☒ Continuation of cabotage law supported by suitable fiscal and financial incentives.
- ☒ Earmarking exclusive ports for coastal shipping along the Indian coasts.
- ☒ Exclusive berths to be earmarked for coastal ships at all major ports.
- ☒ Laying down less stringent construction, survey, loadlines and safety requirements for coastal vessels.
- ☒ Review of minimum manning scales for coastal vessels, keeping in view the need to encourage coastal traffic on a commercial basis.
- ☒ Grant of customs duty exemption to ship owners and users on par with ship repair units to enable them to import spare parts/equipment for coastal vessels.

Lighthouses and Light Ships

8.3.193 The Department of Lighthouses and Light Ships is a revenue earning department and derives its income from light dues and light charges from ships entering and leaving Indian ports. During Ninth Plan, the anticipated revenue earning was Rs. 408 crore.

8.3.194 Against the Ninth Plan outlay of Rs.123 crore, the expenditure in this sector was about Rs. 62 crore. In the Tenth Plan, emphasis will be placed on automation of existing lighthouses, improvement in visual aids, replacement of existing lighthouse tenders, improvement of training facilities and establishment of a Coastal Vessel Traffic Service (CVTS). Establishment of new lighthouses would be considered on a selective basis.

Plan Outlay

8.3.195 An outlay of Rs. 6,273.84 crore has been allocated to shipping sector in the Tenth Plan, the schemewise break-up of which is given in the Appendix.

Inland Water Transport

8.3.196 Inland water transport has not been able to realise its full growth potential despite being an extremely energy efficient, environmentally clean and economical mode of transport. India has navigable waterways aggregating 14,544 km. of which 5,200 km of major rivers and 485 km of canals are navigable for mechanised crafts.

8.3.197 Inland water transport in India is dominated by country boats which cater to passenger traffic. Mechanised operations are restricted to specific locations and most of the services provided are again in the form of passenger ferries. Large-scale movement of goods through inland water transport mode is yet to be developed in the country.

8.3.198 The concept of National Waterways was introduced in 1982 to give a boost to the development of inland water transport in the country. At present, there are three waterways that have been

declared as National Waterways. These are Ganga, from Haldia to Allahabad (1,620 km), the Brahmaputra, from Dhubri to Sadiya (891 km) and the West Coast Canal from Kottapuram to Kollam including Champakara and Udyogmandal canals (205 km).

8.3.199 The responsibility of development of these waterways rests with the Inland Waterways Authority of India (IWAI). This authority, along with Central Inland Water Transport Corporation (CIWTC) as the principal operator, are the two Central agencies engaged in the development of inland water transport in the country. The efforts of these organisations are supplemented and supported by inland water organisations of various States and private operators.

Review of the Ninth Plan

Inland Waterways Authority of India

8.3.200 The approved outlay for Ninth Plan and the progress of expenditure in respect of the IWAI are given in Table-8.3.25.

Table 8.3.25
IWAI – 9th Plan outlay and expenditure
(Rs. crore)

Ninth Plan Outlay	308.00
1997-98 Expenditure	22.90
1998-99 Expenditure	32.45
1999-2000 Expenditure	26.63
2000-01 Expenditure	36.87
2001-02 (Provisional)	27.85
Grand Total (1997-98 to 2001-02)	146.70

8.3.201 The expenditure was incurred mainly on the provision/maintenance of fairway, terminals and navigational aids on the three national waterways, techno-economic feasibility studies on several other waterway systems, assistance to States under centrally sponsored schemes and loan interest subsidy for acquisition of inland vessels.

8.3.202 During the Ninth Plan, a number of steps were taken to give a boost to the development of

inland water transport. These include finalisation of a policy for the development of inland water transport, which would facilitate the participation of the private sector in various areas of infrastructure development and setting up of an Inland Water Transport Development Council chaired by the Union Minister for Shipping with concerned States as members. The prime objective of this Council is to facilitate better interaction between State Governments and the Central Government in the implementation of the inland water transport policy and making it a viable alternative mode of transport.

8.3.203 During the Ninth Plan, the IWAI took up a number of projects aimed at providing two meters Least Available Depth (LAD) for selective stretches of national waterways, construction of terminals and provision of 24 hours navigation facility in the Kolkata-Farakka stretch of National Waterway No. 1, Bangladesh and India in National Waterway No.2, and Kottapuram–Kollam in National Waterway No. 3. The Authority also procured hardware like hydraulic survey launches, tugs and floating pontoons etc.

Central Inland Water Transport Corporation (CIWTC)

8.3.204 The CIWTC was set up in May 1967 by taking over sick units of Royal Steam Navigation and Company. The main activities of CIWTC are:

- Lighterage operations on the Hooghly which handles 80-85 per cent of the total cargo carried by the corporation.
- Transportation from Kolkata to Bangladesh and to Assam (NW-2).
- Transportation from Kolkata to various destinations on NW-1.
- Construction and repair of small and medium size vessels.
- Repair of ocean-going vessels.

8.3.205 Against the Ninth Plan outlay of Rs.100 crore, a sum of Rs. 54.86 crore is estimated to have been spent by CIWTC Table-8.3.26.

Table 8.3.26
CIWTC – 9th Plan outlay and expenditure

Year	Outlay	Expenditure
1997-98	10.00	10.00
1998-99	7.30	7.30
1999-2000	6.04	6.04
2000-01	9.26	7.72
2001-02	25.00	23.80
Total	57.60	54.86

8.3.206 Most of the Plan outlay has been utilised by CIWTC for capital dredging vessels and modernisation of handling facilities. The Corporation has been a loss-making organisation since its inception. The accumulated total loss and operating losses of CIWTC in March 2001 were of the order of Rs. 579 crore and Rs. 291 crore respectively.

8.3.207 The cargo handled and the revenue earned by CIWTC have not shown significant increase over the years, except in 1999-2000. The increase was due to lighterage operation.

8.3.208 Considering the continuous losses and poor productivity of its operations, a revival plan for CIWTC was finalised in June 2001. The elements of the Plan, to be implemented over a four-year period, include: concentrating on the river service activities only so that the CIWTC becomes a viable entity, pruning of the strength of employees to 1,400 from the current level of 2,400 at the end of the fourth year, disposal of surplus land and buildings,

divisional restructuring, complete dispensation of non-Plan budgetary support from the fifth year etc.

Policies and Programmes in the Tenth Plan

8.3.209 Currently, most of the waterways suffer from navigational hazards like shallow water and narrow width of channel during dry weather, siltation, bank erosion etc. In addition, the absence of infrastructure like surface road links to facilitate the smooth transit of cargo have been a constraining factor. Furthermore, less than 400 vessels are available for inland water transport. Other constraints include: diversion of water for irrigation and other uses resulting in the decrease in river levels particularly in the upper reaches; deforestation and erosion of banks leading to heavy sedimentation load; inadequate vertical and horizontal clearances; and inadequate loading/unloading/berthing facilities etc.

8.3.210 Notwithstanding the limitations and constraints being faced, inland water transport could play an important role in the movement of passenger and freight in regions with a considerable length of navigable waterways. It could be developed significantly in regions where traffic originates and terminates at places near waterways. With the development of multi-modal transportation, inland water transport could play an important role in places where the origin and destination are not located at the waterfront. However, to ensure that the mode regains its rightful place in the transport system, the emphasis has to be on the development of infrastructure facilities. This would require taking up

Table 8.3.27
CIWTC – Cargo movement

Year	Cargo moved in lakh tones			Freight earned (Rs. crore)
	Lighterage	Long distance	Total	
1995-96	0.25	0.77	1.02	8.30
1996-97	0.20	0.64	0.84	7.20
1997-98	1.00	0.18	1.18	8.00
1998-99	0.96	0.17	1.13	8.10
1999-2000	2.30	0.21	2.51	12.02

projects relating to dredging, training of the rivers, creation of 24-hour navigation facilities, adequate and efficient terminal facilities for berthing of vessels and handling of cargo on the riverfront. It may also be necessary to augment the inland water transport fleet.

8.3.211 In the Tenth Plan, the emphasis would be on the development of existing national waterways rather than declaration of new ones. The private sector would be encouraged to provide both infrastructure facilities and inland water transport vessels. Other thrust areas include: stabilising, strengthening and upgrading the infrastructure on the existing national waterways in terms of river management and providing required navigable depth, terminals with mechanical handling facilities and navigational aids, etc.; providing port-hinterland connectivity through inland water transport; creation of interface between shipping, coastal shipping and inland water transport at ports connected by national waterways; development of water-based tourism; encouraging private sector participation for the development of infrastructure facilities and facilitating the acquisition of more vessels.

Private Sector Participation

8.3.212 The Inland Water Transport Policy approved by the Government in January 2001 aimed at giving a boost to the development of this mode of transport. The Policy includes a number of incentives for encouraging private sector participation, not only in the area of ownership and operation of cargo and passenger vessels but also construction and operation of terminals on river ports, provision and operation of mechanised handling systems, fairway development including dredging, provision and maintenance of navigation facilities and pilotage services. Thus, in the Tenth Plan, the private sector would be involved in a whole range of inland water activities through joint ventures, BOT projects etc.

8.3.213 Inland water transport offers great scope for evolving an inter-modal approach to its development with the help of the private sector. Projects linking the inland waterways with the ports,

particularly the minor and intermediate ports, could be undertaken. This would facilitate the transportation of cargo from the hinterland directly to the destination without any diversion to road transport. Such a strategy will be devised by involving all the stakeholders in order to make the projects viable.

8.3.214 The northeastern region offers immense potential for the development of inland water transport as a cheap, viable and eco-friendly transportation mode for various commodities through Bangladesh. The existing infrastructure, which offers an assured draft of two meters, is being utilised and with the decision to set up a permanent terminal, greater interest and involvement is expected in infrastructure development along National Waterway II. There is, however, a need to deploy a fleet of shallow draft vessels to take advantage of the increasing cargo-carrying opportunities in the region. The involvement of the private sector would be crucial in this regard.

8.3.215 Considering the huge requirement of funds for the development of inland water transport, the resources from multilateral funding agencies would be tapped as part of private sector investment. Apart from meeting the financial requirement, the external assistance would provide technical expertise also. This would help in modernising the inland water transport sector, which would then compete effectively with other modes of transport.

8.3.216 With the coming into existence of the National Inland Water Training Institute (NIWTI) at Patna, training activities will be actively coordinated with State units as well, giving the necessary emphasis on human resource development in this sector.

8.3.217 The CIWTC has carrying capacity estimated at about 34,300 dead weight tonne (DWT). The cargo moved by the Corporation is only about 30 mt km. The productivity of CIWTC is only 875 tonne km per tonne capacity. This compares very unfavourably with the productivity of private operators, which ranges from 7,000 to 10,000 tonne km per tonne of capacity. In the Tenth Plan, the emphasis would be on improving the productivity

of CIWTC. With the implementation of the reorganisation package June 2001, the Corporation will become a viable unit, concentrating on movement along National Waterways I and II, and thereby emphasising on the principal operation in this long stretch of waterway.

Plan Outlay

8.3.218 An outlay of Rs. 903.00 crore has been earmarked in the Central Budget of the Ministry of Shipping in the Tenth Plan (2002-07) for IWT sector.

CIVIL AVIATION

8.3.219 The main advantage of civil aviation vis-à-vis railways and road transport is the speed of travel and consequent saving of time. A part of this gain is, however, nullified for short-haul flights due to time taken in reporting, security checks, flying, luggage clearance etc. Air travel, nevertheless, retains a substantial edge over other modes of transport for long distance travel. It is particularly useful for business travel, international tourism and for transporting high value and perishable commodities. Air transport also provides easy accessibility to remote regions, which has implications for national integration and security. The advantage, however, has to be weighed against high cost of air travel and cost to the economy because of its high fuel intensity.

8.3.220 The civil aviation sector has played an important role in India's economy. It provides fast and reliable mode of transport across the country and is particularly important for many areas/places still not adequately connected by rail or road. In 2000-01, 42.03 million domestic and international passengers and 846.42 thousand tonnes of cargo were handled at various airports in the country. With increasing globalisation, this sector will play a more significant role in integrating the Indian economy with the rest of the world.

8.3.221 The civil aviation sector could broadly be divided into three distinct functional entities – regulatory-cum-developmental, operational and infrastructural. The regulatory functions are the

responsibility of the Directorate General of Civil Aviation (DGCA) and Bureau of Civil Aviation Security (BCAS). Operational functions are performed by Air India Ltd., Indian Airlines Ltd., Pawan Hans Helicopters Ltd. together with other private sector airline operators. Air India provides international air services while Indian Airlines and its wholly-owned subsidiary, Alliance Air, and other operators provide domestic air services in the country. Indian Airlines also provides international air services to some of the neighbouring countries. Pawan Hans Helicopters provides helicopter support services primarily in the petroleum sector. Infrastructural facilities are provided by the Airports Authority of India (AAI). It manages 94 civil airports including 11 international airports at Delhi, Mumbai, Kolkata, Chennai, Thiruvananthapuram, Bangalore, Hyderabad, Ahmedabad, Goa, Amritsar and Guwahati and 28 civil enclaves at defence airfields. The Indira Gandhi Rashtriya Udan Academy (IGRUA) is the premier flying institute responsible for imparting flying training for the award of the commercial pilots licence and commercial helicopter pilots licence. Hotel Corporation of India, a subsidiary of Air India Ltd., is in the business of providing in-flight catering.

Review of the Ninth Plan

8.3.222 The likely expenditure by various organisations in the Ninth Plan period was Rs. 6,599.51 crore (59.4 per cent) against the approved outlay of Rs. 11,112.37 crore. The utilisation of budgetary support was still lower at Rs. 183.77 crore (37.1 per cent) against the approved budgetary support of Rs. 495.37 crore (Annexure – 8.3.14).

8.3.223 The lower expenditure was due to certain constraints faced by the civil aviation sector. Air India and Indian Air Lines did not go in for fleet augmentation partly because of resource constraints and partly in view of the proposed disinvestment of these airlines. It was felt that the strategic/joint venture partner would be more suitable to make investment towards fleet augmentation taking into account their perceptions of the changing market scenario. The AAI also did not take up major projects of new terminal buildings at Delhi and Mumbai in

view of the proposals for long-term leasing of these airports. There was also some delay in finalising certain projects and in obtaining requisite approvals for commencement of projects. The progress of the projects was also slow in certain areas, especially in the northeastern region due to local law and order problems, inclement weather, non-availability of clear site, changes in the scope of projects after their sanction and litigation by contractors. Pawan Hans Helicopters made provisions for fleet augmentation but could not procure new helicopters for want of firm demand from the customers.

8.3.224 Notwithstanding all this, the civil aviation sector in India has undergone some significant developments/transformation during the Ninth Plan period. The more important developments are :

- a) The Government considerably disengaged itself from commercial operations of airlines.
- b) The Government encouraged an increase in the role of the private sector in order to bridge the resource gap as well as to bring greater efficiency .
- c) The process of disinvestment of Air India and Indian Airlines was initiated. A decision has been taken to disinvest up to 60 per cent of Government equity in Air India of which 40 per cent would be offered to the private sector and the balance 20 per cent to employees, financial institutions and public. However, not more than 26 per cent of the total equity would be held by a foreign airline. In the case of Indian Airlines, out of 51 per cent equity to be disinvested, 26 per cent would be given to a strategic partner and balance 25 per cent to the employees, financial institutions and public. The process of disinvestment has, however, been delayed.
- d) The decision to restructure existing airports at Delhi, Mumbai, Chennai and Kolkata through long-term lease in order to make them world class is another

important milestone. The process of leasing of four metro airports, however, has also been delayed. The new airport at Neduembassery near Kochi has been constructed by Kochi International Airport Limited, a company promoted by the Kerala government with equity participation from a large number of non-resident Indians and financial institutions. Green-field international airports at Hyderabad and Bangalore are also on the anvil with equity being shared by the AAI (13 per cent), State Government (13 per cent) and joint venture partner (74 per cent).

- e) Emphasis was laid on improvement/upgradation in airport infrastructure, domestic passenger and cargo transport service.
- f) Keeping in view the current security scenario in the country and elsewhere, the Government has taken a number of special steps to tighten security at the Indian airports for the safety of passengers. Subsequent to the hijacking incident involving Indian Airlines flight IC-814 in December 1999, the contingency plan to deal with hijacking and other unlawful activities operations is being revised.

Objectives and Policies in the Tenth Plan

Objectives

8.3.225 The main objective of the development of the civil aviation sector in the Tenth Plan is to provide world class infrastructure facilities and efficient, safe and reliable air services to meet the requirements of domestic and foreign trade and tourism. Meeting the air transport requirements of remote and inaccessible areas would also be a priority.

8.3.226 Air transport is a field for competitive development. The objective of development of air transport in the country, therefore, would be achieved through private sector participation on a much larger scale than before.

Policy Framework

Domestic Air Transport

8.3.227 The main advantage of civil aviation is its speed, particularly over long distances and difficult terrain. Air transport, however, is fuel-intensive, with the cost of fuel accounting for about 25 per cent of the cost of air operations. Viewed in the inter-modal context, the presence of other modes of transportation and considering the total travel time (including time taken from city centre to the airport, reporting time, flying time, luggage clearance time etc.), saving in time offered by the air transport may be marginal on short haul routes. It is, therefore, desirable that the short haul routes covering distances of up to 250–300 km are served by other modes of transport like railways and road transport in order to optimise the use of scarce energy resources. However, there may be need to provide air services on short-haul routes, for areas with difficult terrain or for an important tourist destination. These inter-modal issues need to be addressed more effectively in the context of an air transport policy for the country.

8.3.228 The demand for air transport traffic had hovered around 10 million passengers for quite some time. After registering a negative growth in the first year of the Ninth Plan, the growth rate picked up. In 2000-01, the passenger growth rate was 7.9 per cent and the rate of growth is likely to dip in the terminal year of the Plan.

8.3.229 The increase in demand for air transport depends on a number of factors, which include rate of growth of the economy and fall in real prices of air services. The airlines operate at very thin margins. The utilisation of capacity becomes another important factor for determining the viability of air operators. In order that air transport plays its role in accordance with its comparative advantage, it is necessary to remove the bottlenecks affecting the sector. To enhance the operational efficiency in the civil aviation sector, the infrastructure facilities may be augmented, specifically to ensure full utilisation of runways leading to improved payload. Other steps required include extension of runways

where payload penalty is experienced, strengthening of Air Traffic Services (ATS) routes and use of satellite based navigation system to reduce flying time and allocation of optimal flight levels through a modern air traffic management system.

8.3.230 Fuel is the largest component of airline cost. Even though the pricing of Aviation Turbine Fuel (ATF) is now on import parity basis, the rates applicable for domestic operations continue to be significantly higher than that of international operations. Further, the ATF is subject to high rate of sales tax varying from 20 to 36 per cent. The high ATF cost for domestic air transport increases the cost of operation and makes it unviable even in areas where it has comparative advantage over other modes of transport. The removal of this constraint would help in stepping up the rate of growth of the sector.

Route Dispersal Guidelines

8.3.231 There is need to make air services more effective and reliable in the northeast and other inaccessible areas. The Ministry of Civil Aviation has formulated route dispersal guidelines which, inter alia, provide for the air operators to operate at least 10 per cent of their deployment of capacity on trunk routes, in Category II routes which are meant to connect the northeastern region, Jammu and Kashmir, Andaman and Nicobar Islands and Lakshadweep. The guidelines are aimed at ensuring the availability of a minimum level of air operations in Category II routes. However, the airline operations in Category II routes, being short-haul in nature, are loss-making. The operation of route dispersal guidelines is meant to cross subsidise operations in Category II routes from the profits generated on trunk routes. All the airlines are, therefore, forced to operate part of operations, on Category II routes. The more appropriate way to ensure reliable air services in these areas would be to provide direct subsidies through minimum subsidy bidding. The amount of subsidy required to support the air operations may be funded by setting up a fund through contributions made by operations on trunk routes and supplemented through other means.

Foreign Equity Participation

8.3.232 At present, the domestic air transport policy debars foreign airlines from equity participation in the companies formed for domestic air transportation. The policy allows participation of foreign individuals/companies up to 40 per cent and the participation of non-resident Indians (NRIs)/overseas corporate bodies (OCB) up to 100 per cent in the domestic air transport services. This is not a desirable policy as it debars those who actually have the experience in airline operations, while allowing the participation of those who may not have expertise in the airlines business. The issue relating to permitting foreign airlines equity investment in companies formed for domestic operations need to be reconsidered. Moreover, overall increase in the foreign equity limit in domestic airlines operations may also be considered with a view to attracting new technology and management expertise.

International Air Transport

8.3.233 In the past, capacity constraint on some of the international routes have been experienced and this has had an adverse impact on tourism and trade. There is a need to review the policy of regulating international services through bilateral air services agreements. While reviewing this policy, the interest of national carriers, on the one hand, and the need for promoting tourism and trade and the convenience of the travelling public on the other, may have to be considered. Domestic private carriers may also be permitted to utilise international air transport bilateral traffic rights subject to the first right of refusal by Air India and Indian Airlines. For future rights acquired through bilateral negotiations, the possibility of competitive bidding should be considered.

Foreign Equity

8.3.234 At present, the foreign equity limit in the international services is 26 per cent. In order to attract investment in the sector, the possibility of increase in foreign equity also need to be considered.

International Air Transport Tourist Charter

8.3.235 Currently, international air cargo services are governed by the open sky policy. It is applicable to all airports having custom and immigration facilities. There is no restriction on these flights within the country except carriage of domestic cargo. The operators of cargo flights are also free to charge rate as per market conditions.

8.3.236 In order to promote international tourism, the liberal policy of foreign charter flights could also be considered. Charter flights may be permitted to all airports having customs/immigration facilities.

Infrastructure Facilities

8.3.237 Barring a few airports, the available infrastructure facilities are under-utilised at most airports. About 50 per cent of the airports under the AAI are not being utilised by various airlines. Besides, there are a large number of airports where full infrastructure is available but only one or two flights a day operate, leading to heavy under-utilisation of infrastructure as well as wastage of manpower. Only nine airports of AAI manage to make profits. In view of this, no new airport should be opened without Government approval. Private sector participation may be encouraged wherever it is considered necessary to construct a new airport.

8.3.238 There is a continuing need for the upgradation and modernisation of air traffic services. The navigation and surveillance facilities should be upgraded as a matter of priority to be in line with world standards. New approaches in airport designs should be considered to accommodate technological innovations like the new large aircraft. Technological upgradation should be extended to cover the ground facilities through introduction of automation and computerisation, mechanisation of baggage handling facilities and provision of aero-bridges etc.

Leasing of major airports

8.3.239 The organisational structure of airports need to be corporatised to enable the entry of the

private sector, both for existing and greenfield airports. The process of long-term leasing of airports at Delhi, Mumbai, Chennai and Kolkata in order to make them world class has already been initiated. This would help in attracting investment to improve infrastructure facilities and services at these airports. The AAI could also develop other airports with the lease rental of these airports. There are a number of issues relating to the leasing of the four metro airports. This include terms of lease, transfer of employees, lease payment, aeronautical tariff setting, financing of capital expenditure etc. which need to be resolved at the earliest so that development of these airports could be initiated. It would also be necessary to specify the appropriate standards to develop all these airports keeping in view the facilities available in the newly-developed airports in Asian countries.

Regulatory Framework

8.3.240 Considering that the major airports would be developed through long-term lease and there is move towards privatisation of airlines, it is essential to have a regulatory framework in place. Airports are considered as 'natural monopoly' and, therefore, there is need to regulate them. The regulatory authority needs to monitor the airport charges and performance of airport infrastructure against specific standards. Airline services is a field for competitive development. Yet considering the present size of the market and the presence of economies of scale, the need for monitoring quality of services and the

provisions of air services for meeting social obligations, it may be necessary to consider providing a suitable regulatory framework for the air services as well.

Public Sector Undertakings/Civil Aviation Agencies

Air India Ltd.

8.3.241 The international passenger traffic to/from India has shown a growth of 4.3 per cent per annum during the 1987-2000 period. The average annual growth rate for foreign carriers was 4.2 per cent and that for Indian Airlines was 5.3 per cent per annum in the same period. The growth rate achieved by Air India during the same period was 3.8 per cent per annum. As a result of this, the market share of Air India in the international passenger market has declined from 21.3 per cent in 1997 to 21.1 per cent in 2000.

8.3.242 The growth in capacity and traffic carried during the Ninth Plan is in Table-8.3.28.

8.3.243 The financial performance of Air India during the Ninth Plan period is in Table – 8.3.29.

8.3.244 The Government is in the process of disinvesting its stake in Air India to a strategic partner who is expected to bring management expertise, finance and support the aircraft acquisition process.

Table 8.3.28
Air India's Growth in Capacity and Traffic in the Ninth Plan

(In Million)

Year	Capacity Available ATKMS	Capacity Utilised RTKMS	Load Factor %
1997-98	2,293.7	1,453.8	63.4
1998-99	2,394.3	1,473.6	61.5
1999-2000	2,238.3	1,456.5	65.1
2000-01	2,226.9	1,501.4	67.4
2001-02(Budget)	2,436.8	1,617.8	66.4

ATKMS = Available Tonne km; RTKMS = Revenue Tonne Km

Table 8.3.29
Air India: Financial Performance in the Ninth Plan

(Rs.crore)

Financial Parameter	1997-98	1998-99	1999-2000	2000-01	2001-02 (Bud)
Revenue Operating	3,837.21	4,135.26	4,448.05	4,872.71	5,436.70
Expenses Operating	4,029.84	4,139.84	4,372.00	4,869.61	5,464.40
Profit / (Loss)	(192.63)	(4.58)	76.05	3.10	(27.70)
Total Revenue	4,174.16	4,236.72	4,716.97	5,224.10	5,691.90
Total Expenses	4,355.17	4,411.20	4,754.60	5,268.50	5,670.40
Net Profit / (Loss)	(181.01)	(174.48)	(37.63)	(44.40)	21.50

The terrorist attack of 11 September 2001 however, brought uncertainty about the future prospects of international civil aviation and the process of disinvestment is, therefore, likely to be delayed.

8.3.245 Air India has not added to its aircraft fleet except by way of lease during the Ninth Plan due to losses it incurred. Air India would consider phasing out 13 aircraft and induct 26 aircraft comprising 12 small capacity long range and 14 small capacity short range aircraft. The fleet size at the end of Tenth Plan is likely to be 36.

8.3.246 Air India will intensify the marketing efforts, improve its product and on-time performance to maximise yields and improve the net margins. Effort would also be made to increase the market share through code sharing, alliances and operating lease aircrafts through deployment of the maximum fleet of the airline on the core

network and by building up secondary networks through alliances and tie ups.

Indian Airlines Ltd.

8.3.247 Indian Airlines could not utilise its fleet to the full extent in the early years of the Ninth Plan as a result of the exodus of pilots and engineers and massive expansion by the private sector. With the operationalisation of its subsidiary, Alliance Air, in 1996, Indian Airlines was able to increase aircraft utilisation. Introduction of a productivity-linked incentive scheme and the lease of two aircraft in 1998 contributed to an increase in the capacity in subsequent years. The current market share of Indian Airlines is estimated to be over 50 per cent.

8.3.248 The growth in capacity and traffic carried during the Ninth Plan period is in Table-8.3.30.

Table 8.3.30
Indian Airlines: Growth in Capacity and Traffic in the Ninth Plan

Year	Capacity Available ATKMS	Capacity Utilised RTKMS	Load Factor %
1996-97	1,075.0	698.1	64.9
1997-98	1,094.1	700.8	64.1
1998-99	1122.9	709.1	63.1
1999-2000	1120.9	740.3	66.0
2000-01(Prov.)	1153.7	777.3	67.4

Table 8.3.31
Indian Airlines: Financial Performance in the Ninth Plan

(Rs.crore)

Financial Operating	1997-98 (Actual)	1998-99 (Actual)	1999-2000 (Actual)	2000-01 (RE)	2001-02 (BE)
Operating Revenue	3,769.20	4,025.74	4,154.48	4,292.95	4,665.63
Operating Expenses	3,507.65	3,726.04	3,950.99	4,390.57	4,874.91
Operating Profit/(Loss)	261.55	299.70	203.49	(97.62)	(209.28)
Total Revenue	3,796.14	4,048.91	4,171.19	4,300.45	4,672.13
Total Expenses	3,744.07	4,028.15	4,117.92	4,550.57	5,000.41
Net Profit/(Loss) Before Tax	52.07	20.76	53.27	(250.12)	(328.28)

8.3.249 Indian Airlines earned a profit in the first three years of the Ninth Plan by resorting to aggressive marketing initiatives, cost control measures and increased utilisation of aircraft. The strategy, however, could not be sustained for long. Hike in ATF prices, increase in landing and navigational charges, increase in insurance premium rates and adverse impact of foreign exchange rates resulted in losses in 2000-01. The financial performance of Indian Airlines during the Ninth Plan is indicated in Table-8.3.31.

8.3.250 Domestic air passenger traffic is estimated to grow at an average annual rate of 5 per cent during the Tenth Plan period. Indian Airlines is targeting to improve its market share to around 55 per cent.

8.3.251 The operation of Indian Airlines in the northeast, and Andaman and Nicobar Islands are uneconomical due to low fares and shorter stage length. A committee constituted by the DGCA on air transport operations in the northeast in December 1999 observed that the average fares in the region were around 40 per cent lower than in the rest of India. All scheduled airlines incur substantial losses due to mandatory minimum capacity requirement in the region. Indian Airlines is estimated to incur a net loss of Rs. 70 crore annually on operations in the northeast. The losses could be reduced if fares in the region are suitably increased, airport

charges reduced and Inland Air Travel Tax (IATT) exempted. The North Eastern Council may also extend financial assistance for airline operations. Reduction in ATF prices, exemption from withholding tax on lease rentals and improved yields can improve the financial status of all airlines.

8.3.252 During the 1990s, Indian Airlines expanded its international operations to the Gulf region and South East Asia. Indian Airlines prepares to consolidate its existing international operations and continue to avail opportunities for the expansion of the network to increase the market share of the Indian national carriers.

8.3.253 Indian Airlines proposes to phase out the fleet of A 300 and B 737 aircraft by 2003-04. It is envisaging the induction of three types of jet aircrafts and one type of turbo-prop aircraft in the fleet during the Tenth Plan period. To reduce the investment as well as to provide flexibility in responding to future market trends, Indian Airlines proposes to consider a fleet strategy of a mix of lease of aircraft in mid-life and purchase of new aircraft.

8.3.254 The Government has decided to disinvest 51 per cent equity in Indian Airlines within the para-meters of the Domestic Air Transport Policy. The disinvestment process is being undertaken by Ministry of Disinvestment.

Airports Authority of India

8.3.255 The AAI is responsible for the management and development of civil airports and civil enclaves at defence airports in the country. It is also responsible for providing navigational facilities to the aircraft operating in India.

8.3.256 AAI was able to substantially achieve the goal of upgradation of infrastructure and modernisation of communication facilities and maintenance of existing infrastructure during the Ninth Plan. In order to keep pace with the growth of international trade and for the promotion of exports, the airport infrastructure was upgraded in terms of storage space, better handling capacity and development of cargo complexes particularly at the Delhi and Mumbai airports. Investments were also made in respect of hinterland airports having potential for exports and tourism like Agra, Jaipur, Ahmedabad, Varanasi, Lucknow and Thiruvananthapuram. Substantial investments were made for the development of air strips and upgradation of communication facilities and other infrastructure in the northeast, Jammu and Kashmir and Andaman and Nicobar Islands as private investments was unlikely in these areas and adverse economic factors. Twelve airports were identified for being developed as model airports and renovation/ construction of new terminal complexes, extension of runways, upgradation of communication facilities and other passenger-related facilities were undertaken on a priority basis.

8.3.257 The net profit of the AAI increased from Rs. 196.14 crore in 1997-98 to Rs. 214.08 crore in 2000-01 and it is estimated to increase to Rs. 251.30 crore in 2001-02. The details of its financial performance are in Table – 8.3.32.

8.3.258 During the Tenth Plan, the emphasis would be on upgradation, expansion of airport infrastructure and strengthening of the security arrangements at the airports. Almost all the international airports are facing capacity shortages, leading to congestion. The services and facilities at the international airports require a major boost to match international standards. The Government, therefore, has decided to restructure the four metro airports of the AAI through long-term lease. The lessee will be required to undertake specified upgradation works in the short term and in the long term lessee will be required to comply with minimum pre-identified performance and planning standards. In view of this, it has been decided major upgradation works at Delhi and Mumbai terminal will be taken up by the lessee. In addition, the programme of upgradation of runways, additional taxiways and increased aircraft parking stands at airports will be taken up during the Tenth Plan. Modernisation and upgradation of communication and navigation facilities at all airports will be taken up to improve the air traffic management system in the overall interest of safety and capacity utilisation.

8.3.259 Introduction of automation and computerisation, mobile check-in counters, improvements

Table 8.3.32
Airport Authority of India: Financial Performance

(Rs.crore)

Financial Year	1997-98	1998-99	1999-2000	2000-01	2001-02 (BE)
Revenue	1,279.64	1,591.27	1,691.28	1,873.44	2,148.88
Expenses	963.45	1,255.49	1,346.55	1,514.36	1,740.26
Net Profit/(Loss) before tax	316.19	335.78	344.73	359.08	408.62
Provision for tax	120.05	127.37	133.35	145.00	157.32
Profit after Tax	196.14	208.41	211.38	214.08	251.30

in immigration, security checks, mechanisation in cargo terminals, reduction in bunching of flights and contracting out the operation and maintenance facility will be taken up to ensure speed and efficiency in passenger baggage and cargo handling. The passenger terminals located at a distance will be linked by providing interconnecting corridors.

Pawan Hans Helicopters Ltd.

8.3.260 Pawan Hans Helicopters Ltd. provides helicopters support services to the oil sector. The Oil and Natural Gas Corporation (ONGC) has been the largest customer. The endeavour will be to retain operations with ONGC. Presently, Pawan Hans is undertaking tasks for State Governments, public sector undertakings, transportation for pilgrims, pipeline surveillance etc. During the Tenth Plan, the services will be extended to the power sector, adventure sports, tourist charters, intra-city transportation and cargo for Arunachal Pradesh as new avenues in the domestic sector. An endeavour will also be made to explore the international markets, particularly in the neighbouring countries to strengthen its customer base for its expansion plans. Pawan Hans presently has the major market share amongst the commercial helicopter operators in India.

8.3.261 The growth of the private sector in the commercial helicopters segment has been sporadic and limited so far to casual charters, including those for corporate travel and elections. In view of the high cost, the private sector so far has not been attracted to this field.

8.3.262 Pawan Hans proposes to expand its fleet and replace the ageing medium helicopter fleet. The expansion plan will include a mixed fleet of large, medium and small helicopters.

Bureau of Civil Aviation Security

8.3.263 The BCAS is responsible for ensuring adequate security arrangements at the airports. It issues, from time to time, instructions and guidelines to State/Union Territory police, airport authorities and air carriers about measures to be enforced to

prevent hijacking and other terrorist activities and ensuring security at airports. It also maintains close liaison with international agencies for assessing threats from international terrorists.

8.3.264 Security in airlines operations has assumed greater importance as a result of recent increase in terrorist incidents and hijacking of aircrafts. It is felt that suitable strengthening of the BCAS organisation has become essential to ensure safety in air operations. In the Tenth Plan, a thorough review will be carried out on the existing set up of BCAS and organisation will be restructured suitably so as to meet the increasing challenge to the aviation sector from terrorist organisations. It is also proposed to restructure the BCAS by adding five new regional offices to the existing four metro international airports, setting up dog squads at the eight hyper-sensitive airports and bomb detection and disposable squads at seven hyper-sensitive airports along with installation of additional security equipment and systems at identified 14 hyper-sensitive and 33 sensitive airports. The introduction of a smart card access control data-based management system, biometric passenger profiling system is also proposed to be taken up. The recommendation of the Expenditure Reforms Commission for transferring the Bomb Detection and Disposal Squad and Dog Squad to the Central Industrial Security Force (CISF) are being examined .

Indira Gandhi Rashtriya Uran Akademi

8.3.265 The IGRUA is an autonomous body under the administrative control of the Ministry of Civil Aviation for imparting flying training to commercial pilots. During the Tenth Plan, ab-initio aircraft are proposed to be acquired. Apart from the purchase of equipment and vehicles, some civil works will also be undertaken.

Aero Club of India

8.3.266 The Aero Club of India was established in 1927 with the objective of inculcating an interest in aviation among the youth and provide ab-initio training for them to become pilots and aircraft maintenance engineers. Initially, flying clubs were

set up at Delhi, Mumbai, Kolkata and Allahabad. At present, most states in the country have Aero Club of India member flying clubs.

8.3.267 The Aero Club of India is the apex body of all flying clubs, gliding clubs and other aero sports organisations which are engaged in powered flying, gliding, ballooning, sky diving, hang gliding, micro light flying, parasailing, aero-modeling etc. It is also a sports federation recognised by the Ministry of Youth Affairs and Sports. It represents India in the International forum.

8.3.268 It is a self-supporting organisation. The Club has proposed setting up an Aero Sports Village near Delhi. Budgetary support will be required for purchase of land and construction of building etc.

Hotel Corporation of India

8.3.269 The Hotel Corporation of India (HCI) is a subsidiary of Air India. It incurred losses during the Ninth Plan particularly because of low room occupancy rate in all its hotels. Based on the recommendations of Disinvestment Commission, the hotels of HCI are to be disinvested. The process of disinvestment is being undertaken by the Ministry of Disinvestment. On 11 March 2002, an agreement was signed with M/s Tulip Hospitality Services Ltd to sell Centaur Juhu, Mumbai. On 26 March, Indo Hokey Hotel Ltd at Rajgir was sold to M/s Impact Travels Pvt Ltd. In the case of Centaur Hotel, Delhi, Cabinet Committee on Disinvestment has directed for rebidding by exploring ways and means to secure better response.

Directorate General of Civil Aviation

8.3.270 The DGCA is responsible for ensuring quality and safety in aircraft operations in the country. The training programmes under the Cooperative Development of Operational Safety and Continuing Airworthiness under the International Civil Aviation Organisation (ICAO) taken

up in the Ninth Plan will be continued in the Tenth Plan as well. Another programme will also be taken up under a European Union–India Project. The thrust would be on stepping up of regulatory control through intensive advance training of DGCA officers.

Outlay For The Tenth Plan

8.3.271 The outlay for civil aviation in the Central sector in the Tenth Plan is Rs. 12,928 crore. This includes Rs. 400 crore of budgetary support and Rs. 12,528 crore of IEBR. The schemewise break-up of the Tenth Plan outlay for Ministry of Civil Aviation is given in the Appendix.

THE PATH AHEAD

- ☒ Accelerate the process of disinvestment of Government equity in Indian Airlines and Air India.
- ☒ Consider increasing the share of foreign equity in both domestic and international carriers with a view to attracting new technology and management expertise.
- ☒ Re-consider bar on equity participation by foreign airlines in a company formed for domestic air transportation.
- ☒ Speed-up the process of long-term lease of the four metro airports in order to make them world class airports.
- ☒ Replace the route dispersal guideline system that provides air services to northeast and other isolated areas with a more transparent and efficient system.
- ☒ Increase private sector participation in the provision of infrastructure facilities as well as air services.
- ☒ Ensure adequate security arrangements at various airports in view of the increased threat perception.

Profile of Transport Sector

S.No.	Item	Unit	1950-51	1960-61	1970-71	1980-81	1990-91	1991-92	1995-96	1996-97	1997-98	1998-99	99-2000
1	RAILWAYS												
1.1	Route Length	Kms.	53596	56247	59790	61240	62367	62458	62915	62725	62495	62809	62759
1.2	Electrified Route Length	Kms	388	748	3706	5345	9968	10653	12306	13018	13490	13765	14261
1.3	Throughput												
1.3.1	Freight Traffic(Total)	M.Tonnes	93	156.2	196.5	220	341.4	360	405.5	409.02	429.4	420.9	456.4
1.3.2	Net Tonne (Kms.)	B.T.Kms.	44.12	87.68	127.36	158.47	242.7	256.9	273.52	279.99	286.77	284.27	308.04
1.3.3	Passengers Originating	Million	1284	1594	2431	3613	3858	4049	4018	4153	4348	4411	4585
1.3.4	Passengers Kms.	Million	66517	77665	118120	208558	296544	314564	341999	357013	379897	403884	430666
2	ROADS												
2.1	Total	000 Kms.	400	525	915	1485	2350	2486	3320	2466	2540	2616	2695
	Of which NHs.	000 Kms.	22	24	24	32	33.7	33.7	34.5	34.6	38.52	49.58	52.01
2.2	%age of village with 1000 + population connected with all weather roads	Percent	NA	NA	NA	29	45.8	46.6	85.7				
2.3	Surfaced Length	000 Kms.	156	234	398	684	1113	1160	1517	1394	1422	1450	1479
3	ROAD TRANSPORT												
3.1	No. of Goods vehicles	In'000	82	168	343	554	1356	1514	1785	2260	2529	2858	3229
3.2	No. of Passenger Buses	-do-	34	57	94	162	331	358	449	488	535	594	659
4	MAJOR PORTS												
4.1	No.of major ports	Numbers	5	9	10	10	11	11	11	11	11	11	11
4.2	Traffic handled	M.Tonnes	19.38	33.12	55.58	80.27	151.67	156.64	215.34	227.26	251.66	251.72	271.87
5	MINOR PORTS												
5.1	Traffic handled	M.Tonnes	N.A.	N.A.	6.69	6.73	11.27	13.33	24.36	24.93	38.61	36.31	62.52

Annexure 8.3.1 Contd.

S.No.	Item	Unit	1950-51	1960-61	1970-71	1980-81	1990-91	1991-92	1995-96	1996-97	1997-98	1998-99	99-2000
6	CIVIL AVIATION												
6.1	Indian Airlines												
(i)	Available Tonne Kms.	Million	N.A.	113	208	663	927	1090	1046	1075	1094	1123	1121
(ii)	Revenue Tonne Kms.	-do-	N.A.	83	161	420	699	761	723	698	701	709	740
6.2	Air India												
(i)	Available Tonne Kms.	Million	N.A.	N.A.	515	1623	2260	1973	2610	2452	2294	2394	2238
(ii)	Revenue Tonne Kms.	Million	N.A.	N.A.	275	980	1381	1149	1619	1485	1454	1474	1457
6.3	No. of Airports and Civil Enclaves	Number	N.A.	N.A.	N.A.	84	117	117	120	120	120	122	122
7	INLAND WATER TRANSPORT												
7.1	Length of Navigable Waterways	Kms.	14544	14544	14544	14544	14544	14544	14544	14544	14646	14646	14646

Annexure 8.3.2

Plan-Wise Addition to NH Length

Period	Length added in km	Total length in km
As on 1.4.1947		21,440
Pre First Plan (1947-1951)	815	22,255
First Plan (1951-1956)	-	22,255
Second Plan (1956-1961)	1,514	23,769
Third Plan (1961-1966)	179	23,948
Interregnum period (1966-1969)	52	24,000
Fourth Plan (1969-1974)	4,819	28,819
Fifth Plan (1974-1978)	158	28,977
Interregnum Period (1978-1980)	46	29,023
Sixth Plan (1980-1985)	2,687	31,710
Seventh Plan(1985-1990)	1,902	33,612
Interregnum Period (1990-1992)	77	33,689
Eighth Plan (1992-1997)	609	34,298
Ninth Plan (1997-2002)		
1997-1998	4,219	38,517
1998-1999	11,068	49,585
1999-2000	2,425	52,010
2000-2001	5,727	57,737
2001-2002	375	58,112

Scheme	Period 2002-2007 Unit Km/Nos
(i) Four-laning/six-laning	800 km
(ii) Widening to two lane	4,000 km
(iii) Strengthening	2,000 km
(iv) Improvement of Riding Quality (IRQP)	10,000 km
(v) Bypasses	25 Nos.
(vi) Construction of Bridges	100 Nos.
(vii) Rehabilitation of Bridges	200 Nos.
(viii) Construction of ROB/RUBs,	—
(ix) Wayside amenities, road safety and miscellaneous	—
(x) Expressway (Land Acquisition etc.)	1,000 km
(xi) Expansion of NH network	2,000 km
Total	
Other	
(xii) BRDB plan	
Grand total	

BRDB – Border Road Development Board

Annexure 8.3.4

Outlay and Expenditure-Road Transport.

(Rs. Crore)

Scheme	Ninth Plan	
	Outlay	Expend.
1 Capital contribution to SRTCs	8.63	7.15
2 Road safety programmes	37.42	29.31
Road safety cell	0.75	0.73
Publicity measures	8.67	9.17
Grant-in-aid	3.00	1.68
Pollution testing equipment	6.00	3.44
Road safety equipment	4.00	0.98
National Highways/patrolling Scheme	15.00	13.09
3 Training and computer system	4.45	2.94
National Institute of Road Safety	2.00	1.10
Training of drivers in unorganised Sector	0.75	0.85
Training programme (HRD)	0.50	0.55
Computer system	1.20	0.80
4 Research and development	1.15	0.10
5 Strengthening of CIRT, Pune	4.65	1.40
6 Misc. including studies	3.70	1.88
Transport studies	1.50	0.86
Data collection	0.50	0.29
National data-base network	0.95	0.10
Control of pollution of motor vehicle	0.75	0.63
Energy conservation	0.00	0.00
TOTAL	60.00	42.78

State-wise Physical Performance of SRTUs (2001-02)
(Latest Estimates)

Name of SRTUs	Fleet Utilisation % of buses on road	Vehicle Prod. Revenue Earning km per bus held per day	Bus staff ratio on fleet operated	Staff Prod. Revenue Earning km per worker per day	Fuel efficiency km per litre.
Andhra Pradesh	99	315	6.8	44	5.07
Arunachal Pradesh	68	136	5.2	23.9	2.94
Assam	51	96	31.0	6	4.0
Bihar	12	29	29.4	8.3	4.1
D.T.C.(Delhi)	80	183	10.4	34.7	3.85
Goa (Kadamba)	77	203	6.7	40	4.2
Gujarat	88	327	7.0	51.7	5.3
Haryana	95	308	6.0	54.4	4.44
Himachal Pradesh	97	222	5.4	42.1	3.52
Jammu and Kashmir	65	76	4.1	17.9	3.9
Karnataka					
KSRTC	95	341	5.7	59	4.83
NWKRTC	95	333	6.0	52.5	5.01
BMTC	97	217	5.7	38.2	4.46
NEKRTC	92	325	5.5	53.7	4.87
Kerala	80	273	7.0	45	4.0
Madhya Pradesh	81	227	6.0	35.5	4.1
Maharashtra	94	292	6.8	44	4.67
Manipur	10	6	17.0	31	3.5
Meghalaya	39	60	17.1	9.1	3.5
Mizoram	54	60	5.0	6.2	3.15
Nagaland	63	63	11.7	13.1	3.5
Orissa	32	253	7.7	37	4.1
Punjab Roadways	84	222	4.2	46.4	4.25
PEPSU RTC	95	262	5.0	52.2	4.37
Rajasthan	92	310	6.1	58.2	4.85
Sikkim	80	61	3.2	18.8	3.25
Tamil Nadu	92	376	8.0	50.1	4.29
Tripura	50	81	18.2	8.9	3.55
Uttar Pradesh	93	266	6.2	41.6	4.85
Calcutta STC	70	133	11.3	16.9	3.55
North Bengal STC	65	158	10.5	24.2	3.9
South Bengal STC	74	193	7.9	33.2	3.85
All India Average	90	290	7.2	45.4	4.61

**Details Of Capacity Addition Schemes Taken Up In The Ninth Plan
Through Port/Government Funding**

Sl. No.	Name of the Scheme	Capacity additions in Ninth Plan (in mt)
1	Third oil jetty at Kandla	2.00
2	Eighth cargo berth at Kandla	0.60
3	Construction of berth No. 11 and barge terminal at Haldia	1.30
4	Multipurpose berth at Vishakhapatnam Port Trust	1.00
5	Virtual jetty at New Mangalore	3.50
6	Shallow water berth at Tuticorin Port Trust	0.25
7	Deepening of approaches to berth Nos. 10 and 11 at Mormugao Port	0.80
8	Third oil jetty at Haldia	6.00
9	Second multipurpose berth at Paradip	1.00
10	Capital dredging at Tuticorin	2.95
11	Western Quay at Paradip	0.60
12	3 Nos 20 MT cranes at Chennai Port	1.00
13	Multipurpose berth at Haldia	1.50
14	Construction of LPG berth at Vizag	1.00
15	Construction of new Port at Ennore	16.00
16	Improvement to iron ore handling facilities at Marmugao Port Trust	0.50
17	Replacement of sub-marine pipelines at Mumbai	7.00
18	Construction of fourth oil jetty at Kandla	2.00
19	Reduction in capacity of fertiliser berths at JNP from 2.9 mt to 1.5 mt	(-) 1.40
20	Construction of multipurpose berth No. 12 at Haldia	0.40
21	Creation of mechanised coal handling facilities at Paradip Port	20.0
22	Construction of oil berth at Paradip Port	6.0
23	Construction of western quay of Paradip Port (balance capacity)	1.4
24	Construction of second multipurpose berth at Visakhapatnam Port Trust	0.7
25	Further extension of container terminal at Chennai Port	0.5
26	Construction of berth No. 8 at Tuticorin Port	1.50
27	Port facilities for MRPL expansion at NMPT (balance capacity)	5.20
28	Construction of multipurpose berth at New Mangalore	3.00
29	Construction of shallow water berth at JN Port	1.20
30	Reconstruction of BTP as multipurpose berth of Cochin Port	0.50
31	Reassessment of port capacities due to increased productivity etc in consultation with major ports	4.35
Total		92.35

**Details Of Capacity Addition Scheme Completed/Likely
To Be Completed In Ninth Plan Through BOT/Captive User**

Sl. No.	Name of the Scheme	Capacity addition in Ninth Plan (in mt)
1.	New container terminal at JNPT (P&O Ports)	7.80
2	Container terminal at Tuticorin Port (PSA)	1.80
3	IFFCO berth at Kandla Port	2.00
4	Second SBM single bio mooring of IOC at Kandla Port	10.00
5	Captive IOC jetty at Kandla Port	2.00
6	Captive fertiliser handling facilities by Oswal Fertilisers at Paradip Port	0.70
7	Captive BPCL berth at JNPT	5.50
Total (A)		29.80
Productivity Improvement measures		
1	Fertiliser berth (Oswal), Paradip	0.55
2	Container Terminal at JNPT (NSICT)	1.20
3	Container Terminal at TPT (PSA –SICAL)	0.95
Total (B)		2.70
Grand Total (A+B)		32.50

Annexure 8.3.8

Ninth Plan – Outlay and Expenditure – Ports

(Rs. crore)

Ports	Ninth Plan outlay	97-98 Outlay	97-98 Expdr.	98-99 Outlay	98-99 Expdr.	99-00 Outlay	99-00 Expdr.	00-01 Outlay	00-01 Expdr.	01-02 Anti. Expdr.
Kolkata	50	13.45	6.04	7.99	11.04	7.9	12.08	5.04	5.41	2.36
Haldia	200	26.27	22.07	22	50.32	22	70.2	59.76	46.22	9.30
RR/SBR										
Schemes	295	5.5		0.11		0.1	0	214.34	0.05	7.11
Total	545	45.22	28.11	30.1	61.36	30	82.28	279.14	57.68	18.77
Mumbai	1208	156.24	75.61	110.9	52.46	223.1	211.21	217.99	114.02	70.04
JNPT	700	94.86	106.75	70.5	21.16	50	50.51	101.70	30.79	22.14
Chennai	1500	228.38	123.1	170	225.86	379	302.1	228.50	199.37	130.00
Kochi	380	16.21	10.04	10	19.93	20	22.76	26.00	13.81	10.82
Vizag	900	70.5	55.29	50	51.3	51.8	91.25	138.4	104.97	61.19
Kandla	560	85.08	50.9	65.5	50.19	71.8	63.38	109.93	41.25	48.00
Mormugao	360	15.42	7.78	15	31.05	30	25.5	50.21	30.85	27.76
Paradip	1200	224.84	117.62	120	199.73	344	235.96	275.52	130.38	60.00
New Mangalore	640	31.44	20.58	30	14.81	44	44.55	90	88.75	36.65
Tuticorin	550	34.18	16.07	55	48.36	170	194.38	72.6	15.94	32.06
Major Ports (A)	8543	1002.37	611.85	727	776.21	1413.7	1323.88	1589.99	821.81	517.43
DCI	695	299.85	75.98	190	96.74	150	115.91	317	265.67	71.79
ALHW	125	27.3	16.66	30	26.04	30	29.59	42.3	34.76	34.10
MPSO	15	1.7	0	1.5	1.11	1.75	1.75	1.23	0.90	0.12
Minor Ports	30	3	0.37	0.5	0	3	0.03	1	0.05	0.05
Misc. Items	20	8	2.34	5	2.98	5.25	4.18	5.65	3.21	3.41
Others (B)	885	339.85	95.35	227	126.87	190	151.46	367.18	304.59	109.47
Total (A+B)	9428	1342.22	707.2	954	903.08	1603.7	1475.34	1957.17	1126.40	626.90
Ennore Port Ltd									0.00	0.00
Survey Vessels	262	30	30	30	84.77	20	20	50	25.00	35.53
Grand Total	9690	1372.22	737.2	984	987.85	1623.7	1495.34	2007.17	1151.40	662.43

RR= River Regulatory SBR = Ship building and repair

Approved Private Sector/Captive Port Projects

Sl. No.	Project Name	Port name	Capacity (tonnes)	Project cost (Rs crore)	Project status
1.	Container Terminal	Jawaharlal Nehru	7.20	800	The Container Terminal was developed by NSICT which is a consortium led by M/s. P&O Ports, Australia in 1997. Partial operation with one berth started in April 1999. The second berth opened for operation in August 1999. The project is completed in all respects.
2.	Liquid Cargo Berth	Jawaharlal Nehru	5.50	200	The project is under execution by BPCL/IOC Ltd. The progress of the project is behind schedule. Ninety-nine per cent works are completed. The Terminal is almost complete and is likely to be commissioned soon.
3.	Fifth Oil Jetty (Ifco Jetty)	Kandla	2.00	21.5	Jetty commissioned on 30 April 1998.
4.	Oil Jetty awarded to M/s IOCL.	Kandla	2.00	20.7	Awarded to Indian Oil Corporation. Jetty commissioned on 1 March 2001.
5.	Oil Jetty awarded to M/s HPCL	Kandla	1.50	18.0	It was a virtual jetty which has now been decommissioned.
6.	Oil Jetty and related facilities	Vadinar (Kandla)	15.00	565	The project is awarded to Essar Ltd., and is held up on account of environmental non-clearance.
7.	Container Terminal	Tuticorin	3.60	100	The Terminal was commissioned on 21 December 1999 and is under operation. Against the minimum throughput of 2,28,000 TEUs for the fourth year (15 July 2001 to 14 July 2002) up to 31 January, 2002 the quantity handled is 1,20,370 TEUs. The port had collected from the BOT operator the royalty for the previous years.
8.	Captive coal berth to SEPC	Tuticorin	1.50	250	Project is awarded to M/s SEPC on 28 August 1999. The lease rent for the first year was paid by the firm. Fifty per cent of the second year's lease rent ending July 2001 was paid on 20 June 2001 with the request to grant time up to 31 May 2002 to remit the balance amount as well as the third year lease year. M/s SEPC is awaiting escrow from TNEB/Government of Tamil Nadu.
9.	Captive berth to Oswal Fertilisers Ltd.	Paradip	2.5	100	The Project is complete and in operation.

Sl. No.	Project Name	Port name	Capacity (tonnes)	Project cost (Rs crore)	Project status
10.	Construction of a berth at Pir Pau for handling inter-alia coal on BOT basis	Mumbai	1.5	200	Commercial offer of Tata Electric Companies had been accepted by the Board and licence agreement signed on 19 July 2000.
11.	Container Terminal at Chennai	Chennai	3.0	400	Agreement signed on 9 August 2001 between Chennai Port Trust and P&O, Australia. Container Terminal is handed over to M/s P&O on 30 November 2001.
12.	Multipurpose General Cargo Berths 5A and 6A	Mormugao	5.0	250	Awarded to M/s ABG Goa Port Ltd., which is executing the work on BOOT basis.
13.	Multipurpose Berths at Visakhapatnam Port	Vizag	2.00	175	Government approval conveyed to construct two berths on BOT by M/s Gammon India Ltd. License agreement has been signed.
14.	Allotment of Multipurpose berth No. 12	Haldia Dock Complex (HDC)	0.5 mt in case of mixed cargo including containers/ 35,000 TEUs in case of exclusive handling of container.	30	Awarded to a consortium comprising TISCO and IQ. Martrade GMBH (Germany).
15.	Multipurpose Berth No. 4 A at Haldia	Haldia Dock Complex	1.5	50	Draft license agreement has been finalised. Awarded to M/s ISP Ltd and Government conveyed its approval.
16.	General Cargo Terminal in Indira Dock	Mumbai	0.75	50	Awarded to M/s United Lined Agencies Ltd.

Sl. No.	Project Name	Port name	Capacity (tonnes)	Project cost (Rs crore)	Project status
17.	BOT Coal Berth at New Mangalore	New Mangalore	5.0	250	Two coal berths were considered by New Mangalore Port Trust on BOT basis, one on tender basis and the other on captive user basis. Single tender received has been rejected, as it was not financially attractive. The second berth was on the captive user basis; given on nomination to M/s. Nagarjuna Power Corporation Ltd (NPCL). Government approved an MoU between NMPT and NPCL and certain changes are to be made in its conditions for revising royalty charges and upfront fee, revision of payments etc suggested by Ministry of Shipping. They have taken up the matter with Kamataka Power Thermal Corporation Ltd. They had also filed a petition in the high court requesting the State Government to expedite the clearance of power purchase agreement (PPA) signed with KPTCL. In its judgement the Hon'ble High Court has directed to the State Government to reconsider the PPA for clearance within eight weeks. In November 2001, the Government of Kamataka filed a review petition in the High Court. Other requirement to achieve financial closure such as finalising EPC Contract, fuel supply contract etc have all been readied by M/s NPCL. Price fixation for land acquisition has been done. Regarding changes in MOU between NMPT and NPCL, NPCL has taken up the matter with KPTCL.
TOTAL			60.05	3,480.20	

Kandla Port Trust revised its figures of project cost and confirmed as indicated above.

Private Sector Port Projects Under Consideration Or Bids Invited

Sr. No.	Project	Port name	Capacity (mt)	Project cost (Rs. crore)	Project Status
1.	Development of container terminal and trans-shipment terminal	Kochi Port	5.00	600	Only one bid from P&O Ports has been received. The Port Trust Board has approved the proposal. The matter is under consideration in the Ministry.
2.	Marine chemical terminal	Jawaharlal Nehru Port	15.00	2,000	The market study recently conducted by port indicates that traffic is much less than what was anticipated by the consultant during 1993-94. Hence, the port is planning to review the project in its present configuration. Port has received expression of interest (EOI) which is being finalised
3.	Development, operation, maintenance and management of four container terminals on BOT basis.	Mumbai Port	5.00 lakh TEU	287	Fresh tenders with relaxed conditions has been invited and bids opened on 28 December 2001.
4.	Construction of a second liquid chemical/POL products berth at Pir Pau on BOT basis.	Mumbai Port	2 mt	94	The bid document is under preparation.
5.	Construction and license out berths at for handling captive cargos on BOT basis of -	Visakhapatnam Port			
a.	M/s Utkal Alumina International Ltd (WQ 6)		1.00	40	M/s Utkal were asked to advance an amount of Rs. 5.00 crore to meet estimated cost of the part of the proposed WQ 6 berth which is to be taken up along with WQ 7. Phasing of the investment by M/s Utkal is yet to be agreed to.
b.	M/s L&T (WQ 7 berth)		1.00	445	Construction of the same is proposed to be taken up by VPT itself and the estimate is approved by the VPT Board. Designs and tender papers prepared by the consultant to issue notice inviting tender in October 2001 so as to complete the construction by September 2003 concurrently with the BOT berths of EQ

Sr. No.	Project	Port name	Capacity (mt)	Project cost (Rs. crore)	Project Status
					8 and EQ 9. As the Andhra Pradesh Pollution Control Board (APPCB)'s consent has been obtained for this berth also to commence construction, it is proposed to apply for the same simultaneously. Accordingly services of EPTCL Govt. of Andhra Pradesh are being undertaken for preparation of REIA report.
6.	Container terminal at multipurpose berth outer harbour	Visakhapatnam Port	4 lakh TEUs	100	Board Resolution dated 30 November 2001 was sent to Ministry of Shipping on 1 December 2001 to communicate approval of Govt to award the work on BOT license to M/s United Liner Agencies of India Pvt. Ltd., Mumbai (the successful bidder).
7.	Installation, maintenance and operation of 2 nos. 33 ton cap. Rail mounted gantry type.	Visakhapatnam Port	5 million tones	43	Pre-qualification bids were invited for short listing.
8.	Development and operation of container terminal.	Kandla Port	3.36	369	It has been decided to discharge the bid invite fresh bids by spelling out terms and conditions in clear and unequivocal terms vide Ministry's letter dated 25 January 2002 to KPT.
9.	Allotment of multipurpose berth No. 11	Haldia Dock Complex (HDC)	0.5 million tones in case mixed cargo including containers /35,000 TEUs in case of exclusive handling of container.	30	Four parties have qualified as per provisions of request for qualifications Document. They are being issued with request for proposals Document for submission of technical and price bids.
TOTAL			32.86 mts + 9 lakh TEUs	3608.20	

Annexure- 8.3.11

Traffic Projections (Commodity-Wise) For Major Ports And Other Ports

(In mt)

Commodity	Traffic as on 31.3.2002	Projections	
		Major Ports	Other Ports
I. POL			
a) Crude		112.50	56.00
b) Products		31.80	10.00
c) LPG		5.00	5.00
d) LNG		5.00	10.00
e) Total POL	108.00	154.30	81.00
II. IRON ORE	42.40	51.50	13.00
III. COAL			
a) Thermal		55.15	
b) Coking Coal		16.15	
Total Coal	46.00	71.30	17.00
IV. FERTILISERS			
a) Finished		4.96	
b) Raw Materials (dry)		8.49	
Total	10.50	13.45	5.00
V. OTHER CARGO (Non-containerised)	46.90	62.35	29.00
VI. CONTAINERISED CARGO	35.30	61.10 (5.09 Mill. TEUs)	5.00 (0.60 Mill. TEUs)
TOTAL	289.10	415.00	150.00
GRAND TOTAL		565.00	

Details of capacity augmentation through spill over schemes of Ninth Plan

Sl. No.	Name of the Scheme	Expected accrual in MTPA
A) Sanctioned/ongoing schemes		
1.	Port facilities by M/s. Essar at Vadinar	15.00
2.	Allotment of Berth No. 5A to APEDA on nomination basis at Kandla Port	0.35
3.	Modernisation of MOT Berths in Mumbai Port	4.00
4.	Construction of Berth at Pir Pau for handling coal on BOT	1.50
5.	Construction of Berths 5A and 6A at Mormugao Port	5.00
6.	Additional capacity expected by providing equipment by PSA at Tuticorin Port	0.85
7.	Additional container handling facilities at Chennai Port by P&O Ports Limited.	2.50
8.	Modernisation of West Quay Berths at Chennai Port	1.00
9.	Modernisation of South Quay 3 and East Quay Berths at Chennai Port	0.70
10.	Construction of Multipurpose Berth No. 4A at Haldia Port	1.50
Sub Total (A)		32.40
B) Schemes likely to be sanctioned / commenced		
11.	Construction of Berth No. 13 at Haldia	0.50
12.	Construction of Multipurpose Berth WQ 7 at VPT	1.00
13.	Construction of EQ 8 and EQ 9 on BOT basis at VPT	2.00
14.	Construction of additional general berth at NMPT	4.00
15.	Marine Chemical Terminal (2 Berths) at JNPT	5.00
16.	Construction of Second Liquid Chemical Berth at Pir Pau of Mumbai Port	2.00
17.	Captive coal berth at Tuticorin	1.50
18.	Construction of Ninth Cargo Berth (Renamed as 11 th Cargo Berth) at Kandla Port	0.80
19.	Development of Container handling facilities at Kandla Port	3.40
Sub Total (B)		20.20
Total (A+B)		52.60

Annexure-8.3.13

Details of capacity augmentation through new schemes

Sl. No.	Name of the Scheme	Capacity in MTPA
A)	Govt. / Port Funding	
1.	Multipurpose Berth at inner harbour of Visakhapatnam by extending OR-I and OR-II berths	0.50
2.	Construction of WQ-6 on captive basis at Visakhapatnam	1.00
3.	2 Nos of edible oil jetties at Tuticorin	1.00
4.	Crude handling facilities at Kochi	6.00
5.	Modernisation of ore handling complex at Visakhapatnam	6.00
	Sub Total (A)	14.50
B)	Joint Venture Basis	
6.	Construction of berth at Vasco Bay of Mormugao Port	2.00
7.	Container Offshore Berths at Mumbai	4.00
	Sub Total (B)	6.00
C)	Private Sector	
8.	Berth for clean cargo at Paradip	0.60
9.	Vallarpadam Container Terminal of Cochin	5.00
10.	LNG/LPG facilities at Cochin Port	2.50
11.	Container terminal for transshipment at New Mangalore	5.00
12.	Captive coal jetty for NPCL at New Mangalore	3.00
13.	Modification to bulk berth at JN Port	9.00
14.	2 Nos. of coal berths at Ennore	8.00
15.	2 Nos. of berths for chemicals and LNG at Ennore	5.00
	Sub Total (C)	38.10
	Total (A+B+C)	58.60

Outlay and Expenditure – Ninth Plan- Civil Aviation

(Rs. crore)

Sl. No.	Organisation	Ninth Plan		1997-98		1998-99		1999-2000		2000-01		Annual Plan 2001-02		9 th plan	
		Appr. Outlay	Act. exp	Apr. outl.	Act. exp.	Apr. outl.	Act. exp.	Apr. outl.	Act. exp.	Apr. outlay	Act. exp.	Apr. outlay	Act. exp.	Amount	% age
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1	AI	3664	1233.5	517.75	602.53	550.01	433.46	383.09	675.3	641.6	445.44	345.46	77.55	2437.91	66.5
	Of Which BS				5	0	0.01								
2	IA	3640.75	470	441.9	630	522.03	540.01	492.27	550	421.26	460	431.8	93.87	2309.26	63.4
	Of Which BS	125			125	0	0.01								
3	AAI														
	i)NAD	1899.35	334.58	220.53	542.85	210.37	397.61	201.02	505.72	237.15	417.8	191.6	45.86	1060.67	55.8
	ii)AD	1522.52	274.57	118.05	257.58	109.5	300.32	159.61	329.81	111.53	155.91	93.17	59.76	591.86	38.9
	Total	3421.87	609.15	338.58	800.43	319.87	697.93	360.63	835.53	348.68	573.71	284.77	49.64	1652.53	48.3
	Of Which BS	283.37	35.74	10	68.17	25	41	25	37.53	25.2	50.84	40.25	79.17	125.45	44.3
4	PHHL	209.2	87.25	26.85	90	5.55	101.55	1.21	126.45	2.31	127	32.9	25.91	68.82	32.9
5	HCI	89.55	50	8.52	42.4	10.19	20	13.37	24.77	17.34	23	23.25	101.09	72.67	81.2
6	BCAS	25	2.5	0.01	3	2.35	3.58	1.37	5.72	2.57	5.41	1.25	23.11	7.55	30.2
	Of Which BS	25	2.5	0.01	3	2.35	3.58	1.37	5.72	2.57	5.41	1.25	23.11	7.55	30.2
7	DGCA	27	3.77	1.07	4.45	3.38	4.4	3.47	5	4.36	5.5	4.6	83.64	16.88	62.5
	Of Which BS	27	3.77	1.07	4.45	3.38	4.4	3.47	5	4.36	5.5	4.6	83.64	16.88	62.5
8	IGRUA	35	14.73	10	12.94	11	6	6	6.75	5.89	1.25	1	80.00	33.89	96.8
	Of Which BS	35	14.73	10	12.94	11	6	6	6.75	5.89	1.25	1	80.00	33.89	96.8
	Total	11112.37	2470.9	1344.7	2185.8	1424.38	1806.9	1261.41	2229.52	1444.01	1641.31	1125.03	68.54	6599.51	59.4
	Of Which BS	495.37	56.74	21.08	218.56	41.73	55	35.84	55	38.02	63	47.1	74.76	183.77	37.1

CHAPTER 8.4

INFORMATION AND BROADCASTING

8.4.1 Major advances in the fields of broadcasting, communication and information technology (IT) during the last decade have had a great impact on the information and broadcasting sector. Fast-paced technological developments and innovative application of technologies have resulted in information and broadcasting services gaining unprecedented reach. It is now possible to deliver a big basket of services including telephony, television and Internet through a common delivery system. Many means of communication deployed in the past to reach large segments of the population have either become outdated or underwent radical changes. Yet the basic goals of providing people with developmental information and wholesome entertainment at a minimal cost, facilitating healthy growth and competition has remained as valid as ever. This changes have necessitated a review of the challenges facing the sector and reworking of priorities for the Tenth Plan.

8.4.2 The activities of the information and broadcasting sector cover three areas, viz., broadcasting (Doordarshan and All India Radio, which come under the jurisdiction of public service broadcaster Prasar Bharti Corporation), information and films, with each complementing the other. Specialised media units in each of these sectors cater to the information, education and entertainment needs of all sections of society through radio, television, films, publication, advertisement and traditional media like dance and drama. Up to the Ninth Plan, the emphasis in the broadcasting sector was largely on the creation of carriage infrastructure. Consequently, Doordarshan emerged as one of the largest terrestrial networks in the world, covering 89 per cent of the population through a three-tier service – national, regional and local. All India Radio is also one of the world's largest radio organisations with 208 broadcasting centres covering 99 per cent of

the population, providing news, music, talks and other programmes in 24 languages and 146 dialects.

8.4.3 Broadcasting, which accounts for over 90 per cent of the Plan outlay of the sector, was most affected by technological advances. The monopoly of Doordarshan ended with the emergence of more than 80 private channels beaming across the country through cable networks. These channels provided an array of programmes – film-based, soaps, hardcore news etc. – and this resulted in some shift in viewership from Doordarshan.

8.4.4 As a public service broadcaster, one of the basic mandates of Prasar Bharti is to provide universal access to quality broadcasting to all citizens. Also, a large part of AIR and Doordarshan programmes are aimed at disseminating information on developmental issues and they cannot be treated as revenue-generating enterprises. The approach for the Tenth Plan should, therefore, include extending coverage to the entire population by use of cost-effective technology and creation of quality content.

8.4.5 The specialised media units in the information sector are: the Directorate of Advertising and Visual Publicity (DAVP), the Press Information Bureau (PIB), the Song and Drama Division and the Directorate of Field Publicity, which, through 268 units in 22 regional offices, arranges film shows, performances by local artists, group discussions, public meetings, seminars and symposia to spread developmental messages.

8.4.6 The specialised units in the films sector are the Film and Television Institute of India (FTII), Pune, the National Film Development Corporation (NFDC), Mumbai, the Children's Film Society of

India (CFSI), Mumbai and the Central Board for Film Certification (CBFC), headquartered in Mumbai, among others.

8.4.7 The information and films sectors have also been affected by technological changes, necessitating a review of these specialised units as well as government policies towards these sectors. The emergence of media conglomerates spanning print and electronic media, foreign direct investment (FDI) in print and other media, developing the entire entertainment industry as an organised industry are some of the issues that need to be tackled during the Tenth Plan.

REVIEW OF THE NINTH PLAN

Broadcasting

8.4.8 The Ninth Plan laid special emphasis on consolidation of existing facilities and infrastructure through modernisation and replacement of hardware as well as improving the software content. For AIR, the thrust areas were improvement of the programme content, providing a wider choice of programmes, improving broadcasting quality, enhancing technical features, renewal of old and obsolete equipment and addition of new facilities at radio stations. The Ninth Plan envisaged the addition of 24 broadcasting centres, 10 community radio centres, 65 transmitters and seven studios.

8.4.9 In the case of Doordarshan, the stress was on upgrading and modernisation in the fields of news gathering, uplinking and improvement of signal quality, expansion of network to areas like northeast, Jammu and Kashmir and the tribal/hill/border areas where private broadcasters are unlikely to venture. A target of setting up 23 studios 80 high power transmitters (HPTs) and 422 low power transmitters/very low power transmitters (LPTs/MLPTs) was set.

8.4.10 During the Plan period, both Doordarshan and AIR made substantial progress in terms of geographical reach and coverage of population. Doordarshan now has nearly 400 million viewers. During the Plan period, Doordarshan also added a

number of new satellite channels which include DD Sports, DD Bharati (which replaced DD News), Gyan Darshan (the educational channel) and two regional channels, namely Kashir (Jammu and Kashmir) and Himachal. Further, the duration of transmission on ten existing regional language satellite channels has been extended to 24 hours.

8.4.11 AIR's medium wave (MW) coverage is now available to 98 per cent of the population while FM services cover around 30 per cent of the population. Because of the near-saturation of the available MW frequencies as well as the better quality of transmission and reception of FM services, the focus shifted from MW to FM broadcasting, with private participation being allowed in these services.

Information Sector and Film Sector

8.4.12 The media units in the information sector strengthened and modernised their activities. Many of these units were started during the First Plan in a scenario of low media development. Since then, however, production standards have reached international levels. Also, the private sector has made immense contribution in areas like book publication, advertisement and films. Consequently, the need to review the role and relevance of many of these units was keenly felt.

8.4.13 Similarly, in the case of the films, the Government's role has largely been restricted to one of censorship and certification, awards and facilitating raw stock. This, coupled with the proliferation of television channels, affected units like the Films Division and the Children's Film Society of India as viewership preferences changed.

New Initiatives taken in the Ninth Plan

8.4.14 During the Ninth Plan period, the Government initiated several measures which would have a long-term impact on the information and broadcasting sector. Among these were:

- Allowing all television channels and Indian news agencies to uplink from India, and

allowing Indian companies to set up uplinking hubs (teleports).

- Allowing fully-owned Indian companies to set up private FM radio stations on a license fee basis.
- Approval of a Rs. 430-crore special package for improving AIR and Doordarshan services in Jammu and Kashmir and a similar Rs. 710-crore package for the northeastern states and island territories.
- According industry status to films.
- Amendment of the Cable Act, 1995 making it mandatory for cable operators to carry Doordarshan channels.
- Unfreezing of the newspaper titles registered under the Publication and Registration of the Books Act, 1867.
- Allowing direct-to-home (DTH) television services in India.

Financial Outlays and Target Achievement

8.4.15 The initial outlay for the information and broadcasting sector for the Ninth Plan was Rs. 2,843.05 crore, with a budgetary support of Rs. 680.05 crore and a projected internal and extra-budgetary resources (IEBR) of Rs. 2,163 crore. Subsequently, in 1999-2000, an additional budgetary support of Rs. 430 crore was approved for improving the AIR and Doordarshan services in Jammu and Kashmir. A marginal increase was also made in budgetary support and IEBR during the annual Plans, taking the total Ninth Plan outlay for the sector to Rs. 3,371.86 crore with a domestic budgetary support of Rs. 1,010.20 crore. There was, however, a shortfall in utilisation as well as realisation of IEBR targets in the initial years. Therefore, only Rs. 2,782.85 crore (82.5 per cent of the total outlay) could be utilised. Prasar Bharati, which is the autonomous board governing AIR and Doordarshan, accounted for more than 90 per cent of the total outlay. Details of outlay and expenditure are in Annexure 8.4.1 and that of targets and achievements in Annexure 8.4.2

CRITICAL ISSUES IN THE TENTH PLAN

8.4.16 Past Plan expenditures in the broadcasting sector mainly related to the creation of carriage infrastructure with little or no provision of funds to promote content quality. Public service broadcasting, by its very nature, is not a profitable or revenue-generating venture. Its main aim is to inform and educate, while at the same time, being entertaining and interesting enough to hold the viewers' attention. To ensure that Prasar Bharati is able to fulfill its mandated and statutory role of a public service broadcaster, efforts should be made to lay greater stress on creating quality content. Emphasis must also be laid on the use of cheaper alternative technologies that enable increased and improved access to various public and private television channels.

8.4.17 As a public service broadcaster, it is also necessary for Prasar Bharati to keep pace with advances in technology. It must, therefore, initiate steps to digitalise programming and transmission, keeping in mind developments in the rest of the world and viability of operations. Further, in order to reduce the operations and maintenance costs and to make programme transmission more reliable and seamless, Prasar Bharati should also initiate steps to introduce automation in studio and transmission facilities.

8.4.18 Considering that increasing the coverage of Doordarshan through expansion of the terrestrial network would be quite expensive, particularly in the sparsely populated areas, Prasar Bharati needs to consider alternative cost-effective technologies, like digital satellite distribution in Ku-band. In the case of radio, due to the inherent advantages of FM radio, future expansion should be considered in the FM mode even while consolidating MW services. The expansion of MW services may be considered only for strategic border areas and hilly terrain.

8.4.19 The entertainment sector, including films, is expected to grow manifold during the next Plan period. It is necessary that institutional

arrangements for funding content creation, including films, are developed and infrastructure (theatres etc.) expanded so that the industry is less dependent on informal, and sometimes illegal, sources of funding.

8.4.20 The human resource requirement for the burgeoning entertainment sector has to be developed through the existing institutions and by enabling new institutions to come up. Industry is expected to play a major role in these areas.

8.4.21 The traditional media units like the Song and Drama Division, Directorate of Visual Publicity etc. have been working in an isolated and sporadic manner and are also spreading their resources too thinly to be effective. It is necessary to bring about synergy in their efforts. These units need to concentrate on areas where broadcast coverage is poor because of lack of quality signals and people not having access to television or radio because of poverty or lack of electricity. They should conduct joint campaigns in target areas.

Special Package for Northeastern States

8.4.22 The coverage of information and broadcasting services in the northeastern region (including Sikkim) is far below the national average. This issue needs to be addressed to ensure better reach and improved broadcasting services, especially since the area has strategic importance for national integration and development. No private channel would come forward to provide services in these far-flung, hilly and sparsely populated areas. Therefore, a special Rs. 710-crore package for improvement of Doordarshan and AIR services in this region and island territories was sanctioned in October 2001. Prasar Bharati has chalked out a separate implementation programme for this through terrestrial and satellite coverage and the project is likely to be completed by 2004-05.

Policy initiatives For the Tenth Plan

8.4.23 The major policy initiatives that need to be taken by the Government and Prasar Bharti during the Tenth Plan are:

- To encourage the adoption of alternative technologies that enable increased and improved and affordable access to public and private broadcasters.
- To allow the setting up of low power community radio stations in FM mode by local communities and non-profit organisations such as universities, non-government organisations (NGOs) etc., for the educational, cultural and economic development of the respective communities.
- To review the DTH policy at an appropriate time, in line with the requirements of the emerging scenario in the broadcasting sector.

Thrust areas for Prasar Bharati

All India Radio

8.4.24 In the case of radio, MW transmission has reached 99 per cent of the population. However, FM broadcasting is the preferred mode of radio transmission all over the world due to its high quality stereophonic sound. The emphasis in the Tenth Plan, therefore, needs to be on substantially enhancing FM coverage from the present 30 per cent of the population, along with efforts to consolidate the MW transmission network. The following are the major thrust areas:

- No further expansion of MW transmission except in sparsely populated, hilly terrain and strategic border areas where it will still be more cost effective.
- Expanding the reach of FM radio to cover 60 per cent of the population by the end of Tenth Plan. Private operators are to be encouraged to provide FM radio services in metros and small cities.
- Encouraging private participation in providing quality services and replacing the existing system of bidding for licences with a revenue sharing mechanism.
- Digitalisation of 50 per cent production facilities by the end of the Tenth Plan to

ensure good quality convergence ready content for Internet and television (which will also support interactive radio).

- Automating all FM transmitters and all MW transmitters of 20 kilowatt (KW) and below capacity.
- Taking up digital radio broadcasting projects – both in satellite and terrestrial mode – on a pilot/experimental basis. These could be considered for replication as and when they become commercially viable.
- Efforts to put all AIR services on the Internet during the Tenth Plan.
- Creation of high quality content with long shelf life to enable AIR to fulfill its role of public service broadcaster.
- Strengthening and expanding the reach of radio in the northeastern states (including Sikkim) and island territories.
- Use FM radio to spread literacy, because of better transmission and reception.

Doordarshan

8.4.25 The role of Doordarshan as a public service broadcaster has become much more important in a scenario where private broadcasters are competing for audience share by providing programmes primarily driven by commercial considerations. Doordarshan would need to give greater stress on content quality. The emphasis during the Tenth Plan should be on:

- Covering the entire potential TV population with multi-channel television services by the end of the Plan period by direct satellite distribution in Ku-Band and other modes, as feasible.
- Converting Doordarshan's production facilities to digital format (100 per cent in the case of major Kendras and 50 per cent in other Kendras) to ensure good quality convergence ready content.
- To go in for Digital Terrestrial Transmission (DTT) only after its

commercial viability is established which will also then attract private sector participation.

- Doordarshan to test, on a pilot basis, IT-enabled multimedia services like interactive TV, webcasting, datacasting etc..
- Doordarshan to achieve 100 per cent automated operation of studios at major Kendras and 50 per cent at other Kendras.
- Doordarshan to achieve 100 per cent automation in transmission facilities for VLPTs/LPTs and 50 per cent in respect of HPTs.
- In order to achieve 100 per cent Doordarshan coverage through Ku-band technology, suitable incentives (including subsidies) need to be devised to make set-top – boxes in rural and remote areas at affordable prices.

Media Sector

Film Sector

8.4.26 Films have always occupied a special place in the lives of Indians. The sector has achieved a phenomenal growth and received industry status during the Ninth Plan. It is also one of the largest employers, providing direct and indirect employment to about five million people. According to an industry estimate, film exports have grown from Rs. 200 crore in 1998 to Rs. 459 crore in 2000. The Government has taken several steps for the growth of the industry, including allowing the listing of entertainment companies with 10 per cent public ownership.

8.4.27 The overall success of the entertainment industry depends largely on revenues earned. The future growth of this sector will be driven by expansion in exhibition infrastructure, availability of finance from institutional sources, export of film and animation software, and emerging revenue sources like webcasting, video-on-demand, pay-per-view, etc.

8.4.28 For the film sector to achieve its full potential, the following issues need special attention:

- a) Making institutional arrangements to tap formal sources of finance and discourage the flow of illegal funds from the underworld.
- b) Film companies should consider diversifying into other segments of the entertainment industry like airing films on television either in full or as serials. This will not only mitigate the risks associated with films, but also enable them to cross promote their offerings across several delivery platforms in the era of convergence.
- c) The number of exhibition theatres is much lower than developed countries and inadequate for a large population like India's.
- d) Tax incidence varies from state to state. The Government should consider standardising and reducing entertainment tax to encourage investment in infrastructure.
- e) The industry is losing a substantial amount of revenue on account of film piracy. Strict curbs on film piracy would boost industry revenues substantially.
- f) The FTII, the Satyajit Ray Film and Television Institute (SRFTI), Kolkata and other private film institutes need to concentrate on modernisation of the training infrastructure and methods.
- g) The Indian Institute of Mass Communication (IIMC), Delhi, needs to be strengthened to meet the specialised training needs of the media units. Facilities for radio and TV journalism and video projection must be suitably strengthened. The feasibility of increasing the intake of students in various courses needs to be explored in order to make fullest use of available infrastructure.
- h) The CFSI should attempt to increase the production of high quality software and ensure a wider reach of films.
- i) The CBFC Mumbai, should implement schemes to augment the infrastructural facilities at its headquarters and regional offices for better monitoring of film regulations.

Information Sector

Print Media

8.4.29 The Indian print media is experiencing a fundamental transformation because of changes in the polity and the economy and competition from the electronic media. In spite of operating under various constraints, the Indian press is vigorous, activist and pluralistic. With the expansion of television, some of the major print media houses are moving into television production and ownership of channels. The effect of the emergence of such media conglomerates on the flow and control of information needs a closer look.

Specialised Media Units

8.4.30 In the case of the DAVP, which publicises the policies, programmes and achievements of various ministries/departments, through various media, the focus must be on technological upgrading of communication equipment and modernisation of programme designing. The thrust in the Tenth Plan for the PIB, the nodal agency for disseminating information to the media, needs to be on technological upgradation of communication equipment, modernising of dissemination operations and opening of a branch office in each of the capitals of the newly created states.

8.4.31 The Song and Drama Division, which provides publicity to Government policies and programmes through traditional and folk media – folk and traditional plays, dance dramas, mythological recitals, puppet shows and sound and light programmes – needs to concentrate on the extensive use of traditional modes of communication, modernisation of programme designing facilities and utilising popular folk art forms in the northeast and other areas where the electronic media has a limited reach. The Directorate of Field Publicity, which has been playing a pivotal role in national development, should focus on increasing its coverage, computerisation of regional offices, purchase of films, creation of local software for effective communication and streamlining its feedback mechanism.

New Initiatives In The Information Sector

8.4.32 Advertising is considered an extension of the freedom of speech and expression. It serves to inform people about products and services. The flow of investment in this sector will give it a fillip and provide an opportunity to gain technological know-how. Foreign equity up to 100 per cent has been allowed in this sector.

Foreign Direct Investment In Print Media

8.4.33 With a view to encouraging the growth of the print media, the Government recently allowed foreign investment on a relatively liberal scale. It has allowed Indian editions of foreign scientific, technical and specialty magazines/periodicals/journals; FDI up to 74 per cent in Indian entities publishing scientific, technical and specialty magazines/periodicals/journals; and allowed FDI up to 26 per cent in Indian entities publishing newspapers and periodicals dealing in news and current affairs.

National Press Centre

8.4.34 The Ministry of Information and Broadcasting has decided to set up a world class National Press Centre in New Delhi with state-of-art facilities for receiving and disseminating information to the media. This Centre is proposed to be equipped with a conference hall with audio/video presentation facilities, work rooms, press lounge/printing room, modern telecommunication facilities, studio facilities etc.

Journalist's Welfare Fund

8.4.35 The Ministry of Information and Broadcasting has established a Journalist Welfare Fund with a corpus of Rs. 5 crore in order to provide immediate relief to the family of journalists who suffer loss of life or permanent disability in the course of duty.

Financial Arrangements

8.4.36 The financing pattern for the information and broadcasting sector witnessed a significant

change in the Ninth Plan period. The outlay for the information and film sector was almost fully financed by budgetary support. In the case of the broadcasting sector, 25 per cent of the approved outlay came from budgetary support while the remaining 75 per cent came from IEBR.

8.4.37 The funding of the Prasar Bharati Corporation will be one of the major issues in the Tenth Plan. The Corporation's annual Plan and non-Plan expenditure is likely to be around Rs. 1,800 crore while its annual revenue was nearly Rs. 700 crore in 2000-01, leaving a gap of nearly Rs. 1,100 crore. Efforts should be made to reduce this gap. The Corporation, while fulfilling its role as a public service broadcaster, will also need to make serious efforts to increase its revenues and reduce dependence on budgetary support.

8.4.38 Similarly, efforts should also be made to reduce the dependence of media units in the information sector on domestic budgetary support by enhancing revenue generation. The Ministry of Information and Broadcasting also needs to review the activities of the various media units to ensure that efforts are not duplicated.

8.4.39 The NFDC and the Broadcasting Engineering Consultants India Ltd. are the only two self-financing public sector undertakings under the Ministry. The other media units in the film sector are heavily dependent on budgetary support. Efforts need to be made to see if these units could become financially independent through sponsorship by the film industry and the private sector.

8.4.40 The approved outlay for the I&B sector for the 10th Plan has been fixed at Rs. 5130.00 crore with a domestic budgetary support of Rs. 2380.00 crore and IEBR components of Rs. 2750.00 crore for financing media wise projects. The schemewise break-up of the Tenth Plan outlay is given in the Appendix. Media-wise break-up of outlay including North East Component is given at Annexure 8.4.3.

Important issues for the Tenth Plan

- ❖ Expanding the coverage of television and radio services to the unserved areas,

particularly the northeastern states, border regions, hilly terrain and sparsely populated areas.

- ❖ Digitalisation of broadcasting equipment and automation of production and transmission facilities besides replacement of old equipment and completion of schemes undertaken during the previous Plans.
- ❖ Optimal utilisation of the three sectors, viz., information and broadcasting, communications and information technology for wider reach.
- ❖ Steps to remove the digital divide between the rich and poor.
- ❖ Encourage training activities with view to develop human resources to keep pace with technological changes and new challenges.
- ❖ Improvement in content by encouraging established and budding talent.

THE PATH AHEAD

All India Radio

- FM radio to be expanded to cover 60 per cent of the population by the end of Tenth Plan. Private operators to be encouraged to provide FM radio services in metros and small cities.
- Digitalisation of 50 per cent production facilities by the end of the Tenth Plan to ensure good quality convergence ready content (which will also support interactive radio).
- Efforts to be made to put all AIR services on the Internet during the Tenth Plan.
- Strengthening and expanding the reach of radio in the northeastern states (including Sikkim) and island territories.
- To allow the setting up of low power community radio stations in FM mode by

local communities and non-profit organisations such as universities, NGOs, etc.

Doordarshan

- Covering the entire potential TV population by direct satellite distribution in Ku-Band and other modes by the end of the Tenth Plan.
- Hundred per cent digitalisation of Doordarshan's production facilities in the major Kendras and 50 per cent in other Kendras by the end of the Tenth Plan to ensure good quality convergence ready content.
- Full automation of operation in studios at major Doordarshan Kendras and 50 per cent at other Kendras.
- Hundred per cent automation in transmission facilities for VLPTs/LPTs and 50 per cent in the case of HPTs.

Film Sector

- Institutional arrangements to tap formal sources of finance and discourage the flow of illegal money from the underworld.
- Increasing the number of exhibition theatres.
- Standardising the incidence of entertainment tax across the country and reducing the tax to encourage investment in infrastructure.
- Stringent curbs on film piracy in order to boost industry revenues.

Information Sector

- Allowing Indian editions of foreign scientific, technical and specialty magazines/periodicals/journals.
- Allowing foreign investment up to 74 per cent in companies publishing these magazines/journals.
- Allowing 26 per cent foreign equity in Indian firms publishing newspapers and news and current affairs periodicals.

Ministry of Information & Broadcasting
(Statement of Ninth Plan and Annual Plans Expenditure)

Sl. No.	Media Unit	(Rs. in Crore)													
		9th Plan (1997-2002)	1997-98	1998-99	99-2000	2000-01	2001-02	Approved Total Outlay for 5 yrs. of 9th Plan (col 4-8)	Actuals 1997-98	Actuals 1998-99	Actuals 1999-2000	Actuals 2000-01	Anticipated Expr 2001-02	Total Expor. during 9th Plan (Col. 10 to 14)	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
I INFORMATION SECTOR															
	DBS	93.30	19.00	18.52	17.50	17.21	14.46	87.69	12.51	14.20	16.45	12.76	12.71	68.63	
	IEBR	0	0.00	1.03	1.76	1.51	2.62	6.92	0.00	0.94	1.50	1.90	2.59	6.93	
	Total (I)	93.30	19.00	19.55	19.26	19.72	17.08	94.61	12.51	15.14	17.95	14.66	15.30	75.56	
II FILM SECTOR															
	DBS	137.20	33.80	34.28	30.50	38.49	32.77	169.84	28.99	21.97	26.95	30.68	21.93	130.52	
	IEBR	45.50	8.20	8.70	6.10	10.70	8.62	42.32	8.23	4.71	3.48	3.50	6.50	26.42	
	Total (II)	182.7	42.00	42.98	36.60	49.19	41.39	212.16	37.22	26.68	30.43	34.18	28.43	156.94	
III BROADCASTING SECTOR															
	DBS	449.55	74.80	74.80	97.00	213.30	292.77	752.67	42.64	42.60	97.00	207.13	275.00	664.37	
	IEBR	2117.50	484.00	524.60	416.52	427.14	460.16	2312.42	391.99	346.14	381.89	328.62	422.33	1870.97	
	Total (III)	2567.05	558.80	599.40	513.52	640.44	752.93	3065.09	434.63	388.74	478.89	535.75	697.33	2535.34	
IV GRAND TOTAL															
	DBS	680.05	127.60	127.60	145.00	270.00	340.00	1010.20	84.14	78.77	140.40	250.57	309.64	863.52	
	IEBR	2163.00	492.20	534.33	424.38	439.35	471.40	2361.66	400.22	351.79	386.87	334.02	431.42	1904.32	
	Total (I+II+III)	2843.05	619.80	661.93	569.38	709.35	811.40	3371.86	484.36	430.56	527.27	584.59	741.06	2767.84	

DBS Direct Budgetary Support
IEBR Internal & Extra Budgetary Resources

9th Plan Projects-Physical Target and Achievement - Broadcasting Sector

ALL INDIA RADIO

Sl. Scheme No.	Physical Target (9th Plan)	Achievement till 31-03-2001	Anticipated Achievement till 31-03-2002	Total Achievement	Total Shortfall	Remarks	
I	Broadcasting Centres	24	10	5	15	9	Shortfall due to delay in progress and Non-availability of sufficient funds
II	Community Radio Stations	10	5	-	5	5	Non availability of sufficient funds
III	Radio Transmitters (MW/SW/FM) MR Schemes	65	28	26	54	11	Non-availability of sufficient funds
IV	Studios	7	5	-	5	2	Funds Shortage & delay in progress
	Total	106	48	31	79	27	
DOORDARSHAN							
I	Studios	23	20	1	21	2	Shortfall due to delay in completion of building works
II	HPTs						
a)	HPTs (DD1)	40	24	7	31	9	Shortfall due to delay in availability of sites and construction of building and towers by contracting agencies
b)	HPTs (DD2)	40	34	4	38	2	Shortfall due to delay in supply of equipment and completion of building works
III	LPTs	252	216	14	230	22	Shortfall due to non-availability of sites and delay in supply of equipment
IV	VLPTS	170	124	5	129	41	Shortfall due to non-availability of sites and delay in supply of equipment
	TOTAL	525	418	31	449	76	

Annexure 8.4.3

Ministry of I&B - 10th Plan (2002-07)

(Rs. In Lakh)

SI. No.	Media Unit	Outlay Proposed	NE Component*
I	INFORMATION SECTOR		
1	PIB	5000.00	258.75
2.	Publications Division	300.00	5.00
3.	DAVP	1500.00	
4.	IIMC	1455.00	
5.	DFP	1100.00	300.00
6.	Song & Drama Vision	1320.00	150.00
7.	RR&TD	50.00	
8.	RNI	272.00	
9.	PCI	300.00	
	Main Sectt. Schemes		
10.	Soochna Bhavan	471.00	
11.	Training for Human Resources Devt.	200.00	
	Total (I)	11968.00	863.75
II	FILM SECTOR		
1.	Films Division	5245.00	175.00
2.	NFAI	1360.00	
3.	FTII, Pune	1210.00	
4.	SRFTI, Kolkata	135.00	
5.	DFF	2500.00	
6.	CFSI	2892.00	
7.	CBFC MAIn Sectt. (Film Wing) Schemes	1400.00	90.00
8.	Grant-in-aid to FFSI	20.00	
9.	Grant-in-aid to NGOs engaged in antipiracy work/Festivals	80.00	
10.	Participation in Film Market in India & abroad	500.00	
	Total (II)	15342.00	265.00
III	BROADCASTING SECTOR Prasar Bharti		
1.	All India Radio	146355.00	17055.00
	DBS	66355.00	
	IEBR	80000.00	
2.	Doordarshan	339075.00	38055.00
	DBS	144075.00	

Sl. No.	Media Unit	Outlay Proposed	NE Component*
	IEBR	195000.00	
	Total (III)	485430.00	55110.00
	DBS	210430.00	
	IEBR	275000.00	
IV	Others	260.00	
	GRAND TOTAL (I+II+III+IV)	513000.00	56238.75
	DBS	238000.00	
	IEBR	275000.00	

* North-East States (including Sikkim)

CHAPTER 8.5

COMMUNICATIONS

POSTS

8.5.1 An efficient postal system is crucial for growth and modernisation and it is fast emerging as an important component of the modern communication and information technology sector. The Indian postal system is the largest in the world, with a network of about 1.55 lakh post offices. Besides providing a variety of postal services, the Indian postal system also plays a crucial role in resource mobilisation, especially in the rural areas, which is illustrated by fact that deposits to the tune of Rs. 2,18,695 crore had been mobilised as on 31 March 2001.

Review of Ninth Plan

8.5.2 The two major thrust areas of the Ninth Plan were expansion of postal services in the uncovered areas especially remote and rural areas and modernisation of the postal operations. Technology upgradation was accorded the highest priority for the first time under the Five-Year Plans, 58 per cent of the total approved outlay of the Ninth Plan being allocated for this purpose. The major areas covered during the Ninth Plan were:

- Expansion of the scope and coverage of the programmes of modernisation initiated

Box 8.5.1

Basic Profile of the Sector

- The Indian postal system is the largest in the world, with the number of post offices/outlets numbering 1,54,919 as on 31 March 2001. The permanent post offices, called Departmental Offices, number 26,037.
- Of these, 1,28,882 (83 per cent) are in the rural areas and are called Extra Departmental Branch Offices (EDBOs).
- The total manpower under the Department of Posts is about 6,00,000 almost equally divided between permanent employees (who number 2,94,301) and extra-departmental employees (who number 3,09,649).
- The total revenue expenditure of the Department in 2001-02 was Rs. 5,210.83 crore, with a revenue deficit of Rs.1,458.37 crore.
- The Plan outlay constitutes a very small fraction of the total expenditure and was Rs. 135 crore for 2001-02 or 2.59 per cent of the revenue expenditure.
- The entire Plan outlay is funded through budgetary support. There are no externally-aided projects.
- The total expenditure as percentage of receipts for the Department of Posts was 160 per cent in India as compared to 101 per cent in the United Kingdom, 102 per cent in the United States, 99 per cent in Brazil and 138 per cent in Sri Lanka in 1998.
- Except courier services, postal operations are still a State monopoly.

during the Eighth Plan period through the induction of new technology.

- Development and marketing of new services, especially those for the business/professional sectors and modernisation of identified agency functions.
- Human resource development through appropriate training for upgrading skills.
- Streamlining of management functions.
- Development and maintenance of appropriate buildings for the modernised systems and staff quarters for the employees.
- Extending basic counter facilities in new areas in a cost-effective manner.

8.5.3 The physical targets are likely to be achieved, since performance on this front has been satisfactory. Against the target of setting up 250 permanent post offices, 253 are likely to be set up. Nearly 90 per cent of the target of 2,500 offices in rural areas is likely to be achieved. In addition, 4,691 Panchayat Sanchar Sewa Kendras (PSSKs) are likely to be opened during the Ninth Plan. The performance on the modernisation front has also been very encouraging, as 5,701 Multi-Purpose Counter Machines (MPCMs) are projected to be installed against the target of 5,000 and 150 V-SATs (very small aperture terminals) are projected to be installed against the target of 170. The details of the targets and achievements of the various schemes are in Annexure-8.5.2.

8.5.4 An outlay of Rs. 507.25 crore was approved for the postal sector in the Ninth Plan for implementing various programmes. On the basis of allocations approved for the Annual Plans (BE), the operational approved outlay for the Ninth Plan works out to Rs. 545 crore. On the basis of actual allocation of funds, the operational outlay works out to Rs. 483.16 crore. As against this, the utilisation during the Plan is projected to be Rs. 408.91 crore. This works out to a utilisation ratio of 75 per cent of the approved operational outlay, 84 per cent of actual allocation and 80 per cent of the Ninth Plan approved outlay. The low utilisation is basically the result of reduced allocations at the RE stage from

year to year. The details regarding the approved outlay and its utilisation during the Ninth Plan may be seen in Annexure-8.5.3

8.5.5 The Ninth Plan also marked the beginning of diversification efforts by the Department keeping in tune with the times and with a view to generating more revenues. The diversification efforts are mainly in the form of introduction of premium products like express parcels, financial services like international money transfer and providing agency functions for mutual funds and other financial institutions and information technology (IT) products like e-post.

Challenges and Policy Reforms

8.5.6 Postal finances have deteriorated sharply over the last decade. Postal deficit is an open-ended subsidy and forms part of the general budget. The deficit has shot up almost 16 times, from Rs. 91.81 crore in 1992-93 to Rs.1,576.35 crore in 2000-01 (Table 8.5.1). This has serious implications for resource availability for other needy sectors like infrastructure and social development.

Table 8.5.1
Trend of Postal Deficit

(Rs. crore)

Year	Deficit
1992-93	91.81
1997-98	993.43
1998-99	1,590.97
1999-2000(RE)	1,740.53
2000-01 (RE)	1,576.35
2001-02 (BE)	1,458.37

This situation cannot be sustained for long without serious implications. The Department should endeavour to achieve self-sufficiency over the next five years. This should be done through a two-pronged strategy of increasing revenue and reducing costs. The first can be achieved through diversification and aligning postal tariffs to costs.

Cost reduction can be effected through upgradation and modernisation of technology and redeployment/reduction of manpower.

8.5.7 Postal services in India have been highly subsidised, as part of Government policy. While subsidy on a few items covered under the Universal Postal Service Obligation (UPSO) may be justified, the pricing of other services needs to be done on cost basis, taking into account what the market can bear. The details of per unit subsidy and the total amount paid on various services is in Table 8.5.2.

8.5.9 As a member of the Universal Postal Union, India is committed to ensure the provision of quality postal services on a regular basis to all the users at all points in the country at affordable prices. However, as per the Beijing Congress of Universal Postal Union (UPU) 1999, each country is to define the scope of its Universal Postal Service in line with the technical, economical and social environment as well as the needs of the customers. Keeping in mind our specific needs and in line with international conventions, the UPSO for India needs to be clearly defined and adopted. Taking into account the

Table 8.5.2
Subsidy on Postal Services
(Projections - 2001-02)

Service	Subsidy per unit (paise)	Traffic (in lakh)	Total deficit (Rs. crore)
Post Card	555.39	3,185.50	176.92
Printed post cards	381.33	1,214.50	46.31
Letter Cards	378.44	4,599.50	174.06
Registration	1,809.43	2,679.50	484.84
Money Order	2,894.35	1,105.00	319.83
Reg. Newspaper (S)	786.86	1,045.50	82.27
Reg. Newspaper (B)	1,283.25	174.50	22.39
Printed Books	1,110.73	322.00	35.77
Parcel	722.90	684.90	49.95
Others	-	13,159.50	33.09
Total	-	28,169.50	1,424.93

S = Single B = Bundle

8.5.8 There does not seem to be any justification for subsidising services like registration, newspapers, postal orders, money orders, etc. Of the 23 services being provided by the Department, only Insurance, Speed Post and Foreign Mail are yielding a surplus. This policy of blanket subsidy needs to be reviewed and replaced by a policy of pricing the services appropriately, keeping the UPSO in mind. The tariff of non-UPSO services should be fixed on commercial principles and revised from time to time.

importance of the money order economy in the country, the UPSO needs to include money orders besides post cards, inland letters and envelopes. These services should continue to be delivered at affordable prices. The prices of other services should be determined on a commercial basis with a view to achieving self-sufficiency.

8.5.10 Under the Indian Postal Act, 1898, the Central Government fixes the tariffs for various postal articles and these are approved by

Parliament. Due to various reasons, including political considerations, tariffs have not been revised at reasonable intervals. Revision of postal tariffs has not been keeping pace with the increase in operational costs. The present system of tariff fixation needs to be replaced by a more dynamic, objective and transparent mechanism. An independent regulatory mechanism needs to be created which, besides other things, would look after tariff fixation.

8.5.11 The Indian Post Office Act, 1898 is totally archaic and obsolete and does not meet the requirements of changed circumstances. It needs to be replaced with a forward-looking legislation to take care of new developments, including the emerging scenario of convergence, the new technological and other developments and competition.

8.5.12 The present scheme of opening rural post offices, i.e. EDBOs, has a large element of in-built subsidy of 67 per cent in normal areas and 85 per cent in hilly and tribal areas. This is not sustainable in the long run. Besides, the agents under the scheme tend to demand being given the status of permanent Government employees. If this is agreed to, it will put a tremendous strain on the financial system. The scheme needs to be replaced by an innovative programme of providing services in the rural areas. Two feasible options that must be explored are converting extra departmental employees into franchisees of the Department for providing postal services in rural areas and reactivating the scheme of licensed postal agents. The first option may also help in reducing the financial burden and future liabilities of the Department in a major way, besides providing it with a decentralised system of privately-run and owned convergence centres at the village level.

8.5.13 Reach and trust are the two very strong and unique advantages of the postal network in India. With the help of innovative strategies, this can be converted into a major advantage for the delivery of a variety of services, apart from postal services, in order to achieve self-sufficiency. To take advantage of the emerging scenario of conver-

gence, post offices need to be developed as multi-product and multi-service delivery centres in which delivery of postal services would only be a part of the job. It would involve the introduction of new value-added services, financial IT-based products, e-commerce and new postal products. These convergence centres, as privately owned and operated outlets of franchisees of the Department, will have the potential of ushering in a new communications and financial services revolution in the rural and semi-urban areas.

8.5.14 Generation of substantial additional revenue through non-tariff methods like commercial exploitation of land and introduction of IT based financial services are the two other important components of the strategy for making the Government run postal services self-financing.

8.5.15 A corporate set-up provides two intrinsic advantages – faster decision-making and raising resources from the market. In view of this, corporatisation of the postal network of the Department of Posts in a time-bound manner becomes imperative. The Financial Directorate envisaged to be set up on the pattern of Business Development Directorate of the Department of Posts should be converted into a corporation during the Tenth Plan as a step in this direction.

8.5.16 Except courier services, the postal services are still a State monopoly. To ensure efficiency and improve quality of service, it may be desirable to open up selected postal services to private entrepreneurs. This will ensure flow of required funds into the sector, bring in new technology and also enable the Department to pay greater attention to its main activity i.e. carrying of mail. To ensure competition and a level playing field, the establishment of an independent regulatory authority may be considered.

8.5.17 Postal systems the world over are increasingly becoming self-financing. They are run on commercial basis, taking due care of the UPSO, by independent corporate entities. The models in different countries is given in Annexure-8.5.1. The Indian postal system also needs to be reformed and

made self-financing in line with global trends and in keeping with the country's needs. The major reforms that need to be carried out during the Tenth Plan are given in Box 8.5.2.

Box 8.5.2

Agenda for Reforms

- To develop and evolve a credible road map of the corporatisation of the operational network of Department of Posts as India Post within the Tenth Plan.
- Progressive induction of the private sector in the provision of selected postal services.
- Tariff fixation needs to be separated from policy making function by setting up an independent regulatory authority.
- Tariff of non-UPSO services should be fixed on commercial principles and revision carried out from time to time.

Objectives and Targets of the Tenth Plan

8.5.18 In order to achieve the aim of financial self-sufficiency within the Tenth Plan period, a road map of specific measures needs to be drawn up and implemented. The major objectives envisaged for Tenth Plan are:

- Provision of universal postal services at affordable prices.
- Ensuring quality of services at par with international standards.
- Modernisation and process re-engineering with a view to achieving better administrative efficiency and financial management.
- Upgrading existing infrastructure to reduce cost of operation and enhance customer satisfaction.
- Making the postal operations of the Department self-financing by the end of the Plan period.

8.5.19 The details of targets envisaged for the Tenth Plan may be seen in Annexure-8.5.4. Some of the major targets envisaged are:

- Opening of 100 departmental post offices.
- Computerisation of all major post offices.
- Computerisation of 136 Computerised Registration Centres (CRCs) 506 Divisional Offices and 611 Customer Care Centres.
- Setting up of a National Data Centre.
- Improving ergonomics in 10,000 post offices.
- Provision of infrastructure equipment to 45,448 rural post offices.
- Installation of additional Automatic Mail Processing Systems

Major Initiatives Envisaged for the Tenth Plan

8.5.20 Computerisation and connectivity has been identified as the core activity for the Tenth Plan. Coupled with the modernisation and mechanisation programme, the technology upgradation component constitutes the bulk of the outlay proposed for the Tenth Plan. The other major initiatives include expansion of the postal network, business development and financial services. The salient features and major issues concerning the major initiatives proposed for the Tenth Plan are:

Expansion of the Postal Network

8.5.21 It is proposed to open 100 permanent departmental offices and another 6,000 offices/outlets through the existing schemes PSSKs and EDPOs. The EDPO and PSSK schemes involve a large amount of subsidy. The present policy of opening post offices in the rural areas needs to be replaced with innovative methods of providing these services like franchising arrangements. Keeping the overall goal of making the Department self-financing in mind, no more post offices should be permitted to be opened in the rural areas under the present scheme.

Box 8.5.3**Review of the Policy of Opening of Post Offices**

- Any new offices in new locations justified on the basis of norms should be set up only through the redeployment of staff.
- A comprehensive review of all existing post offices should be carried out in a time-bound manner and all units which do not fulfill the norms and where resources are underutilised need to be closed down.
- The sale of stamps and stationery could be out-sourced through the system of licensed postal agents and other viable alternatives with a view to consolidating the outlets and achieving an optimum size of network.
- A contributory pension scheme needs to be worked out to encourage extra departmental employees to become franchisees of the Department.

Computerisation and Connectivity

8.5.22 The various schemes proposed for computerisation and connectivity relate to creating the basic infrastructure for improving the quality of existing services and providing the technological base for the launch of new value-added and financial services. Networking of various post offices, record offices, back offices, customer care centres, etc. forms an integral part of the entire programme. IT-based services are an important part of the product-mix envisaged to be delivered by the post offices in the Tenth Plan. The introduction of new services proposed may not be feasible without the required technological back up. Under this programme, the single most important activity proposed is complete computerisation and networking of 13,361 post offices.

8.5.23 A beginning in computerisation and modernisation was made in a small way in the Ninth Plan, based on the limited resources available. As a result, the Department could introduce new

value-added services like express parcels, e-post and satellite money orders etc. The programme is envisaged on a much larger scale in the Tenth Plan, for which a substantial increase in the outlay for the Department has been provided. This would enable the Department to launch new services and improve the quality and efficiency of existing services and would go a long way in helping the Department become self-sufficient through substantial addition in resource generation.

Business Development

8.5.24 The programme aims at giving a new thrust to and expansion of the existing postal services like speed post, express parcels, e-post and introduction of new products like E-billing Payment and Presentment (EBPP), e-commerce etc. The separate Business Development Directorate with due delegated authority and powers, set up in the Department during the Ninth Plan for the promotion of these products, needs to be strengthened. The Directorate has shown very encouraging results in promoting premium services. The revenue generated by the Directorate increased from Rs. 40 crore in 1994-95 to Rs. 281 crore in 2000-01. With the introduction of new products backed by required technological support, the revenue is expected to increase manifold in the Tenth Plan. The revenue projections for the Tenth Plan are given in Table 8.5.3.

Table 8.5.3
Revenue Projections – Premium Products

(Rs. crore)

Year	Revenue
2002-03	553
2003-04	774
2004-05	1,083
2005-06	1,517
2006-07	2,124

8.5.25 The country-wide reach of the Department extending to the remotest corners of the rural areas, is a rare asset which needs to be exploited fully for

the delivery of various services. Revenue generation from these services would contribute in a big way to reducing the revenue deficit of the Department. The programme needs to be strengthened keeping in view the target of making the Department self-financing.

Financial Services

8.5.26 Introduction of smart cards and installation of ATMs (automated teller machines) in collaboration with the corporate sector are the other major new initiatives envisaged for the Tenth Plan. The quality of service of the existing products and their reach is envisaged to be further strengthened during the Plan period. The programme needs to be emphasised keeping in view the existing infrastructure and reach of the Department and the potential of generating substantial revenue.

THE PATH AHEAD

8.5.27 The Tenth Plan would endeavour to transform the postal system into a modern, efficient and self-financing set-up. To achieve this, the major initiatives/action points envisaged for the Tenth Plan are :

- (i) Identification and adoption of UPSO and delivering the the items thereof at affordable prices.
- (ii) Pricing of non-UPSO items to be determined on commercial basis.
- (iii) Setting up of an independent regulatory body, which besides other things, would take care of tariff fixation.
- (iv) Fresh post offices in locations are to be opened only through redeployment of staff. No additional posts are to be created for this purpose.
- (v) A comprehensive review of all existing post offices is to be carried out in a time-bound manner and all units which do not fulfill the norms and where resources are underutilised need to be relocated.
- (vi) A contributory pension scheme needs to be worked out to encourage extra

departmental employees to become franchisees of the Department.

- (vii) Post offices will have to act as multi-product/multi-service centres and convergence of services is to be the governing criterion.
- (viii) Computerisation, connectivity and networking of the postal network are to be the cornerstones of Plan activity during the Tenth Plan.
- (ix) The Indian Post Office Act, 1898, is to be replaced by a forward-looking legislation to take care of the needs of competition, convergence and other new developments.
- (x) Develop and evolve a credible road map of corporatisation for the postal sector as India Post within the Tenth Plan.
- (xi) An outlay of Rs. 1,100 crore was initially approved for implementing the various programmes/projects during the Tenth Plan. The outlay has been increased to Rs. 1,350 crore to adequately meet the requirement of funds for the core activity of computerisation and connectivity. The Schemewise breakup of this Tenth Plan outlay is given in the Appendix.

TELECOMMUNICATIONS

8.5.28 Telecommunications is one of the prime support services needed for rapid growth and modernisation of various sectors of the economy. It has become especially important in recent years because of enormous growth of Information Technology (IT) and its significant impact on the rest of the economy. India is perceived to have a special comparative advantage in IT and in IT-enabled services. However, sustaining this advantage depends critically on high quality telecommunication infrastructure. Keeping this in view, the focus of Tenth Plan has to be on the provision of world class telecommunication facilities at reasonable rates. Provision of telecom services in rural areas would be another thrust area to attain the goal of accelerated economic development and social change. Although the telecom network has grown rapidly in recent years, its growth needs to be

accelerated further in the Tenth Plan. It is equally important to speed up structural changes in this sector in line with trends in other countries to ensure that telecommunication services are not only made available on the scale needed to sustain rapid growth in the economy as a whole but also that their cost are in tune with the expectations of a modernising economy.

8.5.29 For a dynamic sector, reforms is a continuous process necessitated by dynamics of

change including technological innovations. The telecom sector in India has been witnessing a continuous process of reforms since 1991. With the opening of international long distance services and internet telephony from April, 2002, the process of liberalisation and opening up the sector for competition is complete. Convergence of services is a major new emerging area and the telecom sector will have to address this in the Tenth Plan. The major reforms carried out in the telecom sector so far are given in Box 8.5.4

Box 8.5.4

Reforms in the Telecom Sector

- Telecom equipment manufacturing was completely deregulated in 1991.
- Value added services, including cellular phone services, were thrown open to private sector in 1992.
- The National Telecom Policy (NTP) allowing private sector participation in basic services was announced in 1994.
- An independent regulatory authority called, Telecom Regulatory Authority of India (TRAI), was set up in 1997.
- A new policy for Internet Service Providers (ISPs) was announced in 1998, opening the area to private sector providers. The policy was promotional in nature. ISPs have been allowed to set up International Internet Gateways both satellite and landing stations for Submarine Cable systems
- A new policy called New Telecom Policy (NTP), 1999 was announced replacing the 1994 policy.
- Migration from the regime of fixed licence fee to a new regime of revenue share was permitted in August, 1999.
- The regulatory mechanism has been further strengthened through the TRAI (Amendment) Act, 2000. The Act provides for establishment of a separate dispute settlement mechanism called Telecom Dispute Settlement and Appellate Tribunal.
- National Long Distance Service was opened for competition in August, 2000.
- Corporatisation of Department of telecommunication's operational network in to a public company called Bharat Sanchar Nigam Ltd. from 1st October, 2000.
- Videsh Sanchar Nigam Ltd.(VSNL) and HTL limited have been disinvested.
- The Communication Convergence Bill 2001 was introduced in Lok Sabha and has been referred to the Standing Committee of Parliament
- Fourth Cellular Operator, one each in 4 metros and thirteen circles have been permitted
- Unrestricted entry in basic services allowed alongwith use of wireless in local loop (WLL) access technology.
- Two categories of infrastructure Providers have been allowed to provide end to end bandwidth and dark fibre, right of way, towers, duct space etc.
- International Long Distance (ILD) Services have been opened for competition since 1st April, 2002.
- Internet Telephony has also been opened up since 1st April, 2002.
- Guidelines for universal service obligation announced on March 27, 2002.

8.5.30. The New Telecom Policy (NTP) announced in 1999 modified the NTP, 1994 to take into account the far-reaching technological developments taking place in the telecom sector globally and to implement the Government's resolve to make India a global IT superpower. NTP, 1999 also seeks to solve problems arising out of the implementation of NTP, 1994. The objectives of the NTP 1999 are to:

- Make available affordable and effective communications for the citizens.
- Strive to provide a balance between the provision of universal service to all uncovered areas, including the rural areas and the provision of high-level services capable of meeting the needs of the country's economy.
- Encourage the development of telecommunication facilities in remote, hilly and tribal areas of the country.
- Create a modern and efficient telecommunication infrastructure taking into account the convergence of IT, media, telecom and consumer electronics and thereby propel India into becoming an IT superpower.
- Convert Public Call Offices (PCOs), wherever justified, into Public Teleinfo centres offering multimedia services like Intergrated Service Digital Network (ISDN) services, remote database access, government and community information systems etc.
- Transform in a time bound manner, the telecommunications sector to a greater

competitive environment in both urban and rural areas providing equal opportunities and level playing field for all players.

- Strengthen research and development (R&D) efforts in the country and provide an impetus to build world-class manufacturing capabilities.
- Achieve efficiency and transparency in spectrum management.
- Protect the defence and security interests of the country.
- Enable Indian telecom companies to become truly global players.

Ninth Plan Review

8.5.31 During the Ninth Plan period, a record growth rate of telecom services was achieved in the country. The network (equipped capacity) grew at an average rate of about 22 per cent. Growth of both cellular mobile phones and fixed line phones has been equally impressive. While private sector concentrated in cellular mobile phones segment, the growth in the Government sector was primarily due to fixed line connections. Against the target of providing 237 lakh Direct Exchange Lines (DELs), about 240.55 lakh additional DELs have been provided during the Ninth Plan. The cellular network has grown from a small base of 3.40 lakh connections to 64.31 lakh connections by the Plan end. As a result of this growth, the tele-density has nearly tripled from 1.57 at the beginning of the Ninth Plan to 4.4 as on March 31, 2002. Details in this regard are given in the Table 8.5.4:

Table 8.5.4
Network Expansion – Ninth Plan

(Lines in lakh)

	As on 31.3.1997	Net Addition – Ninth Plan			As on 31.3.2002	CAGR %
		Public	Private	Total		
Fixed	145.40	234.68	5.87	240.55	385.95	21.56
Cellular	3.40	2.14	58.77	60.91	64.31	80.00
Total	148.80	236.82	64.64	301.46	450.26	24.79
Tele-density	1.57	-	-	-	4.4	-
VPTs	2.61	2.061	0.00846	2.07	4.68	12.39

8.5.32 The performance of the Public sector units, i.e. Bharat Sanchar Nigam Ltd. (BSNL) and Mahanagar Telephone Nigam Ltd. (MTNL), has been impressive. Against the target of installing 185 lakh new connections in the original Plan (which was revised to 222.7 lakh in Mid-Term appraisal for BSNL and MTNL) and 237 lakh for the whole sector including private sector the achievement during the Ninth Plan is 240.55 lakh connections including contribution of private sector i.e. more than the target envisaged in the Ninth Plan Document. Ninth Plan also witnessed the beginning of cellular services by the public sector. MTNL launched its mobile services in Delhi and Mumbai as the third operator. Details of targets and achievements of the public sector during the Ninth Plan are given in Annexure-8.5.5.

8.5.33 The performance of the private sector during the Ninth Plan has been a mixed one. While it did very well in the expansion of cellular network, the performance was not encouraging in the fixed line segment. Only about 5.9 lakh DELs have been installed against the target of 52 lakhs(original) and the revised target of 14.3 lakh. Constraints like licensing agreements, unrealistically higher licence fees, revenue share, right of way etc. have been basically responsible for the slow progress for the private sector.

8.5.34 For the Government sector, an outlay of Rs.46,442.04 crore was approved for the Ninth Plan to be financed basically from internal and extra budgetary resources (IEBR). This included a small budget support component of Rs.44.04 crore meant for financing the Plan outlay of regulatory bodies like TRAI and Wireless Monitoring Organisation (WMO) etc. The approved outlay for the Ninth Plan was only indicative in nature and the Annual Plan outlays were to be fixed on the basis of resources that might become available during the year. The operational outlay for the Ninth Plan on the basis of the Annual Plan outlays approved on a year to year basis works out to Rs.84,783.90 crore including a budget support of Rs.208.20 crore. As against this, plan expenditure is expected to be Rs.69,407.62 crore. This gives a utilisation of 163 per cent of the originally approved outlay and 89 per cent of the approved

operational outlay. The shortfall in expenditure in comparison to the operational outlay was basically on account of lower expenditure by MTNL and BSNL due to delays in taking up some new projects and reduction in cost of equipment. On the financing side, the IEBR generation was lower than targeted (compared to operational outlay) basically on account of reduced requirement for market borrowings. The shortfall in internal resources generation by BSNL and MTNL could partly be attributed to tariff re-balancing. Details of Ninth Plan outlay and expenditure may be seen in Annexure-8.5.6.

Present Status of Telecom Network

8.5.35 The basic telecom services network has expanded from about 84 thousand connections at the time of independence to about 385.95 lakh working connections as on March 31 2002. Basic services network constitutes the bulk of the phones accounting for about 86 per cent of the total telecom network. The main features of the present telecom network are given in the Box 8.5.5:

Box 8.5.5	
Status of Telephone Network – As on 31.03.2002	
•	Total number of exchanges - 35,023
•	Number of rural exchanges – 26,953
•	Total Fixed Telephone connections – 385.95 lakh
•	Number of Cellular mobile phones – 64.31 lakh
•	Trunk Auto Exchange Lines (TAX) – 34.27 lakh
•	Tele Density - All India - 4.4
•	Number of Village Public Telephones – 4.68 lakh
•	Internet Connections – 38 lakh (as on January 31, 2002)

Challenges for The Tenth Plan

8.5.36 With the introduction of competition in the market, the focus of planning needs to shift from

the overall expansion of DELs and network to providing requisite policy framework for the sector/ market to grow as required and consistent with the overall policy objectives. In determining the appropriate policy initiatives and the relevant regulatory framework for this purpose, we need to bear certain factors in mind. The major factors/trends that merit consideration in this regard are given in the Box 8.5.6:

8.5.37 Telecommunications is one of the fastest growing sectors in India. However, viewed in the context of global growth patterns and indicators, the sector is still in the early stages of development. Our tele-density was only 4.01 as compared to the global average of 32.78 (December, 2001) and 24.98 achieved by China. The comparative position of teledensity in a cross section of countries – both developed and developing – is given in the Table No. 8.5.5 below. The status of teledensity along with other indicators like per capita income, number of PCs, Internet users etc. for these countries may be seen in Annexure-8.5.7 & 8.5.8. The sector also

needs, especially in terms of broad-band, to expand at substantially higher rates to meet the needs of related sectors like IT, I & B and other sectors of the economy. Keeping this perspective in view, the sector needs to be treated essentially as an infrastructure sector for the next decade or so. Once the required tele-density is achieved and the necessary support network has been created, the sector could be treated as service sector.

8.5.38 With a view to ensuring optimum growth in the coming years, Government's broad policy of taxes and regulation for the telecom sector has to be a promotional one. Mopping up of resources or revenue generation by the Government should not be a determinant of the policy governing the sector. The incidence of licence fees in the form revenue share and spectrum charges has to be guided by this principle. Keeping in line with the policy adopted by most of the progressive administrations in the world, the licence fee need to be aligned to the cost of regulation and administration of Universal Service Obligations (USO). As part of the promotional policy,

Box 8.5.6

Factors and Trends Relevant for Future Policy Initiatives

- Based on global trends and Indian experience, the rate of growth of cellular mobile services would continue to be higher for a number of years. Its two important implications are further lowering of average cost per line and cellular mobile/WLL-M becoming a major tool of expansion in rural areas.
- The capital requirement for investments in the next five years are expected to be lower than the present cost due to continuing decline in equipment cost as well as lower network costs due to competition resulting from entry of infrastructure providers Railways, Power Grid Corporation, etc. and huge capacity addition by other players.
- A small portion of the subscriber base provides a large share of call revenue. High revenue subscriber category would form the core of competition among operators which may lead to a fall in the tariffs applicable to this type i.e. long distance calls. As a result, long distance tariffs may be even lower than those specified by the regulator.
- Margin of surplus will decline over time due to competition. However, the break-even revenue per subscriber will also be lower due to decline in costs.
- Data services are expected to grow much faster than voice telephony. This underlines the need in due course to focus on broad-band linkages to enable the provision of these services at the required rate.
- Due to large uncovered areas in rural and remote regions of the country which are also expected to be low paying as well, the commitments on account of USO are likely to be large.
- The trend towards convergence of services may lead to major changes in the structure of industry and markets.

Table 8.5.5
Telecom Development - International Comparison
(As on December, 2001)

Country	Population (In crore)	GDP per capita (US\$)*	DELs (Fixed) (In lakh lines)	Cellphones (In lakh lines)	Total Phones (In lakh lines)	Tele-density
USA	28.59	36211	1900.00	1270	3170.00	110.88
UK	6.01	23694	353.26	470.26	823.52	137.02
Australia	1.93	19897	100.60	111.69	212.29	109.99
Brazil	17.18	3500	374.31	287.46	661.77	38.52
Mexico	10.04	5807	137.73	217.57	355.30	35.39
S. Africa	4.38	2882	49.69	91.97	141.66	32.36
Egypt	6.46	1424	66.50	27.94	94.44	14.63
Japan	12.73	34337	760.00	748.19	1508.19	118.45
Malaysia	2.38	3838	47.38	71.28	118.66	49.86
China	129.61	834	1790.34	1448.12	3238.46	24.98
Pakistan	14.50	425	34.00	8.00	42.00	2.90
India	102.70	455	347.32	64.31	411.63	4.01
Asia	360.67	2354	3911.79	3366.14	7277.93	20.17
World	607.91	5274	10460.88	9462.97	19923.85	32.78

Source : World Telecom Development Report, 2002

* Figures of per capita income relate to the year 2000

there is need for the TRAI to work out afresh the revenue share and USO regime.

8.5.39 The presence of multiple operators in various sectors implies a need to focus on the conditions that will enable these operators to function smoothly. Specific planning would be required to prepare the grounds for a multi-operator system to develop and the subscriber base to expand without impediments. Ensuring fair and timely interconnection is a major part of such an endeavour. At present, a major obstacle to interconnection arises if the incumbent has to increase capacity to give interconnection and the demand for interconnection takes up only a small portion of the installed capacity. In such a situation, the incumbent finds it difficult to provide adequate funds to install the required capacity since it would not generate adequate payment to cover costs. Such a situation would merit Government intervention and

it would be appropriate to establish a Fund that will help meet the cost of installing the capacity in such situations of inadequate demand. The Government may recover the amount funded over a period of time.

8.5.40 The Radio Frequency (RF) spectrum is a scarce natural resource. In accordance with international treaties, it has to be shared among a very large number of radio communication services and users – defence, civil, Government and private – based on the principles of co-existence and most efficient use. The increasing share of cellular mobile in total number of telephones points to a need for greater focus on the policy for allocating frequency spectrum. In addition to cellular mobile phones, which will have a large number of lines by the end of the Tenth Plan, frequency spectrum will be required also for the WLL used for providing basic services. The advent of new technology will also

pose a significant challenge for the planners of radio spectrum. The increasing adoption of wireless technologies and the need to align with international standards would mean that there will be a need to address the shortage of wireless spectrum and to reconcile competing demands in certain frequency bands. The policy governing spectrum allocation and licencing has to be so designed that this scarce resource is used optimally and does not become a constraint for growth.

Box 8.5.7

Guiding Principles - Spectrum Policy

- Spectrum policy needs to be promotional in nature; revenue considerations playing a secondary role.
- Pricing and allocation should ensure that available spectrum is utilised optimally.
- With a view to ensure optimal utilisation of allocated spectrum to an operator at a given point of time, the surplus capacity available with the licensee may be permitted to be leased out/assigned to other users for a limited period without putting undue strain on the systems for which band has been earmarked.
- Spectrum pricing need to be based on relative demand and supply over space and time in a dynamic manner. Opportunity cost to reflect the relative scarcity of the resource in a given situation.
- A significant chunk of available spectrum is being used by defence, police and para military forces. A concrete action plan needs to be put in place to upgrade and modernise the technology being used by these forces so as to ensure efficient and optimal utilisation of spectrum and release the surplus resource available for use by civilian purposes. Necessary funds would have to made available for this purpose.
- Spectrum pricing also needs to ensure the introduction and promotion of spectrum efficient technology.

8.5.41 The existence of an independent and effective regulatory body is crucial for ensuring optimum growth and free and fair competition. The independence of the regulator depends, to a large extent, on the funding mechanism, the constitution of the regulatory body and the principles guiding its functioning. Against the present system of funding from the budget support, a mechanism for making the regulatory body self-financing needs to be put in place. One such option could be provision of necessary funds out of levies/fees collected from telecom operators. Ensuring stability and clarity of regulatory principles are equally important for making the regulatory mechanism effective. The basic principles that need attention in this regard are given in the Box 8.5.8:

Box 8.5.8

Basic Principles for Regulation

- Specify time limits for various regulatory procedures, including dispute resolution, such as interconnection, quality of service, USO funding, etc.
- Establish a clearly specified schedule of penalties for not meeting the licence conditions and the conditions under which they apply.
- Developing benchmarks for self-regulation by the industry.
- Developing a framework for interaction between regulator and consumer bodies so as to ensure continuous flow of information and feedback from the consumers to achieve desired standards of service quality and regulation.

8.5.42 To ensure efficient functioning of the regulatory body, two crucial inputs are continuous upgradation of the skills of its staff and regular flow of all relevant information, including the one relating to latest technological developments. A structured approach needs to be developed to achieve these objectives. Besides ensuring that the competent personnel are attracted by the regulator, adequate training facilities and a framework of research and

information service need to be developed. A team of research institutes could be identified for specific tasks in this regard. The Planning Commission itself could be a part of such a network.

8.5.43 Convergence of services is leading to a paradigm shift in the service composition, the structure of the industry and the way markets are organised. This is expected to lead to optimum utilisation of resources and provision of services on least cost basis. Service segmentation and separate license for each category/service becomes redundant and work only as artificial barrier. These need to be removed by issuing a common or single licence for all telecom services and evolving common revenue share formula. Hence, the system of multiple licenses will have to give way to a single licence regime. This would mean having perfect competition across the country in services and among operators. The Communications Convergence Bill is expected to provide the basic framework for convergence of services. The Bill provides for different categories of licences viz. infrastructure facilities, networking services, network application services, content application services and value-added network application services. Under the Bill, the designated authority will be able to decide as to how licensing is to be done when a particular operator wants to cover more than one category of licences. The envisaged Authority may, while granting a license for any other categories confine or limit the scope of the facilities or services to be provided by the licensee in each category of licence and also specify the conditions for providing that facility or service. Basic objective of this approach is to tackle the communications scenario appropriately in a layered manner. The Bill is expected to ensure seamless migration to the convergence regime and the operators shall not be asked to start all over again to revalidate the licences issued by DoT.

8.5.44 Technology restrictions are not the best way to ensure compliance to the terms and conditions of any licence. Compliance needs to be ensured through more efficient and effective means which may include imposition of well defined penalties and cancellation of licences in critical

cases. With a view to ensuring optimum growth and service provision on least cost basis, the licence must be technology neutral. The existing policy should not be allowed to hold back the benefits accruing from technological innovations if it is not against the interest of the nation and the consumer. Viewed in this context, the restrictive policy of internet telephony and WLL mobile services need to be reviewed. The benefits of internet telephony may be allowed to flow freely to anyone having the resources to establish access and may not be restricted to be channeled through ISPs. Similarly, the immense potential of WLL technology in the fast roll-out of services and its cost effectiveness need to be fully exploited in taking the services to rural areas in a time-bound and affordable manner. Various restrictions on its use especially for rural networks need to be removed immediately. As WLL based services are basically in the nature of basic services, the concept of floor pricing (rentals) seems unwarranted and is against the basic spirit of competition, efficiency, affordability and consumer welfare.

8.5.45 Though about 70 per cent of India lives in the villages and rural areas account for about 30 per cent of the GDP, the development of telecom facilities in these areas is far from satisfactory. The tele-density in rural areas is only 1.14 against 10.16 in the urban areas. Viewed from the general accessibility point of view also, about one-third of the total villages in the country are yet to be connected by basic telecom facility. As per the NTP-1999, the Government is committed to provide voice and low speed data services to all the remaining villages by 2002. With the corporatisation of DoT's network by creating BSNL, rural telephony is no more primary responsibility of the public sector. As compared to a self-sustaining expansion of network in the urban areas, service provision in the rural areas is perceived to be unviable. Keeping this in view, policy makers need to focus much more on increasing tele-density in rural areas. The basic drawback in our approach to rural communications so far has been the lack of adequate attempt to built it as a self-sustaining business proposition wherever it is feasible. There are large sections of the country where the need for subsidy can be

eliminated or atleast reduced. This can be done by either utilising commercial activity of a given area (such as areas cultivating cash crops, areas having extensive fisheries or aqua culture, agro-industries etc.) or maximising benefits of convergence, particularly utilising the entertainment segment or E-Government as a killer application. A new policy framework for ensuring the expansion of network at the desired pace and financing it appropriately needs to be put in place at the earliest. USO fund could be one of the major sources of financing this programme. With a view to ensuring efficiency, the provision of telecom services in the rural areas has to be on least-cost basis irrespective of the method of financing these services.

8.5.46. The resources mobilised through the USO Fund mechanism are envisaged to be the prime

source of funding the deficit expenditure of providing services in remote, difficult and rural areas. The guidelines for providing financial support under USO have been finalised by the Department of Telecom for implementation of what it calls Universal Service Support Policy (USSP). The support under this policy would be made available from 2002-03. The major highlights of the guidelines issued are :

- The support under the USO fund shall be available to both public access or community telephones and individual household telephones in net high cost rural/remote areas.
- The support from USO Fund shall be provided to meet net cost (i.e. cost – revenue) of providing the universal service.

Box 8.5.9

Policy Initiatives for Promoting Rural Telecom Services

- Rural telecommunications is much more than providing accessibility through village public telephones. It means provision of all services including multi-media to individuals as per demand. Keeping in view the objectives of NTP 1999, the policy has to be promotional in nature.
- Specific emphasis needs to be given on encouraging business based development of rural telecommunications through private entrepreneurship utilising the related schemes of the Government including Prime Minister's Rojgar Yojana.
- Requirement of funds may have to be met adequately through the USO fund. If need be, the USO levy should be increased suitably.
- Keeping in view the opportunity cost of spectrum in the rural areas, only nominal spectrum charge may be levied for providing services in the rural areas.
- Given the special suitability of WLL technology for rural services, WLL based limited mobility services in the rural areas may be treated on par with basic services, and not as value added services, and priced accordingly. The concept of floor pricing is unwarranted and militates against the concept of competition, consumer protection and promotion of cost effective technology.
- An open and transparent franchise policy for rural areas must be worked out to enable the franchisee to provide the telecom facility on a revenue sharing basis.
- Taking into account the issue of affordability, internet telephony may be included as part of the business model. To encourage usage and consequent revenue generation, priority attention shall have to be given to the development of content and applications of interest to rural masses.
- Evolving appropriate mechanism for regular monitoring of progress of rural telecommunications both at circle and national levels.

- Depending upon requirement, the percentage contribution towards Universal Service Levy (USL) could be increased but would be within the prevalent percentage ceiling of licence fee.
- The implementation of the USO will be divided into two clearly identifiable streams i.e. provision of public telecom and information services (Stream – I) and provision of household telephones in high cost rural/remote areas (Stream – II). Stream-I will be given priority in respect of disbursement of funds.
- Implementation of USO shall be through a multi-layered bidding process on the least quoted subsidy support basis. The lowest bid offering the least subsidy shall be accepted subject to the ceiling of benchmark cost as determined by DOT.
- A separate fund for crediting the receipts towards USO is being set up and will be presently administered by the DoT.

For the present, the rate of USL has been fixed at 5 per cent of the Adjusted Gross Revenue of operators. The detailed terms and conditions applicable to the bidding process are yet to be issued. To ensure complete freedom of functioning, transparency and effectiveness, the administration of the fund need to be entrusted to an autonomous agency under the overall supervision of a Government Department. It is, therefore, proposed that a Universal Services Obligation Board may be created as an autonomous unit under the DoT. Some of the major issues relating to the mobilisation of resources and its administration are in Box 8.5.10:

8.5.47 Telecommunications is potentially a profitable sector and service provision by the Government sector i.e. BSNL and MTNL should continue to be financed solely through IEFR. To ensure efficiency of operations and effective competition, the decision-making including investment policies of BSNL and MTNL, need to be purely guided by the commercial considerations. Budget support should be basically restricted to financing the monitoring and regulatory mechanisms only till they become

Box 8.5.10

Issues concerning USO Fund

- With a view to meet the large funding requirements, all telecom operators including ISPs, who have been permitted to provide internet telephony, need to contribute to the USO Fund as they form an integral part of the communications network. The separate service segments are bound to disappear in the emerging scenario of convergence.
- The USO levy needs to be determined and collected as a separate levy to maintain complete transparency and accountability.
- The USO levy may be increased if need be to adequately fund the USO requirements.
- Any specific conditions that are imposed on the incumbent players for the extension of the network or the composition of the subscribers base should also apply to the new entrants.
- To the extent that additional conditions are imposed on the incumbent, there is a basis to consider providing additional funding for the incumbent.
- Administration of the USO Fund should be entrusted to a new entity called Universal Services Obligation Board. For administrative purpose, it could be a part of DOT.
- To make the Board truly autonomous, it need to be financed through USO levy.
- Besides administration, the Board may have advisory as well as monitoring role. To make it a broad-based organisation, it should have representatives from Govt. Departments like Ministry of Finance, Planning Commission and DOT and industry organisations, consumer bodies and outside experts.

self-financing. But as promoting teledensity in the rural areas is a national objective and if BSNL is asked to shoulder the responsibility of fulfilling Government's commitment in this regard, required budget support may have to be provided for this purpose so as to ensure that it does not go in the red.

8.5.48 The public sector will have to continue to play a significant role in the provision of basic telecom services during the Tenth Plan. Out of about 828 lakh new connections envisaged to be provided during the Tenth Plan, the public sector units i.e. BSNL and MTNL are expected to provide 395.23 lakh additional connections. This assumes no budgetary support from the Government to BSNL for expansion of network in the rural areas. However, depending upon the availability of additional resources through USO support and other sources, public sector may be in a position to achieve much higher targets for major services during the Tenth Plan period. Cellular services are also expected to be the corner-stone of the public sector expansion plans in the Tenth Plan. As per the plans drawn by the company, BSNL is expected to be a major national player in cellular services. To ensure level playing field to the Public Sector Undertakings, the five year tax holiday under the section 80 I A of Income Tax Act available to private operators needs to be extended to MTNL and BSNL. This may be necessary as a major chunk of the fresh investment envisaged during the Tenth Plan is expected to be made by these two enterprises.

8.5.49 Private investment is also expected to play a leading role in the expansion of telecom services during the Tenth Plan. In the area of value added services, the private sector would continue to play the dominant role. The quantum of investment by the private operators would basically get determined by the rate of return on such investments – both basic as well as value added services. Foreign Direct Investment (FDI) has also a major role to play in supplementing the resources of the domestic private sector as the scale of investment envisaged is large. To boost private sector investment, appropriate policy initiatives need to be undertaken. Some of the major initiatives required are given in Box 8.5.11.

8.5.50 The NTP, 1999 has envisaged that India should emerge as a major manufacturing base and major exporter of telecom equipment. The manufacturing capacity of the indigenous industry is small in relation to the other major operators in the world and export constitute a very small proportion of the

Box 8.5.11

Boosting Private Sector Investment

- Setting up an apex body of industry associations as a forum with a view to evolving a unified approach with regard to various issues concerning the telecom service sector.
- A single window clearance scheme may be devised to ensure trouble free and time-bound approvals from all concerned agencies.
- For level playing field all operators of a particular service should have the same licencing terms and conditions including payment of licence fee and quality of service standards.
- On inter-connect issues, the incumbent as well as the new entrant need to change their mind-sets and sort out their differences bilaterally.
- With a view to ensuring speedy implementation of projects, the model guidelines suggested by the Committee on Right of the Way need to be adopted by all State Governments and other agencies.
- A seamless migration to the envisaged convergence regime needs to be ensured to put at rest any uncertainties about future policy options in this regard.
- Telecommunication needs to be treated as a priority sector by banks and other financial institutions at par with other priority sectors.
- Adequate USO support should be provided to encourage the operators to enable them expand their network in rural areas in accordance with the Government policy.

total production of telecom equipment in the country. Promoting exports as a thrust area and development of Indian multi-nationals should be among our major goals in this sector. To achieve this objective, the Tenth Plan should aim at removing the various constraints relating to transfer of the

latest technology, access to cheap international finance, joint ventures with foreign companies, rationalisation of custom and import duties on inputs and development of a strong industry-sponsored R&D base. Due to fast changing technology in this sector and the existing technological gap in relation to the developed countries, India will have to rely on transfer of technology in a big way in the immediate future. To achieve this strategic alliance with leading international companies will have to be an integral part of the overall exercise of technology transfer.

8.5.50 Strong R&D infrastructure is very vital for promoting a vibrant and strong telecom hardware sector in the country. Telecom R&D also needs to be strengthened in order to have indigenous telecom technology and evolve national standards. R&D efforts would have to be diversified besides technology development. It should focus on services, systems, processes and markets. This would ensure a user relevant orientation to R&D activities. Applications research also needs to be encouraged so that the research projects become commercially viable and products appropriate for deployment in local conditions are developed. R&D efforts in telecommunications are envisaged to be more effective if these are multi-disciplinary in character. The telecom sector involves some of the most sophisticated concepts in economics, social sciences and management among other disciplines. To give a focused priority attention to R&D activities, some of the specific policy action points are :

- Setting up a Communications Research Council as the apex body to prioritise, plan and finance the R&D projects. It should basically be a industry financed and governed body where the government provides one-time corpus as a grant. The corpus has to be large enough to finance worthy project for 5-6 years to ensure fruitful results.
- The present infrastructure available with Centre for Development of Telematics (C-Dot), the premier body in the Govt. sector, is of such a high standard that it

can serve better purpose if it is converted into truly national research organisation. The industry should be fully associated with financing and management of the organisation. It should be able to get worthwhile research projects on its own merits from the proposed Communication Research Council or any other source. Necessary budget support for achieving this transformation may have to be provided till such time C-DoT becomes self-financing.

- Earmarking a percentage of the turn over of the companies in the organised sector for financing the R&D corpus with a view to ensuring sufficient and regular fund flow to the research activities.
- Giving flexibility to PSU firms to decide adequate perks and pay for retaining the staff engaged in R&D activities as the rate of attrition of human resources due to flight of scientific talent to more attractive outside organisations is very high.

Objectives and Targets of the Tenth Plan

8.5.52 The Tenth plan policies and programmes are guided by the basic goal of creating a world-class telecom infrastructure in order to meet the requirements of IT based sector and needs of a modernising economy on the least cost basis. Ensuring value for money to the consumers and easy and affordable access to basic telecom services to everyone and everywhere would be the other goal of policies to be pursued in Tenth Plan. The major objectives envisaged for the Tenth Plan are:

- (i) Affordable and effective communication facilities to all citizens.
- (ii) Provision of universal service to all uncovered areas, including rural areas.
- (iii) Building a modern and efficient telecommunications infrastructure to meet the convergence of telecom, IT and the media.

- (iv) Transformation of the telecommunications sector to a greater competitive environment providing equal opportunities and level playing field for all the players.
- (v) Strengthening R&D efforts in the country.
- (vi) Achieving efficiency and transparency in spectrum management
- (vii) Protecting the defence and security interests of the country.
- (viii) Enabling Indian telecom companies to become truly global players.

8.5.53 The basic thrust of the Tenth Plan would be to provide world level services at affordable prices. With corporatisation of DOT's network, the network expansion/roll-out plans of both Government and private sector would be guided by the demand of various services. In line with the broad objectives of the NTP, 1999 and the objectives envisaged for the Tenth Plan, the following specific targets are envisaged for the telecom sector for the Tenth Plan:

- To endeavour to make available telephones by and large on demand by end of 2002-03 and sustain it thereafter.
- To achieve an overall teledensity of 9.91 by 31st March 2007.
- Achieve telecom coverage of all villages in the country by December 2002 and provide reliable transmission media in all rural areas.
- Provide reliable media to all exchanges by the end of March, 2003.
- Provide high-speed data and multimedia capability using technologies including ISDN to all towns with a population greater than two lakhs by the end of March, 2003.

Expansion of Network During the Tenth Plan

8.5.54 The NTP, 1999 provides the basic framework for the future development and growth of the telecom sector in the country. One of the major

objectives of the Policy is to make telephones on demand by the year 2002 and sustain it thereafter so as to achieve a teledensity of 7 by the year 2005 and 15 by the year 2010. Keeping in line with the above goals of teledensity, the country need to achieve an overall teledensity of 9.91 by the Tenth Plan end i.e. March, 2007. To achieve the above target of teledensity, about 650 lakh additional connections may have to be provided during the Tenth Plan. Working on a different assumption of achieving a tele-density target of 11.5 by March, 2007, the Working Group on Telecom Sector for the Tenth Five Year Plan had recommended that 817.10 lakh new connections needed to be provided during the Tenth Plan. Keeping in view the present trend of growth, the Plans drawn up by the public sector and the availability of funds, the projections of the Working Group seem to be on the higher side. Taking the above factors into account, the goal of achieving teledensity target of 9.91 by March, 2007 seems more realistic. The distribution among cellular, fixed and WLL based limited mobility lines out of the net addition during the Plan period would depend upon the emerging behaviour of the market, availability of technological innovations and options and relative prices of equipment. As per the initial Plans drawn by Bharat Sanchar Nigam Ltd. (BSNL) and Mahanagar Telephone Nigam Ltd. (MTNL), the public sector is envisaged to provide about 395 lakh additional connections. This implies that remaining connections i.e. about 255 lakh would have to be provided by the private sector of the performance of the private sector is more encouraging higher target of tele density could be achieved.

Bharat Sanchar Nigam Ltd. (BSNL)

8.5.55 Bharat Sanchar Nigam Ltd. (BSNL) came in to existence on 1.10.2000 as a result of the reorganisation of the erstwhile Department of Telecom. With this, the reforms process of separation of policy formulation from service provision and regulation has been completed. This reorganisation had two important implications for BSNL i.e.

- (i) BSNL has to act henceforth as a commercial entity; its investment policies among other things to be guided by profits/purely by commercial consideration.

- (ii) BSNL would be subjected to additional financial liabilities like corporate tax, licence fees, payment of dividend etc. which were not applicable to erstwhile DOT.

8.5.56 Besides the above, BSNL has been providing telephones in unremunerative areas including Village Public Telephones (VPTs) in pursuance of the directives of National Telecom Policy. This obligation is adversely affecting its financial health.

8.5.57 Based on the resources availability of the company, it plans to provide 367.67 lakh new connections during the Tenth Plan. Keeping in line with the projected demand for mobile services, the main focus of the company is envisaged to be on expansion of cellular mobile services as the third operator in various circles. The following table gives the broad details of expansion programme envisaged by the Company during the Tenth Plan:

Table 8.5.6
Expansion of Network - BSNL
(In lakh lines)

Type of Phones	Urban	Rural	Total
Fixed	80.00	0.90	80.90
WLL	51.00	11.93	62.93
Mobile	222.00	1.84	223.84
Total	353.00	14.67	367.67

Mahanagar Telephone Nigam Ltd (MTNL)

8.5.58 MTNL had enjoyed monopoly till 2000 in the two metro cities of Delhi and Mumbai, where it operates. Since then the private operators have started providing basic services in Mumbai and are expected to do the same soon in Delhi. Increased competition from private operators is expected during the Tenth Plan. To maintain its position as a major player in Mumbai and Delhi, MTNL envisages to expand its cellular network in a big way during the Tenth Plan. Expansion of internet services and introduction of IT related services is another major

element of company's overall strategy of growth and competition. As per the plans drawn up by the company, 27.56 lakh additional telephone connections are expected to be provided during the Tenth Plan including 11.57 lakh cellular phones. The entire plan outlay of the company is envisaged to be financed out of internal and extra budgetary resources.

ITI Ltd.

8.5.59 ITI Ltd. is the single largest company in the telecom equipment manufacturing sector in the country, both in terms of turnover as well as employment. After suffering losses during 1994-99 period as a result of the policy of global competitive bidding resorted to by DOT and MTNL, the company has staged a turnaround during last two years. It earned a net profit of Rs.27 crore during 2000-01.

8.5.60 After disinvestment of HTL Ltd., ITI Ltd. is the only PSU left in the telecom equipment manufacturing sector. The company is also one of the PSUs identified by the Disinvestment Commission for reducing Government's equity to 26 per cent. The company has developed over the years necessary technological capabilities and have sufficient skilled manpower. The existence of at least one healthy, strong and efficient public sector unit is quite essential to provide the necessary cushion / check against the MNCs. This company can also play an important role in realising our goal of making India a major manufacturing base and exporter of telecom equipment and developing Indian Multinationals in this area. The company has to be made efficient and competitive to play its due role in the changed scenario. This would call for its strengthening and restructuring, including providing the necessary funds for capital restructuring and allowing them to go in for strategic tie-ups with leading international players. Excess manpower is a major problem with the company. Necessary financial support needs to be arranged to implement an effective Voluntary Retirement Scheme to attain the optimum level of manpower.

8.5.61 The company has drawn up further plans for modernisation and diversification in the Tenth Plan. The outlay is envisaged to be financed out of IEFR to be mobilised by the company.

Regulatory Bodies

8.5.62 The Wireless Planning and Coordination (WPC) Wing, set up in 1952, is the national radio regulatory authority to ensure orderly utilisation of radio frequency spectrum and Geo Stationary Orbit (GSO). It is supported by the WMO in this activity. With the opening up of the economy the number of players and services in the telecom sector is bound to increase manifold. Therefore, the Organisation would need to be further strengthened and modernised to enable it to perform its regulatory functions effectively.

8.5.63 The TRAI, set up in 1997, is the apex organisation responsible for performing the regulatory functions in the telecom sector. As a result of the TRAI Amendment Act, 2000, Telecom Dispute and Appellate Tribunal (TDSAT) has been set up.

8.5.64 The outlay of these regulatory bodies would continue to be financed out of budget support by the Government till they become self-financing. A World Bank aided project called Telecommunications Sector Reforms Technical Assistance Project is being implemented for modernising and upgrading the facilities in these organisations. The project costing US \$ 72 million is envisaged to be implemented over a 4 year period ending December, 2004.

Centre for Development of Telematics (C-DoT)

8.5.65 C-DoT is the main public sector agency engaged in R&D activity in the Telecom sector. It has been a leader in the development of rural exchanges which have performed exceedingly well under tough conditions. C-DoT technology constitutes more than 40 per cent of the total lines operative in Indian telecommunications network. C-DoT licence manufacturers are exporting the technology switches to other countries having conditions similar to those in Indian rural areas.

8.5.66 During the Tenth Plan, the thrust of C-DoT's research plan would be the development of

cost effective technologies providing services and features at par with those being offered by other global players. Development of products to cater to the needs to broad-band fixed and mobile subscribers access system, as well as high band with backbone systems would be an important part of the strategy for the Tenth Plan. Some of the major areas of thrust are:

- Intelligent Network Services
- GSM Personal Communication Services
- Third Generation Mobile Communication System
- Ka Band Satellite Communications
- Cell and Packet Switching Technologies for Voice and Data Convergence
- Ultra High Bit Rate Network Backbone
- Expansion Planning of Existing Wireline Network

8.5.67 Till September, 2000, the plan outlay of C-DoT was financed out of I R generated by DoT. With the carving out of BSNL as a separate corporate entity, this mode of financing is no more available and the plan outlay is required to be funded through budgetary support.

8.5.68 R&D activity in any sector is very vital for ensuring future growth and hence needs to be supported fully. However it may be mentioned that as one of the major beneficiaries of the R&D of C-DoT, the industry needs to be fully associated in financing its activities. Besides, C-DoT needs to focus more on generating internal resources through royalty, consultancy etc. to reduce its dependence on Government support.

THE PATH AHEAD

8.5.69 The Tenth Plan would endeavour to build a modern and efficient telecom infrastructure with a view to provide world class telecommunications facilities at affordable rates, meet the needs of convergence of telecom, IT and media and universal service to all uncovered areas. To achieve the above

goals, the major initiatives/action points envisaged for the Tenth Plan are :

- (i) To achieve a target of tele-density of 9.91 by March, 2007, about 650 lakh new telephone connections need to be provided during the Plan Period.
- (ii) The telecom sector needs to be treated as an infrastructure sector for the next decade or so in order to achieve the targets of teledensity in line with the objectives laid out in the NTP, 1999. This is envisaged also to help achieving substantially higher rate of growth of broadband to meet the requirements of other sectors of the economy especially Information Technology and Entertainment.
- (iii) Government's broad policy of taxes and regulation for the telecom sector has to be promotional in nature with a view to ensuring optimum growth in the coming years. Revenue generation should not be a major determinant of the macro policy governing the sector. Guided by this principle and keeping in line with the policy adopted by most of the progressive administrations in the world, the licence fee needs to be aligned to the cost of regulation and administration of Universal Service Obligation (USO).
- (iv) Ensuring fair and timely interconnection in the multi-operator scenario is one of the major inputs for sustaining high growth. Government's intervention may be required in the form of establishing a fund to finance the requirements of capacity creation especially of incumbent operator to meet increased requirement in this regard.
- (v) The policy governing spectrum allocation and licencing has to be so designed that this scarce resource is used optimally and does not become a constraint for growth. Spectrum pricing need to be based on relative demand and supply over space and time in a dynamic manner and should

promote introduction of spectrum efficient technology. A significant chunk of available spectrum is being used by defence, police and para military forces. A concrete action plan needs to be put in place to upgrade and modernise the technology being used by these forces so as to ensure efficient and optimal utilisation of spectrum allotted and releasing the surplus spectrum for use by civilian purposes. Necessary funds would have to be made available for this purpose.

- (vi) The existence of an independent and effective regulatory body is crucial for ensuring optimum growth and free and fair competition. The basic principles that need attention in this regard are :
 - Specify time limits for various regulatory procedures.
 - Establish a clearly specified schedule of penalties for not meeting the licence conditions and the conditions under which they apply.
 - Developing benchmarks for self-regulation by the industry.
 - Developing a framework for interaction between regulator and consumer bodies so as to ensure continuous flow of information and feed-back from the consumers in order to achieve desired standards of service quality and regulation.
- (vii) Adequacy of funds has to be ensured for effective implementation of the USO. If need arises, the rates of USO levy may have to be increased suitably.
- (viii) The policy governing development of rural telecom services need to be promotional in nature with a view to boost teledensity in these areas in line with the objectives of NTP, 1999.
- (ix) An outlay of Rs. 86984.00 crore including the budgetary support of Rs. 1500 crore has been approved for the Telecommunications sector for the Tenth Plan.

Salient Features of Postal Systems International Scenario

United States of America

- Obligatory to achieve breakeven
- No legal obligation to make profit.
- Loss/profits are carried forward.
- Can borrow funds from general public.
- Concessional mails to be reimbursed.

Canada

- Canada Post operated on a commercial basis.
- Obligatory to make a profit.
- Benefits are used for self-financing.
- Deficits, if any, are covered by banking transactions.

Indonesia

- Obligatory to make a profit.
- It keeps the revenue from terminal dues.
- It is not state-subsidised.

Japan

- Self-supporting.
- No budget support
- Deficits if any are carried to next year.

Malaysia

- A private limited company.
- Expected to make a profit.
- It retains the terminal dues owned to it.
- No subsidiaries from Federal Government.

New Zealand

- Obligatory to make profit.
- Profits are distributed as dividends to share holders.

Thailand

- According to the State Enterprise Accounting and Finance Regulation, the CAT is required to deliver profits earned as state revenue.
- Deficits in postal service are covered by the State and inputs from the telecom sector.

NINTH PLAN 1997-2002
Physical Performance - Postal Sector

Schemes	Ninth Plan	1997-98 Actual	1998-99 Actual	1999-00 Actual	2000-01 Actual	2002 BE	Anticipated Achievnt
Expansion of Postal Network							
a. Opening of POs.							
EDPOs	2500	402	598	386	363	500	2249
Dsos	250	52	50	49	52	50	253
Infrasre. Eq. to EDBOs	2400	7746	3395	798	9555	8000	29494
Panchayat Sanchar Sewa			200	486	2005	2000	4691
Upgradation of Technology							
a) Supply of MPCMs SB lans	5000	918	1429	1250	1104	1000	5701
b) Modernisation of Pos	505	308	98	139	161	125	831
Mechanical Equipment							
Hand Cancellors	10000	0	3285	5705	6211	5000	20201
Stamp Cancel Mach.	100	20	20	20	20	20	100
Eletnic Frankg Mach	500	250	150	111	100	100	711
Tying & bundg Mach	30		30				30
Satellite MO							
Installation of VSATs	170	0	0	62	88		150
Installation of ESMOs	2000	318	318	266	466	400	1768
Upgradation of VSATs	75		21	0			21
Material Management							
Prntg & Papr cutng	1						0
Diesel fork lift trolleys	4						0
Training Sys Opratns	150	30	50			100	180
Human Resource Development							
In srvce traing Gr "A"	180	30	24	170	156	140	520
Refresher training	16051	4551	4315	2782	2424	2500	16572
Computer training	12000	2775	4062	3200	13959	10000	33996
Training for EDBPMs	51000			18000	15168	21500	54668
Training to Gr. C etc.	15750	7107	6970	7400	6836	6000	34313
Customer care centre	228	67	60	55	22	26	230

Modernisation of Mail Processing							
Setting up of AMPCs	2				0	2	2
Culler Facer Cancellor					2		2
Mail office Modrnisaton	120	20	43	38	27	17	145
RMS Vans Air brake	28			28			28
RMS Vans Modification	30		24		2		26
Purchs of MMS Vehicles	50	8	12	2	4	7	33
Registration Delivery			22+6	22+6			22+6
HRO/DO Comp.	20	1		6	8	7	22
TMO computerisation	25	6	7	6	8	4	31
Mopeds	500		147	147			147
Business Development Marketing							
Computerisation of PPCs	40	8	10	29	17	2	66
Business off. fr SPost	40 Centres	7	20	30			57Centres
Comptrisation of SPCCs	50			20			20
Postal Life Insurance							
RPLI Computerisation	32R			11R+120HO	Transferred to Non-Plan		
Upgradton of Compters	20R			4C+1PLI	Transferred to Non-Plan		
Philately (Computerisation)	52	5	21	16	120	79	241
Postal Buildings	420	54	25	35	45	48	207
Staff Quarters	950	275	196	133	206	190	1000
Streamlining of Adm.& Finl. Management.							
Comp. Of Admn.Br.		4	4	36D	37D		
MIS interlinking						17	17

NINTH PLAN OUTLAY AND EXPENDITURE
Postal Sector

(Rs. in Crore)

Scheme	Ninth Plan Outlay		1997-98		1998-99		1999-00		2000-01		2001-02		Ninth Plan Opratnal Outlay		Anti. Expend
	BE	Actual	BE	Actual	BE	Actual	BE	Actual	BE	Actual	BE	RE	RE		
Infrastr. Dev.	42.70	3.55	3.92	3.96	4.97	7.79	10.89	8.47	15.00	16.44	39.44	40.58			
Computerisation & Connectivity	133.98	31.12	28.30	22.76	29.63	30.22	28.17	26.63	21.01	32.11	131.21	140.02			
HRD	14.08	2.79	2.35	2.84	2.74	2.96	2.73	3.26	3.67	3.67	14.87	15.08			
Mail proces	141.30	8.79	3.37	7.28	38.22	16.57	43.94	3.31	61.00	14.05	164.67	44.58			
Business dev	17.80	3.85	2.29	3.66	7.20	6.03	4.15	4.98	4.00	3.49	23.45	20.45			
Fin. Services	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			
Mat. mangt	1.20	0.00	0.00	0.00	0.00	0.12	0.63	0.66	0.77	0.77	1.40	1.55			
PLI	14.42	4.00	2.96	2.28	1.52	1.34	0.00	0.00	0.00		9.87	6.58			
Philately	5.12	0.50	0.50	0.69	0.57	0.52	1.74	1.71	1.20	1.20	4.86	4.62			
Esat. Dev	119.62	35.00	24.13	27.53	10.88	20.76	26.65	25.78	24.00	23.58	136.33	121.78			
Admn.&fin	9.63	5.40	2.73	1.69	2.73	1.21	0.75	0.53	4.00	3.34	16.66	9.50			
Public Grv.	7.40	0.00	1.72	1.00	1.54	0.76	0.35	0.29	0.35	0.40	2.24	4.17			
Total	507.25	95.00	72.27	73.69	100.00	88.28	120.00	75.62	135.00	99.05	545.00	408.91*			

* : Utilization is low basically on account of reduction in outlay at RE stage by the Ministry of Finance from year to year.

TENTH PLAN (2002-07)
POSTAL SECTOR - Physical Targets

Schemes	Ninth Plan 1997-2002		Tenth Plan (2002-07)	Annual Plan (2002-03)
	Target	Achvnt	Target	Target
I Infrastructure Development				
PSSKs		4961	5000	1500
EDBOs	2500	2249	1000	250
DPOs	250	253	100	20
II Computerisation & Connectivity				
<i>Networking of Pos</i>			13361	150
-do- HROs	20	22	47+22	10
-do- TMOs	25	31	33+67	15
-do- CRCs			136+50	20
-do- CSDs			9	2
-do- PAOs			20	3
-do- Circle Offices			22	7
-do- ROs			37	8
-do- Dos			506	102
-do- CCCs			611	62
-do- foreign mail centres				4
-do- foreign Pos				4
-do- Speed Post Del. Off.			200	40
-do- Speed Post Book. Off.			500	100
National Data Centre				1
Ttrack and Trace Systems				4
Annual Maintenance R & D				
Softyware Development				
Software Refinement				
Studies/Surveys				
III Mechanisation and Modernisation				
Improving Ergonomics in Pos			10000	100
Improving Ergonomics in MOs			400	100
Infras. Equipnt to Rural Pos	2400	29494	45448	1818
Mechanical Equipmt.				
International MSS				
AMPCs	2			1
Mauil Motor Vehicles				7
Mechanised Delivery				
Air-brake Mail Vans			20	
IV Business Development				
Speed post				
Speed Net				

Mod. Speed Post Centres			100
ISO certification of SPCs			
Express Parcel Post Services			
IPP hub development			5
Premium Products			1
Market Surveys			
E-post			
Ebillpost			
New products and services			
V Financial Services			
Professional Consultation			200000
Smart Cards			
Point of Sale Terminals			400
C. R. Management			
VI Human Resources			
Development			
Inservice			6000
Computer			10000
Training Equipment			
Distance Learning			
- Inservice	360000		35000
-Computer	190000		18000
- Training Equipment			
Training Buildings			
Tr. For Gr. A			100
FS			
BD			
Training Philately			
VII Estates Development			
Construction of Pos/Sos/Mos	50+500		
Admn. Offices	50		
Staff Qtrs	2000		
Purchase of Land			
Maintenance of Buildings			
-do- Heritage Buildings			
Petty Works			
VIII Philately			
DLPE	250	25	
Tools and Equipment		500	40
Market Research & Surveys			

NINTH PLAN (1997-02)
PHYSICAL TARGETS AND ACHIEVEMENTS-Telecommunications

Name of Scheme	Original Target	1997-98		1998-99		1999-2000		2000-01		2001-02		
		Revised Target	Actuals	Target	Actual	Target	Actual	Target	Actual	Target	Actual	
Switching Capacity (lakh lines)	230.00	298.00	36.00	35.18	49.30	47.89	54.70	67.17	72.35	71.30	82.46	75.83
DOT	200.60	273.00	30.80	32.30	44.00	43.75	49.00	63.02	67.00	67.00	77.76	70.33
MTNL	29.40	25.00	5.20	2.88	5.30	4.14	5.70	4.15	5.35	4.30	4.70	5.50
Direct Exchange	185.00	222.70	29.00	32.59	36.00	37.92	45.50	49.18	52.40	59.25	72.30	57.88
Lakh lines												
DOT	160.00	200.70	24.60	28.65	31.50	35.45	40.60	45.40	48.00	56.29	68.30	53.07
MTNL	25.00	22.00	4.40	3.94	4.50	2.47	4.90	3.78	4.40	2.96	4.00	4.81
TAX (Lakh lines)	18.00	23.06	3.25	3.14	4.50	2.06	4.53	4.80	5.15	5.12	10.10	9.97
DOT	15.24	18.87	2.75	2.77	3.87	2.06	4.00	4.03	4.00	5.12	9.00	9.07
MTNL	2.76	4.19	0.50	0.37	0.63	-	0.53	0.77	1.15	-	1.10	0.90
Microwave Systems	90.00	70.00	18.00	17.99	19.50	14.00	15.00	19.88	10.00	21.03	7.50	14.45
(‘000kms)												
Optical Fibre System	140.00	270.00	22.00	23.82	35.00	31.77	40.00	63.27	100.00	55.35	126.00	99.02
(000 kwh)												
VPT (‘000 Nos.)	239.16	278.87	83.00	42.86	80.50	37.06	45.00	33.97	70.00	34.22	144.00	70.75

OUTLAY & EXPENDITURE OF TELECOM SECTOR IN THE NINTH PLAN (1997-2002)

(Rupees in crore)

Organisations	9th Plan Outlay	Mid-term	1997-98 Actual	1998-99 Actual	1999-00 Actual	2000-01 Actual	2001-02 BE	9th Plan Actu.Outlay	Ant. Exp.
BSNL	37995.00	66193.00	8733.58	9556.11	12643.55	12203.96	16574.00	66974.00	59711.20
IR Net	30965.00	51889.00	8733.58	9556.11	10074.55	11643.96	11341.00	53579.37	51349.20
Bonds	7030.00	14304.00	0.00	0.00	2569.00	560.00	5233.00	13394.63	8362.00
DBS								0.00	0.00
MTNL	5446.00	5446.00	912.54	977.44	872.00	967.36	1600.00	10998.00	5329.34
IR	4066.00	5446.00	912.54	977.44	872.00	967.36	1600.00	8640.85	5329.34
Bonds	1380.00	0.00	0.00	0.00	0.00	0.00	0.00	2357.15	0.00
VSNL	2737	7319.03	407.71	761.62	431.41	347.18	1814.66	5907.7	3762.58
IR	2737	7319.03	407.71	761.62	431.41	347.18	1814.66	5907.7	3762.58
WMO	44.04	268.73	4.37	5.75	1.35	5.27	10.00	41.20	19.65
WPC					0.17	0.83	95.00	100.00	28.33
TRAI						2.00	4.00	6.00	6.00
TDSAT								0.00	0.00
TEC					3.11	1.36	4.00	4.00	12.95
IR					3.11	0.00	0.00	0.00	0.00
GBS					0.00	1.36	4.00	4.00	12.95
C-Dot					80.97	110.66	52.00	218.00	429.38
IR					80.97	0.00	0.00	166.00	
GBS					0.00	110.66	52.00	52.00	429.38
ITI	175.00	106.64	15.00	42.00	44.00	24.00	125.00	455.00	250.00
IR	0.00	106.64	-148.00	-52.00	44.00	24.00	125.00	231.00	-7.00
Bonds	150.00	0.00	150.00	94.00	0.00	0.00	0.00	74.00	244.00
Others	25.00	0.00	13.00	0.00	0.00	0.00	0.00	149.00	13.00
DBS								1.00	0.00
HTL	45.00	81.29	5.73	9.42	5.34	16.33	20.18	80.00	57.00
IR	27.00	49.59	5.73	9.42	5.34	14.39	12.92	48.19	47.80
Bonds	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Others	18.00	7.20	0.00	0.00	0.00	1.94	7.26	27.81	9.20
DBS	0.00	24.50	0.00	0.00	0.00	0.00	0.00	4.00	0.00
Total	46442.04	79414.69	10078.93	11352.34	13997.65	13678.95	20298.84	84783.90	69406.71
IR	46398.00	64810.26	9911.56	11252.59	11427.30	12996.89	14893.58	68502.11	60481.92
Bonds		14304.00	150.00	94.00	2569.00	560.00	5233.00	15880.78	8606.00
Others	0.00	7.20	13.00	0.00	0.00	1.94	7.26	192.81	22.20
DBS	44.04	293.23	4.37	5.75	1.35	120.12	165.00	208.20	296.59

N.B. : WPC, TEC and C-DOT was Part of BOT/BSNL's Internal resources till Sept. 2000

*: Refers to the actual expenses anticipated by c-DOT; It includes DOT's IR component and the DBS indicated in previous columns.

TELE-DENSITY – INTERNATIONAL COMPARISON (31.12.2001)

Country	Main Telephone Lines (in lakh)			Tele-density		
	1995	2001	CAGR %	1995	2001	CAGR%
USA	1597.35	1900.00	2.9	60.73	66.45	1.5
UK	294.11	353.26	3.1	50.18	58.8	2.7
Australia	89.00	100.60	2.1	49.25	52.02	0.9
Brazil	132.63	374.30	18.9	8.51	21.78	17.0
Mexico	88.01	137.73	7.7	9.39	13.72	6.5
South. Africa	40.02	49.69	3.7	10.14	11.35	1.9
Egypt	27.16	66.50	16.1	4.67	10.30	14.1
Japan	622.92	760.00	3.4	49.61	59.69	3.1
Malaysia	33.32	47.38	6.0	16.57	19.91	3.1
China	407.05	1790.34	28.0	3.30	13.81	26.9
Pakistan	21.27	34.00	8.1	1.67	2.35	5.8
India#	119.78	347.32	19.4	1.29	3.38	17.4
Asia	1816.88	3911.79	13.6	5.46	10.85	12.1
World	6892.51	10460.9	7.2	12.29	17.21	5.8

Source : World Telecom Development Report 2002.

: Tele-Density works out to 4.4 on the basis of total telephone connections of 450.26 lakh including 64.31 lakh collector connections (31.03.2002)

TELECOM DEVELOPMENT – INTERNATIONAL COMPARISON
(As on Dec. 2001)

Country	Population (In crore)	GDP per capita (US\$)*	DELs (Fixed) (In lakh lines)	Tele-density	No. of PCs per 100 persons	Internet Users per 10,000 persons
USA	28.59	36211	1900.00	66.45	62.25	4995.10
UK	6.01	23694	353.26	58.80	36.62	3995.01
Australia	1.93	19897	100.60	52.02	51.71	3723.05
Brazil	17.18	3500	374.30	21.78	6.29	465.58
Mexico	10.03	5807	137.73	13.72	6.87	362.23
South Africa	4.38	2882	49.69	11.35	6.85	700.58
Egypt	6.45	1424	66.50	10.30	1.55	92.95
Japan	12.73	34337	760.00	59.69	34.87	4547.10
Malaysia	2.38	3838	47.38	19.91	12.61	2394.96
China	129.61	834	1790.34	13.81	1.93	260.00
Pakistan	14.50	425	34.00	2.35	0.41	34.49
India#	102.71	455	347.32	3.38	0.58	68.16
Asia	360.67	2354	3911.79	10.85	3.31	437.49
World	607.91	5274	10460.90	17.21	8.42	823.24

Source : World Telecom Development Report 2002.

: Tele-Density works out to 4.4 on the basis of total telephone connections of 450.26 lakh including 64.31 lakh collector connections (31.03.2002)

***** : Figures of population and income (GDP) relate to year 2000.

Section - IX

FORESTS AND ENVIRONMENT

CHAPTER 9

FORESTS AND ENVIRONMENT

9.1 Sustainability is not an option but imperative. For a better world to live in; we need good air, pure water, nutritious food, healthy environment and greenery around us. Without sustainability environmental deterioration and economic decline will be feeding on each other leading to poverty, pollution, poor health, political upheaval and unrest. The environment is not to be seen as a stand-alone concern. It cuts across all sectors of development. The rapid increase in greenhouse gases in the atmosphere, land degradation, increasing floods and droughts, advancing deserts and deteriorating conditions of fragile ecosystems, deforestation, loss of biodiversity and environmental pollution have become subjects of serious global concern. The overall impact of these phenomena is likely to result in depletion of ozone layer, change of climate, rise in sea-level, loss of natural resources, reduction in their productivity ultimately leading to an ecological crisis affecting livelihood options for development and overall deterioration in quality of life. Development based on utilization of natural resources, pressure of population and their growing demands and poverty of the people took a heavy toll of our environmental assets. While natural assets have shrunk, demands have grown resulting in overdrawals being unsustainable. We have to improve our economic growth rate, provide basic minimum life support services to a large section of our population and deal with the problems of poverty and unemployment. At the same time, we have to pay attention to conserving our natural resources and also improving the status of our environment. We need to tackle the environmental degradation in a holistic manner in order to ensure both economic and environmental Sustainability. This is a most challenging task for the country and in particular for our planners and policy-makers today.

FORESTS

9.2 Forests play an important role in environmental and economic sustainability. They provide numerous goods and services, and maintain life-support systems essential for life on earth. Some of these life support systems of major economic and environmental importance are:

- (i) supply of timber, fuel wood, fodder, and a wide range of non-wood products;
- (ii) natural habitat for bio-diversity and repository of genetic wealth;
- (iii) provision of recreation and opportunity for eco-tourism;
- (iv) playing an integral part of the watershed to regulate the water regime, conserve soil, and control floods; and
- (v) carbon sequestration and carbon sink.

Despite significant resource flows and national concern, the potential of forests to reduce poverty, realise economic growth, and their contribution to the local and global environment has not been fully realised. A combination of market and institutional failures has led to forests failing to contribute as significantly to rural incomes and poverty alleviation and economic growth as would be possible under good economic and technical management.

9.3 Forests are consistently and seriously undervalued in economic and social terms. For example, the contribution of the forestry sector to gross domestic product (GDP) was only 1 per cent in 1996-97 (measured at constant prices of 1980-81). A latest estimate of gross value of goods and services provided by forestry sector puts its contribution to GDP at 2.37 per cent. Though it is extremely difficult to quantify, the economic value of the eco-system services of the forests is vast. It is

also generally agreed that much of the land-use decision that presently drives forest change takes relatively little account of these values. The challenge for policy makers is, therefore, to bring these values into the markets, cross-sectoral decisions, macro-economic policy making, and into the development of economy in general.

9.4 The country's forest resource is under tremendous pressure. Intensified shifting cultivation, indiscriminate removal of timber, fuel wood, fodders and other forest produce, forest fire and encroachment has led to forest degradation and deforestation. Forests meet nearly 40 per cent of the country's energy needs and 30 per cent of the fodder needs. It is estimated that about 270 mt of fuel wood, 280 mt of fodder, over 12 million m³ (cubic meter) of timber and countless non-wood forest products (NWFPs) are removed from forests annually. The future management must, therefore, take into account this compelling need for meeting the requirements of the community.

9.5 Participatory arrangements have existed in Indian forestry for several years, in the form of forest labour cooperatives, resin tappers associations, NWFP collector's cooperative societies and other associations. With the advent of social forestry, participation was fostered through various arrangements in different states. The efforts were institutionalised with the introduction of Joint Forest Management (JFM) and the notification to this effect was issued by the Ministry of Environment and Forests in June 1990. The February 21 2000 guidelines have further strengthened the efforts in this direction. So far, 27 states have issued orders enabling the setting up of a mechanism for public participation in the management of forests, and 62,890 JFM Committees covering an area of 14.25 million hectares (m ha) of forest land have been established. The viability of JFM will, however, depend on villagers' willingness to participate and partnership arrangements, particularly with regard to the benefit sharing. The role of Panchayati Raj Institutions (PRIs) and voluntary agencies in the management of forests needs to be formalised in view of the 73rd Amendment to the Constitution.

9.6 India's biological diversity is reflected in the heterogeneity of its forest cover. It is one of the 12

'mega-diversity' countries of the world. India is also at the meeting zone of three major bio-geographic realms, namely the Indo-Malayan (the richest in the world), the Eurasian and Afro-tropical. India also has the two richest bio-diversity areas, one in the northeast and other in the Western Ghats. The biological diversity is being conserved through a network of biosphere reserves, national parks and sanctuaries. However, the challenges for conservation emanate from population pressures, adverse impacts of industrialisation and intensifying threats from illegal trade.

OVERVIEW AND ACHIEVEMENTS OF PREVIOUS PLANS

9.7 Forestry is a subject in the Concurrent List of the Indian Constitution. The Ministry of Environment and Forests is the nodal agency for planning, promotion, co-ordination and overseeing the implementation of various forestry programmes in the country. State Governments implement various forest development programmes under State Plans. The major achievements and programmes undertaken during the previous Plan periods are:

Forest Cover

9.8 The Forest Survey of India (FSI), using remote sensing technology, assesses the forest cover of the country biennially. The results of past assessments since 1987 show that the extent of forest cover in the country has stabilised though a large area still remains degraded.

Table 9.1
Forest cover estimates from 1987 to 1999

Assessment Year	Forest cover (sq km)	%of geographic area
1987	6,40,819	19.49
1989	6,38,804	19.43
1991	6,39,364	19.45
1993	6,39,386	19.45
1995	6,38,879	19.43
1997	6,33,397	19.27
1999	6,37,293	19.39

9.9 The latest assessment on forest cover (FSI 1999) indicates that 11.48 per cent of the total geographical area is dense forest (over 40 per cent crown density) and 7.76 per cent is the open forest (10-40 per cent crown density).

• Dense forest	37.73 m ha	11.48%
• Open forest	25.51 m ha	7.76 %
• Mangroves	0.49 m ha	0.15%

9.10 The net increase in forest cover is 3,896 sq km over the previous assessment of 1997. The dense forest has increased by 10,098 sq km and mangrove by 44 sq km, whereas open forest has decreased by 6,246 sq km during this period.

Forest Research and Education

9.11 In order to strengthen the system of forestry research in India, the Indian Council of Forestry Research and Education (ICFRE), an autonomous umbrella organisation, was established in 1986 in Dehra Dun. ICFRE has the mandate to undertake, aid, promote and coordinate forestry research and its application; function as a clearing house for research results and information; and disseminate technology. It works through its network of ten institutes and centres. There are a number of research facilities outside the ICFRE network under the auspices of different agencies such as the Kerala Forest Research Institute (Peechi), the Indian Plywood Industries Research and Training Institute (Bangalore), and forestry faculties of the State Agriculture Universities. In addition, State Forest Departments have research divisions to address their practical problems. An increasing number of private companies and non-government organisations (NGOs) are funding their own research in areas such as tree breeding, medicinal plants and NWFPs.

9.12 A comprehensive national forestry research plan has been developed by ICFRE after working out due priorities. Regional research priorities were worked out in consultation with stakeholders by holding seminars/workshops in different States followed by a national workshop for deciding projects and resource allotment, Research Advisory Committees have been constituted on which all the State Forest Departments have been duly represented.

9.13 ICFRE is imparting forestry education and developing forestry curricula at various levels to accelerate the pace of research and to provide expertise in different fields of forestry research. Universities providing forestry education are being given grants-in-aid for strengthening their infrastructure and technical capabilities. Opportunities are also being provided for furthering the academic advancement of foresters/scientists/academicians in the field of forestry.

People's Participation

9.14 The steady depletion of forest resources and increasing deforestation led to the realisation that the active and willing participation of the communities is necessary for the success of any forest regeneration programme. It was also realised that village communities would have little incentive to participate unless they benefit directly and have sufficient authority. Therefore a new strategy – JFM – was adopted to protect and regenerate degraded forests.

9.15 Participatory forest management as an effective means of protecting and regenerating degraded forests has been gaining ground in India. In 1990, the Government of India issued guidelines to State Governments on the procedure for involving village communities and voluntary agencies in the management, planning and implementation of programmes for the protection and development of degraded forests, provision of fuel wood, fodder, NWFP and timber to people living in and around forests. In response, 27 states issued orders enabling mechanisms for public participation in the management of degraded forests. One of the important elements of the Participatory Forest Management System relates to the use of indigenous capacity and local knowledge about different aspects of conservation, development and use of forests. Rural people, particularly women and the tribal community, have an intimate knowledge of species, their growth characteristics, utility, medicinal value, etc. They are also well informed about the species that need to be planted in a given locality to satisfy specific requirements of fuel, fodder, timber, and other non-wood forest products. This knowledge is utilised under the JFM for the benefit of the community.

9.16 The JFM programme has led to several positive outcomes. The major ones are: (i) change in the attitude and relationships of local communities and forest officials towards each other and the forests; (ii) improvement in the condition of forests; (iii) reduction in encroachments; (iv) increase in the income of local people; and (v) involvement of NGOs.

Private Forestry Initiatives

9.17 The private sector comprising individuals/farmers, cooperatives, and industry has a large role to play in the management of forests. Though the responsibility for conservation and expansion of forest area lies mainly with the Government, rural people have been practising tree planting in their farms, homesteads and village woodlots to meet household requirements of fuel, fodder, poles, timber and medicinal plants. After the emphasis given to social forestry by the National Commission on Agriculture in 1976, plantations were raised in wastelands, degraded forests, private forests, private marginal lands and agricultural farms. Currently, the area of private tree planting (under agro-forestry, farm forestry in block and line plantations) covers over 6 m ha. Other non-forest sources of wood are rubber, coconut, cashew, and mango plantations. Non-forest private sources contribute 30 to 90 per cent of the total wood supply in different states. Non-forest sources together provide about 50 per cent of the total wood supply in the country and probably an equal or larger share of NWFPs. There are also a large number of small private nurseries meeting the local demand of seedlings. Apart from its contribution to wood supply, the private sector has also demonstrated its ability to enhance the productivity of forests. In addition, the private sector is dominant in the areas of wood harvesting and processing. However, these private initiatives require more support from the Government.

Forest Plantations

9.18 India's achievement in increasing the area under forest plantations has been impressive. Till 1997-98, the total area of tree plantations, under

different schemes, was 28.38 m ha. Of this, some 3.54 m ha were raised before 1980, 13.51 m ha during the 1980s and the rest during the 1990s. The current rate of tree plantation is about 1.2 m ha per annum. Concern has been expressed over the low productivity of plantations due to several factors such as inadequacies in site selection and site-species matching, poor planting stock, lack of proper maintenance and protection, financial and capacity constraints, etc.

External Assistance

9.19 External assistance in the forestry sector remained a major source of funding during the last two decades, and 15 externally aided forestry projects have been completed in 14 States as on 31 March 1998. Approximately 2.57 m ha have been covered under afforestation and 1,679 million seedlings distributed through these projects at a cost of Rs.1,700 crore. However, there has been inadequate investment in the management of natural forests. The thrust of external assistance is now on implementing projects geared towards overall development of the forest sector. The main donors of forestry projects were the World Bank, Japan Bank for International Cooperation (JBIC), Department for International Development of the United Kingdom, Swedish International Development Authority (SIDA), European Economic Community (EEC), UNDP, etc.

9.20 Between 1981-82 and 1991-92, the share of donor assistance in total Plan outlay was around 30 per cent. The provision for external assistance has shown an upward trend since 1994-95. The combined outlay for these projects was Rs. 230 crore during 1994-95 and has gone up to Rs. 830 crore during 1998-99. Sixteen new projects with an outlay of Rs. 13,160 crore have been proposed to various donor agencies.

State Plans

9.21 The outlays under the forestry and wildlife sector in State Plans are around 1 per cent. It includes the externally aided projects. It was envisaged that the external aid would come as an

additional amount, but the domestic budgetary support was consequently reduced. Some States are faced with the problem of maintenance of assets and liabilities created, after the completion of externally aided projects. The Coimbatore Charter on Environment and Forests held in 2001 resolved that State Governments should earmark at least 2 per cent of the total outlay for afforestation purposes. The approved outlay for the Ninth Plan and Annual Plans in the forestry and wildlife sector is given in the Annexure.

Forestry and Agenda 21

9.22 Agenda 21 recognises the need for specific actions to combat deforestation. Chapter 11 of the document identifies four programme areas for action:

- Sustaining the multiple roles and functions of all types of forests, forest lands and woodlands.
- Enhancing protection, sustainable management and conservation of all forests, and greening of degraded areas through forest rehabilitation, afforestation, reforestation and another rehabilitative measures.
- Promoting efficient utilisation and assessment to recover the full value of the goods and services provided by forests, forest lands and woodlands.
- Establishing and/or strengthening capacities for planting, assessment and systematic observation of forests and related programmes, projects and activities, commercial trade and processes.

9.23 The priorities of Agenda-21 are well embedded in the National Forest Policy, 1988 and have also found reflection in successive Five-Year Plans.

STRATEGY FOR THE TENTH PLAN

9.24 The National Forest Policy stipulates that one-third geographic area of the country should be brought under forest/tree cover. The imperative has been echoed in the Approach Paper to the Tenth

Five-Year Plan, which states that country will bring 25 per cent area under forest/tree cover by the end of the Tenth Plan period and 33 per cent by the end of the Eleventh Plan period. The Approach Paper also outlines the main concerns in the forestry sector. These include lack of awareness about the multiple roles and benefits of forests, especially its role in drought proofing and prevention of soil and water run-off; no linkage between management and livelihood security of the people; low level of technology; and inadequate research and extension. Other problems were: weak planning capability; wastage in harvesting and processing; market imperfections; over-emphasis on Government involvement and control; low level of people's participation and NGO involvement; lack of private sector participation; lack of inter-sectoral co-ordination; and weakness and conflicting roles of forest administration.

9.25 An effective strategy must consider all activities, current and potential, that can influence forests and related social, economic, and environmental outcomes. Growth alone cannot combat poverty effectively. More focused interventions are required that address issues relating to opportunity, empowerment, and livelihood security of the poor people who depend on forests in different ways. A broader livelihood approach, covering productive capacity, institutional and legal structures, market access and tenure, must be adopted that puts forests into the broader context of rural development. The focus should be on improving governance (especially correcting major distortions in incentives and markets that are reducing the value of the forest resource), and the development of efficient markets and encouraging competitive private sector participation in the sector. More focused interventions are required for maintaining natural forests for eco-system protection and sustaining the global and local forest values.

9.26 The following strategies are proposed in order to address the concerns of forestry sector and to achieve the objectives of sustainable forest management:

- The role of forests to maintain the hydrological balance is complementary. Successful models

of watershed development have helped conserve soil and moisture, improve ground water recharge and the water regime and mitigated the adverse impacts of drought. The watershed approach should be universally adopted for the maintenance and development of forests.

- Due to the increase in human and cattle population, the existing forest resource is under intensive pressure to meet the demands for various forest produce, i.e. food, fodder, fuel, fertiliser, timber, bamboo, medicinal plant, etc. About 41 per cent of the forest area is degraded due to over exploitation of forest produce. However, no strategy to conserve the forest eco-system would be successful unless the basic needs of the society are met. The future management strategy must, therefore, take into account this compelling need of the community to meet their requirements.
- Equity, efficiency and empowerment are the key instruments to achieving sustainable forest development. The effort of JFM in regeneration of degraded forests has been very successful and it requires to be given an increased thrust during the Tenth Plan. However, its strengths and weaknesses need to be identified and corrected.
- Out of the total 5.87 lakh villages in the country, 1.70 lakh have forests as land-use. The forest areas near population centres/villages have degraded faster due to over-exploitation and the forest resource has become impoverished. It has adversely affected the livelihood security and employment opportunity of people dependent on forests. Therefore, a special programme needs to be drawn up for development of such villages and to provide alternative source of income.
- At present, the country is dependent on bulk import of round timber and other produce for large forest industries such as paper and pulp. This must be reversed and the Government should encourage the meeting of these bulk requirements from community land, degraded forests or private farmlands. Steps to do this would imply removal of Government subsidies, regulation of tariff on imports and other policy modifications that affect local producers.
- Agro-forestry should be encouraged by promoting technology, extension and training, credit support, marketing infrastructure, etc and providing a policy environment, which assures the farmers of a remunerative price. The constraints in felling, transport and marketing of forest produce from private holdings in different States should be removed and a common guideline may be framed.
- Though the country has surplus food grain reserves, the tribals are faced with the problems of starvation and malnutrition. Greening programmes under the 'food for work' scheme should be extensively implemented to ensure productive employment and food security.
- The fragile eco-systems such as coastal areas, hills and mountains, wet lands, deserts, shifting cultivation areas need to be protected in order to sustain the livelihood of a large number of people, apart from the ecological benefits they bring.
- Forests can play a major role in the mitigation of greenhouse gas emission and to adapt to climate variability and long-term climate change. Afforestation is an efficient way of sequestering atmospheric carbon. Conserving and managing existing natural forests and forest soils, which are very large stores of carbon, will significantly reduce greenhouse gas emissions. This might provide new market avenues for forest protection and management.
- There is a growing demand for medicinal plants as crude drugs, food supplements, pharmaceuticals, cosmetic and perfumery products in the national and global market. International trade of medicinal plants is over \$ 70 billion a year. Medicinal plants being natural, non-narcotic, without side effects and easily available, can ensure affordable health care, employment generation, besides boosting exports and conserving bio-diversity.

- The extensive bamboo flowering warrants the formulation of emergency plans for harvesting and processing of bamboos and its utilisation to produce new generation products like mat board, mat wood veneer board, mat roofing sheets, laminates etc. These new bamboo products are in great demand in the domestic and export market.
- It has been established worldwide that Bio-diesel offers unique solution to problems arising out of fossil fuel starvation and its environmental impact. There is a vast potential for production of bio-diesel from *Jatropha curcas* and *Pongamia pinnata* as they occur in plenty in forests and wastelands naturally. Their plantation is cost-effective, conveniently replicable and implementable over vast area of country's wastelands. Bio-diesel is a suitable alternate fuel meeting stringent specification required for implementation of Euro-III and Euro-IV norms. Promotion of bio-diesel will also encourage enhancement of livelihood opportunities and income generation for rural masses.
- Forest product research is another important area calling for attention. Value addition through primary and secondary processing, reduction in wastage and recycling, and new product development will fetch more value and provide productive employment opportunities.

ACTION FOR THE TENTH PLAN

Natural Forests

9.27 The following initiatives are required for the development of forest area:

- Good forest areas must be brought under scientific management to enhance, productivity, density and health. There has been inadequate investment in the management of good forests in last two decades. Forestry projects should lay emphasis on management and rejuvenation of natural forests.
- It has been estimated that out of the open forest of 25.51m ha, about 15.5 m ha have natural

root-stock, which may regenerate with the help of proper protection and replenishment of gaps and about 9.5 m ha are partially degraded with depleted natural root-stock. Another 6 m ha are estimated to be totally degraded or treeless. Altogether 31 m ha degraded areas require suitable treatment through plantations of fuel wood, fodder and timber species.

- There are 1.70 lakh villages in the country that have forests as land use. It is proposed to cover all 1.70 lakh forest fringe villages under JFM through the Forest Development Agencies (FDA). It has also been proposed to merge all afforestation programmes of National Afforestation and Eco-development Board (NAEB) into a single scheme called 'National Afforestation Programme'. The programme would be operated through FDAs and it has the components of natural regeneration, management intervention, pasture development, bamboo development, etc. The salient features of the proposed structure are:
 - ↳ Micro-planning exercise would be the core element of the strategy.
 - ↳ Watershed approach will be universalised in all afforestation programme.
 - ↳ Decision-making at the community level in respect of choice of species.
 - ↳ Entry point activities to mobilise the community participation.
- The fragile eco-systems such as coastal areas (mangroves and coral reefs), hills and mountains, wetlands, shifting cultivation areas, biodiversity hot spots, etc. should be properly managed in order to safeguard the livelihood of millions of people.

NTFP and Medicinal Plants Development

9.28 The following initiatives are necessary for the development of NTFP including bamboo and medicinal plants:

- In situ conservation of medicinal plants is to be done in the protected areas such as sanctuary, national park, biosphere reserve, etc.

Natural forests rich in medicinal plants should be identified and managed for sustainable supply of crude drugs.

- Bamboo bearing areas should be brought under scientific management. Areas likely to flower gregariously during the Tenth Plan should be harvested after the formulation of emergency working plans. Bamboo products like bamboo laminates, bamboo mat board, bamboo mat-roofing sheets, etc should substitute wood.
- Non timber forest produce (NTFP) will be properly regenerated, harvested, processed and marketed for improving the economy of forest-dwellers.

Forest Protection

9.29 The growing stock of the forest resource of the country as estimated by Forest Survey of India is about 470 million cub m. with an average of 74.42 cub. m. per ha. The forests of north-east region are hotspots of bio-diversity. To safeguard these precious forests and their value, it is necessary to have more rigorous protection measures. The national master plan for integrated forest protection should be drawn. It should include all components of protection and sustainable management of forests such as, forest fire control measures, working plan preparation, survey and demarcation, infrastructure development, etc. During the Tenth Plan, it is proposed to give a thrust to this aspect of forest development.

Forest-Based Industries

9.30 The following initiatives are required for the efficiency of forest based industries :

- Wood-based industries are not efficient due to technological obsolescence, inappropriate machinery and its maintenance, unskilled manpower and poor quality of products. Such industries have to be modernised in order to be economically viable. Initiatives for the modernisation of technology, reduction and

recycling of waste, and regulations regarding the use of seasoned and treated material, promotion of standards and codes for wood products, etc. will be encouraged.

- The use of fuel wood in open hearths is inefficient because it leads to considerable heat loss and causes health hazards. Improved stoves and modified methods of cooking can reduce fuel wood needs and improve hygiene.
- With the relaxation of trade barriers and liberalised imports, customs duty on logs and wood chips was substantially reduced from over 100 per cent to 5 per cent and 10 per cent respectively. Though, on the one hand, the liberalised import reduced the demand on our natural forests, it also acted as a deterrent to the growth of indigenous production and forest based industries.

Forest Plantations

9.31 The following initiatives are required for improving the productivity of forest plantations:

- The plantation strategy should be based on creating new forest resources that help reduce pressure on natural forests and preferably reverse the negative impact of deforestation while meeting the increasing demand. India can benefit from the experience of other countries, which have developed policies and incentives to promote private sector participation in accelerating the pace of afforestation.
- At present, the performance of forest plantations in terms of survival, growth and yield is poor. The mean annual increment (MAI) of forest plantations varies from about 2 m³/ha/year for valuable timber species to about 5-8 m³/ha/year for eucalyptus and other fast-growing species. This is far below the MAI of over 10 m³ and about 50 m³/ha/year for good quality plantations in different countries.
- The productivity and success of plantations can be improved by appropriate site selection, site-species matching, planting of elite clones, proper maintenance and protection, timely

tending, thinning, irrigation, application of manures and pesticides, etc.

- Reduction in harvesting and post-harvesting losses should be achieved by adopting improved technologies.

Joint Forest Management

9.32 The following measures should be adopted for an effective JFM:

- Suitable forest patches are entrusted to well-defined user groups with a transparent memorandum of understanding (MoU) on roles and responsibilities of JFM Committees and the Forest Department.
- Security of tenures as well as access to benefits from the resource must be assured to the beneficiary.
- Silviculture prescriptions followed for the management of JFM forests must be sustainable. Stakeholders have a voice in decision-making.
- Legal back up to JFM Committees.
- Appropriate institutional and financial mechanisms.
- Linking Village Protection Committees with industries for the sale of JFM produce.
- Detailed projects to be prepared for assistance under Rural Infrastructure Development Fund (RIDF) of the National Bank of Agriculture and Rural Development (NABARD) for JFM areas.
- 'Food for work' schemes to be launched to ensure food accessibility and employment generation for JFM members

Agro-Forestry Development

9.33 The following measures are required for promotion of agro-forestry:

- Commercial agro-forestry should be practised in areas where irrigation is available. The preferred species should be *acacia nilotica*, *bamboo species*, *casurina equisetifolia*,

eucalyptus species, *populus deltoides* and *prosopis cineraria* depending upon agro-climatic and edaphic conditions.

- High-tech modern nurseries to be established on a catchment area basis provide quality planting material.
- Suitable agro-forestry models to be adopted for rain-fed areas that will complement agriculture and provide fuelwood, fodder and timber for basic needs.
- Elite clones (higher yielding and disease resistant) of important agro-forestry species to be developed for different edaphic and climatic conditions. The private sector to be encouraged to take up R&D activities and promote new agro-forestry products.
- Agro-forestry product research, new product development, new designs and quality standards to be evolved.
- Market information system to be developed to inform farmers about the major buyers, market trends, etc.
- All restrictions on felling of trees, logging, transport and marketing of forest produce to be removed.
- Agro-forestry boards and marketing federations to be promoted to streamline marketing and trade.

Greening India Programme

9.34 Out of the 328.27 m ha total geographical area of the country, around 300 m ha is the available productive land. The actual forest cover is 63.73 m ha of which only 37.73 m ha has good forests. About 20 m ha is covered under tree plantations (agro-forestry, farm forestry, social forestry and other plantations). Thus, in order to bring one-third area under forest/tree cover, $(100-37.73-20=42.27)$ 43 m ha of area should be covered under the greening programme over 10 years. The detail programme should be as follows:

- 15 m ha of degraded forest land to be covered under JFM.

- 10 m ha of irrigated area to be brought under commercial agro-forestry.
- 18 m ha of rain-fed area to be brought under subsistence agro-forestry.

9.35 Significant efforts are required for greening India to address the food security and environmental challenges. The country is facing the problem of surplus food production on one hand and unemployment, poverty and food deficiency on the other. The implementation of Greening Programme through “food for work” scheme will ensure meeting the basic needs of people, environmental protection, food accessibility and productive employment generation to 10 crore people (mainly tribals, dalits, backwards, other backward classes, landless and women).

Forestry Research, Education and Training

9.36 Continuous and sustainable development of forestry would depend on research inputs in crucial areas, solving problems and expanding knowledge. The scope of forestry research covers not only biological and technological aspects (forestry, forest products, conservation, wildlife), but also a wide spectrum of economic, environmental, sociological and policy research.

Indian Council of Forestry Research and Education (ICFRE)

9.37 The ICFRE should promote research in the following areas:

- Identification of elite clones of agro-forestry species and their mass propagation.
- Market information in respect of important forest products.
- Policy research on JFM, bamboo and medicinal plant development.
- Forest product research for value addition, new products and standards.
- Increasing forestry contribution in meeting human needs and welfare.

9.38 Other initiatives should be in the areas of forestry education and extension for dissemination of research results.

Indian Plywood Industries Research and Institute (IPIRTI)

9.39 IPIRTI should aim at optimising the utilisation of plantation and other fast growing wood resources by developing appropriate processing techniques. It should help in the development of wood substitutes from other natural renewable fibres including agro-residues and bamboo. These programmes shall ensure sustained availability of wood and wood products by utilising plantation timbers, bamboo and other agro-residues.

Indian Institute of Forest Management (IIFM)

9.40 The IIFM should enhance its capability and contribution to the process of policy formulation in the area of natural resource management. Some of the new initiatives in the Tenth Plan are: establishment of a National Forest Data Centre; establishment of a Centre for Continuing Education in Natural Resource Management; establishment of a policy cell for undertaking policy research to provide inputs to policy making; and the establishment of a Centre for Excellence in Medicinal Plants and NTFP. The Institute should also undertake major initiatives in the areas of training and research to build up the capacity of Government agencies and civil society for more effective management of natural resources.

Forestry Training

9.41 The Indira Gandhi National Forest Academy is imparting induction training to Indian Forest Service probationers and in-service training to serving officers. The Academy has also started professional skills upgradation training for the officers promoted to Indian Forest Service from the State Forest Service. The Directorate of Forestry Education is responsible for imparting basic training in forestry to State Forest Service officers and induction training of range forest officers promoted as assistant conservator of forests in the State

Forest Service cadres. During the Tenth Plan, the Directorate should undertake induction/regular training courses for State Forest Service officers and range forest officers including trainers for training courses. It should also organise seminars and workshops besides conducting special courses on various forestry themes. Training and professional skill development of subordinate cadres should be given priority.

Forest Survey of India

9.42 The Forest Survey of India should improve on the State of Forest Reports providing a more detailed assessment of forest cover and forest resources in the country and monitor changes in these. It should also train forest officials to develop specialised skills in the application of remote sensing and geographical information system (GIS), inventory and data processing techniques in forestry.

THE PATH AHEAD

9.43 The demands being made on India's forests today are more than ever before. Managing forests to provide for the environmental, social and economic well-being of India's rapidly expanding population, while conserving forest resources for further generations, has become the most challenging job in the coming years. The challenge has increased because of the multiplicity of stakeholders who influence forest policy formulation and institutional arrangements and decisions affecting the management of forests.

9.44 The roadmap for the future development of the forestry sector includes the following:

- Increase in forest and tree cover to 25 per cent by 2007 and 33 per cent by 2012.
- Universalisation of JFM to cover all 1.70 lakh villages situated inside or on fringe of forests to provide livelihood security and employment generation.
- Priority to agro-forestry, conservation and development of medicinal plants.

- Promotion of shelter belt plantations to reduce the adverse impact of natural calamities.
- Research and technology development to improve productivity and production of new products along with focus on value-addition, improved marketing, export and productive employment generation.

WILDLIFE

9.45 The ecosystems that India has been endowed with not only harbour rich bio-diversity, including plant and animal forms and their produce that is critical for human sustenance, but also form the cradle of our rivers and aquifers which assure our water and food security. Water, wilderness and wildlife are irrevocably inter-linked. With mounting agricultural, industrial and demographic pressures, wilderness areas, which are the richest repositories of wildlife and bio-diversity have either shrunk or disappeared. Their existence is crucial for the long-term survival of bio-diversity and the ecosystems supporting them. The increased frequency and intensity of natural disasters, the declining fertility of our soils and the accelerated degradation of our fresh water resources have imposed a crippling financial burden on the nation. This underscores the need to realign development priorities to take into account ecological imperatives, including the protection of wild species, which sustain and enhance natural habitats, even as they depend on such areas for their survival.

ACHIEVEMENTS OF PREVIOUS PLANS

9.46 India has 88 National Parks and 490 sanctuaries, covering an area of 1.56 lakh sq km. Scientific management plans have been prepared for over 200 National Parks and sanctuaries. Eco-development support to protected area management has not only helped improve the socio-economic condition of the local communities in several cases, but has also made them sensitive to the needs of conservation.

9.47 Project Tiger was initiated in 1973 and so far 27 tiger reserves have been created. Nine

elephant reserves have been constituted under the Project Elephant initiated in 1991. These projects have not only benefited the main species but have led to the amelioration of eco-systems and this is reflected in re-vitalisation of aquifers and security to the range of floral and faunal diversity. The estimated population of cardinal species is:

Tiger	: over 3,500
Elephant	: over 27,000
Asiatic Lion	: over 300
Rhinoceros	: over 1,700

9.48 Capacity building programmes have been intensified, enhancing the diversity and coverage of the training programmes undertaken by Wildlife Institute of India (WII). Action has been initiated to improve the wildlife management training to the frontline staff in the states. WII and several other institutions have been assisted to undertake research relating to conservation and management. Both radio telemetry and satellite tracking have been used to monitor the ranging patterns of selected species such as, bar-headed goose and Olive Ridley sea turtle.

STRATEGY FOR THE TENTH PLAN

9.49 The national development agenda must recognise the necessity of protecting the long-term ecological security. Assigning conservation a high priority both at the Central and State levels should be the objective of all development programmes. Local communities traditionally depend on natural bio-mass and they must, therefore, have the first lien on such resources. However, such benefits must be subject to the assumption of a basic responsibility to protect and conserve these resources by suitably modifying unsustainable activities.

9.50 The following initiatives are necessary for the ecological security of our natural heritage:

- **Strengthening and enhancing the Protected Area network:** There is a network of 578 Protected Areas in the country, spread over 1.56

lakh sq km. Out of ten identified bio-geographical zones, some are still deficient in Protected Area coverage. Protected area network should cover all bio-geographical zones of the country.

- **Effective management of Protected Areas:** Each Protected Area should be covered under a management plan, based on sound scientific and ecological data. Management plans should seek to involve local communities and make them aware of Protected Area objectives, including the control of fires, prevention of overgrazing, encroachment and poaching.
- **Conservation of wild and endangered species and their habitat:** The isolation of animal species due to fragmentation of habitats reduces relict populations to unviable levels, leading to local extinction where in situ conservation efforts are unlikely to succeed. Therefore, ex situ captive breeding and rehabilitation measures should be taken up in such cases.
- **Restoration of degraded habitats outside Protected Areas:** The restoration and management of degraded habitats outside Protected Areas is a vital objective, both to provide sufficient habitat for spatial movement of spillover species outside Protected Areas, and to provide biological resources needed by the local communities to reduce their dependency on Protected Area resources. This is also critical to the linking of Protected Areas with effective wildlife corridors to provide for genetic continuity and prevention of insular wild animal populations.
- **Control of poaching and illegal trade in wild animals and plant species:** Poaching and illegal trade in wild animals and plants are serious threats to wildlife conservation. India, as a signatory to Convention on International Trade in Endangered Species (CITES), is obliged to take all necessary steps to implement the provisions of the treaty and ban international trade in Appendix-I species of plants and animals and regulate trade in Appendix-II and III species.

ACTION FOR THE TENTH PLAN

Development of National Parks and Sanctuaries

9.51 Development of National Parks and Sanctuaries is an umbrella scheme encompassing components of protection, habitat improvement, settlement of rights, eco-development, infrastructure development, capacity building including research and training, eco-tourism, education and awareness etc. Priority will be given to the development of high diversity and high value areas.

9.52 A critical review of the scheme in the initial phase of Ninth Plan period revealed that financial assistance to different Protected Areas was being released on the basis of Annual Action Plans submitted by the concerned States rather than on the basis of scientifically prepared long-term management plans. This deficiency has been substantially removed by ensuring a holistic strategy for habitat improvement under the newly prepared Protected Area management plans. This process will be further strengthened in the Tenth Plan period. Wildlife research, monitoring and training component of the scheme has not received due emphasis. This needs to be corrected.

Project Tiger and Project Elephant

9.53 At present, there are 27 tiger reserves covering an area of 0.38 lakh sq km in 17 States. There is a need to emphasise on anti-poaching camps, mobile squads, capacity building of frontline staff in intelligence gathering, detection and successful prosecution of cases and providing necessary infrastructure to them.

9.54 At present, about one lakh sq km area is covered under Project Elephant, out of which approx. 0.28 lakh sq km is inside Protected Areas. There has been considerable increase in human-elephant conflict and crop raiding by elephants. The main thrust in the Tenth Plan would be on protecting existing elephant habitat from further degradation and fragmentation, identifying and protecting corridors, mitigation of human-animal conflict, efficient management of domesticated elephants and

arranging for training and skill development of manpower for proper management of elephants.

Wildlife Institute of India (WII)

9.55 The Institute has to rise to the challenges of wildlife conservation in the country in a situation of conflicting demands on natural resources from various sections of the society. Endangered species need to be preserved while the population of other animals should be sustainably managed. The Institute should generate data and information on maintaining a sustainable population of each animal for their scientific management. The idea of sustainable cultivation of musk-deer and extraction of musk, crocodile products, etc. need to be explored and the process be standardised. Research initiatives in the field of sustainable use of wildlife products are needed. The Institute should cover not only wildlife research and training but also the socio-economic aspects of wildlife conservation.

Central Zoo Authority

9.56 The Authority has been given the responsibility of providing technical and financial assistance to zoos to enable them to attain the stipulated standards under the Zoo Recognition Rules 1992. The main emphasis in the Tenth Plan will be on developing better avenues for capacity building of zoo staff, better housing, upkeep and health care of zoo animals along with rescued animals and strengthening of facilities in the existing veterinary institutes.

THE PATH AHEAD

9.57 Rural development has, all along, failed to take into account the strong linkages between conservation of forest and wilderness areas and the sustainable welfare of people dependent on them. This has led to the degradation of both community and private resource base, resulting in widespread impoverishment of the people. Only the coordinated and balanced strategies for forest and wildlife management and rural development can help reverse these adverse trends. Eco-development activities should be further strengthened to reduce pressure on forests. Local stakeholder-based participation of the people in both planning and

implementation of programmes, aided by enhanced per capita inputs would be essential. Wherever relevant, local community knowledge, skills and practices should be integrated into conservation strategy, planning and management. The awareness among people, parliamentarians, legislators, judges, planners, technocrats and bureaucrats of the strong linkage between a healthy eco-system and the country's water and food security is important to win their support.

9.58 The wildlife management strategy should take into account the problems of increased crop raiding by wild animals, increasing human-wildlife conflict, increasing poaching of wild animals, grazing and encroachments in protected areas. The large number of monkeys in urban settlements, unsustainable population of some herbivores such as, nilgai, wild boer, etc are serious problem. Therefore, an integrated and comprehensive view is needed for meeting the needs of conservation and sustainable use of resources.

ENVIRONMENT

9.59 The growing population, high degree of mechanisation and steep rise in energy use has led to activities that directly or indirectly affect the sustainability of the environment. There has been a reduction in forest cover (hence reduction of sink for the carbon dioxide and soil degradation), contamination of surface and ground water and pollution of the air with Suspended Particulate Matter (SPM), Respiratory Particulate Matter (RPM), hydrocarbons and acid gases, all of which are causing health problems. There is dumping of poisonous waste on grounds. Most of the country's water resources are polluted due to discharge of untreated/partially treated wastes from industry, domestic sewage and fertiliser/pesticide runoff from agricultural fields.

ISSUES AND MEASURES TAKEN DURING PREVIOUS PLANS

Air Pollution

9.60 The main source of air pollution is combustion of solid fuels (coal, lignite, wood etc.) and

liquid fuels (from petroleum source). The need for more electricity has led to a steep rise in power generation through coal as India has limited reserves of natural gas. Increased economic activities and urbanisation have increased vehicular traffic using diesel and petrol, both of which add to NO_x and SO_x emission in cities. Heavy vehicles, which mainly use diesel as fuel, emit large quantities of RPM. Shortage of electric power has also led to the increased use of diesel generator sets in the commercial, household and agriculture sectors.

9.61 Air pollution is a potential health risk and has led to an increase in respiratory diseases in cities. Central Pollution Control Board (CPCB) has established a national air quality monitoring network covering 290 stations spread over 90 cities and towns. While the level of acid gases are much below the prescribed standard, the high level of SPM in many locations (69 locations out of 170) is a matter of concern. The measures taken in the past Plans to deal with this are -

- Setting up of ambient air quality standard for short term (24 hours) and annual for industrial, residential, rural and other areas with respect to various pollutants like SO₂, NO₂, RPM, Pb and CO.
- Monitoring of air quality is done with regard to SO₂, NO₂ and SPM and in selected stations, ammonia, hydro-sulphide, RPM and poly-cyclic aromatic hydro-carbons are also monitored.
- To reduce vehicular pollution, emission standards for petrol and diesel driven vehicles were introduced in 1990 and further modified in 1996. Further restrictions were introduced in April 2000. The fitting of catalytic converters in petrol-driven vehicles has been made compulsory in the four metro cities. Specifications of diesel and gasoline have been further revised to reduce sulphur, aromatics and lead content. Lead in gasoline had been phased out since 2000.
- Guidelines have been laid down for setting up of industries. A project for a district-wise zoning atlas has been taken up that would guide suitable location of industry.

- Twenty-four critically polluted areas have been identified across the country and an action plan has been devised for the control of pollution in these areas.
- Submission of environment statement by polluting units has been made mandatory since 1992.
- Environment impact assessment has been made mandatory for 29 categories of projects since 1994 and public hearings have been prescribed since 1997.
- In Delhi, the plying of buses using diesel has been stopped from 2002.

Water Pollution

9.62 The major rivers of the country suffer from reduction in flow while entering the plains and passing through cities (because of water being drawn for irrigation and drinking water supply in cities). At the same time, they receive polluted discharge, the main pollutants being fertilisers and insecticides, untreated municipal sewage and industrial effluents.

9.63 CPCB has been monitoring water quality, BOD (Biological Oxygen Demand), total coliform and faecal coliform at 507 locations with concerned State Pollution Control Boards. Water quality monitoring results obtained during 1998 indicates that organic and bacterial contamination continues to be critical sources of pollution in Indian aquatic resources. The number of observations having high coliform density has increased in 1998 against 1997.

9.64 CPCB has also carried out limited water quality monitoring of wells in different States and has found dissolved oxygen and total coliform levels far beyond the permissible limits in many cases. The Central Water Commission's (CWC) studies on chemical composition of ground water in a few areas have revealed a high concentration of nitrates, potassium and even phosphates in many cases, while they are virtually absent or have low concentration in other places. This points to the improper use of chemicals, fertilisers and poor water

management. In areas where intensive industrial activity, there is high concentration of heavy/toxic metals in different proportions in ground water. Even with strong legislative provisions, 851 defaulting industries were functioning along the rivers and lakes in 1997.

The major initiatives taken so far are:

- Enacting the Water Prevention and Control of Pollution Act, 1974 which empowers State Pollution Control Boards to lay down and maintain location and source specific standards for discharge of waste water with provisions for penalty etc.
- Enacting the Water Cess Act, 1977 empowering the State pollution control boards to levy a cess on local authorities supplying water to consumers with provision of incentives for conservation, reuse, lower discharge etc.
- Enacting the Environment Protection Act, 1986, an umbrella act that empowers Central Government to intervene directly to protect environment.
- Enacting the National Water Pollution Act, 1987 to provide top priority to drinking water and proper management of water resources.
- Environmental Impact Assessment, 1994 has been made mandatory for 30 categories of developmental activities involving investment of more than Rs. 50 crore
- National River Conservation Plan (NRCP) was launched in 1995 to clean stretches of major rivers of the country.
- National Lake Conservation Plan (NLCP) was taken up since 1997 to clean and restore major lakes of the country

Solid Waste

Municipal solid waste

9.65 The 2001 Census estimates the urban population at 27.8 per cent of the total population. It is expected to grow at 4 per cent per annum and would account for 40 per cent of the total population

in the next ten years. Due to lack of infrastructure, the proper collection, transportation, treatment and disposal of solid waste by most municipalities has become a subject of concern. As per an estimate, the present annual generation of solid waste in Indian cities has increased from 6 million tonnes (mt) in 1947 to 48 mt in 1997 and is expected to increase to 300 mt by 2047. Though it is difficult to give an exact estimate of the per capita rate of generation of solid waste because of the large variations both in quality and quantity, on an average it ranges between 400 and 500 g/capita/day.

9.66 Most surveys have found the organic component of the waste to be around 40 per cent. The share of recycled waste has increased over the years mainly due to the increased content of plastic. While the per capita waste generation in India is low as compared to western countries, the volume generated is enormous given the size of the population. Due to lack of awareness and absence of legislation, till recently medical wastes were also deposited and mixed with municipal waste collection. The Director General of Health Services estimates that 54,404 mt of medical wastes are generated in the country every year (based on a generation figure of 250 g/capita/day).

9.67 The average waste collection in Indian cities is 72 per cent and only 70 per cent of cities have adequate waste transport facilities. There is a lot of littering at collection centres and also during transportation. Unscientific disposal practices leaves waste unattended at the disposal site and this attracts birds, animals and micro-organisms which create a health hazard. Plastic contents of the waste are picked up by rag pickers for recycling. This recycling is carried out in small factories with no adequate technology, leading to the emission of toxic fumes.

9.68 The various initiatives taken to tackle this are:

- **The Recycled Plastic Use Rules, 1998** were issued based on the recommendations of the Plastic Management Task Board. This rule bans the use of recycled plastic for food items and also specifies standards for manufacturing recycled plastic bags.
- National Environmental Engineering and Research Institute (NEERI) has prepared a manual on solid waste management which highlights various critical issues relating to the task.
- Central Public Health Environmental Engineering Organisation (CPHEEO) has prepared a policy paper on promoting the integrated provision of water, sanitation, solid waste management and drainage utilities in India.
- **Master Plan for Municipal Solid Waste:** The Ministry of Environment and Forests has organised an interaction meet in 1995 with municipal authorities to evolve a strategy for municipal solid waste.
- **The National Programme on Energy Recovery from Urban Wastes** scheme has been launched by the Ministry of Non-conventional Energy Sources with many physical and financial incentives for energy recovery from wastes.
- **Two high powered committees were set up on Urban Waste, one in 1975 and again one in 1995. They made several recommendations** like segregation, door-to-door collection, proper handling and transportation, waste composting and treatment and use of appropriate technologies for waste treatment and disposal.
- **The Bio-medical Waste Management and Handling Rules, 1998**, has been formulated to take care of infectious bio-medical waste which can spread various diseases and create health problems.
- **The Municipal Solid Waste Management and Handling Rules, 2000**, has been introduced to bring in an element of urgency in the
- **A National Waste Management Council (NWMC)** was constituted in 1990 to suggest disposal of the municipal solid waste

waste management efforts by urban local bodies. Under the rules, municipalities would be required to submit annual reports on waste management in their areas to the CPCB.

Industrial and Hazardous Waste

9.69 Hazardous waste includes sludge contaminated with heavy metals, wastes from paints, dyes and organic chemical units and highly acidic and alkaline wastes. The relatively more industrialised states like Gujarat, Maharashtra, Tamil Nadu and Andhra Pradesh face problems relating to toxic and hazardous waste. The major hazardous waste generating industries are petroleum and petrochemicals, pharmaceuticals, pesticides, paint and dyes, fertilisers, inorganic chemicals and general engineering industries etc. The presence of toxic chemicals in solid/liquid effluents from industries and other activities leads to ground water contamination. Direct contact with and exposure to hazardous waste can also lead to diseases or chemical poisoning.

9.70 At present, around 7.2 mt of hazardous waste are generated in the country, out of which, according to one estimate, 1.4 mt are recyclable, 0.1 mt to be incinerated and 5.2 mt to be disposed on land. The hazardous waste of 5.3 mt would require about Rs. 1,600 crore a year for treatment and disposal at an estimated rate of Rs. 3,000/tonne. In addition, land required for disposal will be around 1 km² taking a depth of 4 m and density of disposal as 1.2 tonnes/m³.

9.71 The Water Act (1974) and Air Act (1981) were not sufficient to regulate the disposal of hazardous waste and this called for the formulation of the hazardous waste Management and handling rules, 1989. Since then, efforts to make an inventory of hazardous waste were initiated.

9.72 The initiatives taken in this direction are:

- Estimate of the hazardous waste inventory in various States and identification of disposal sites based on environment impact assessment.

- CPCB has prepared a ready reckoner to provide information on the source of the hazardous waste, their characteristics and the method for recycling and disposal.
- Training programmes have been organised to deal with hazardous waste management.
- Import of hazardous waste containing toxic metals like beryllium, selenium, chromium, thallium, pesticides etc. have been restricted on the recommendations of an Expert Committee.
- Export and import of waste containing cyanide, mercury and arsenic have been prohibited since December 1996.
- The import of waste oil and metals such as brass, zinc and lead for processing to recover resources is fully regulated by the Ministry of Environment and Forests.
- The failure to implement existing legislation to check environmental damage by industrial units led to a public interest litigation being filed. This resulted in orders for the closure/shifting of industrial units producing hazardous chemicals from Delhi, closure of 200 tanneries in Tamil Nadu and 35 foundries in Bengal.
- An Australian-aided Project (worth Australian \$8.4 million) was taken up in 1996 for the management of hazardous waste generated from industries located in the Medak, Hyderabad and Ranga Reddy districts.
- The Karnataka Government is implementing a German Technical Cooperation Project relating to hazardous waste management at an estimated cost of DM 3 million for the creation of a hazardous waste disposal facility and DM 3 million for technical cooperation.

Bio-diversity

9.73 The sustainable use of bio-diversity is fundamental to ecologically sustainable development. India is one of the 12 mega diversity countries of the world. However, during the past few decades, industrialisation has put a strain on the eco-system, altering and even destroying it. The loss of bio-

diversity stems from destruction of the habitat, extension of agriculture, filling up of wetlands, conversion of rich bio-diversity sites for human settlement and industrial development, destruction of coastal areas and uncontrolled commercial exploitation. The following steps have been taken to conserve bio-diversity:

- Establishment of a protected area network of 88 national parks and 490 wild life sanctuaries.
- A programme of eco-development involving local communities is being implemented.
- Another programme of biosphere reserve is under implementation.
- A specific programme for the conservation of wetlands, mangroves and coral reefs is also being implemented.
- Six internationally significant wetlands of India have been declared as Ramsar sites under the Ramsar Convention.
- A centrally sponsored programme of National Lake Conservation was launched in 1993
- The Wild Life Protection Act (1972) is being revised.
- Under the World Heritage Convention, five natural sites have been declared as World Heritage Sites.
- Project Tiger, initiated in 1973, has created 27 tiger reserve that led to the doubling of the tiger population.
- Project Elephant, initiated in 1991-92, assists states in ensuring the long-term survival of elephants in their natural habitats.
- The National Committee on the Conservation and Management of Mangroves and Coral Reefs, set up in September 1998, has recommended the establishment of an Indian coral reef monitoring network. The preparation of these plans is under way. Financial assistance from United Nations Development Programme (UNDP) and Global Environment Facility (GEF) has been availed for strengthening the Gulf of Mannar Biosphere Reserves and a project relating to the Andamans Coral Reefs.

ONGOING SCHEMES OF THE NINTH PLAN

9.74 While regulation is the main method of controlling pollution, need has been felt for increasing awareness among the people regarding the effects of pollution and the protection available. This effort would also continue in the Tenth Plan. In addition, the Centre's involvement in meeting part of the capital requirement for effluent treatment facilities in a few cases has been found to be essential. For example, cash-strapped municipal bodies in various cities are not able to collect, transport and treat solid waste as well as operate sewage treatment plants. Similarly, because of limited resources, small and medium industries (SMEs) are unable to set up proper facilities for treating toxic effluents. The major schemes of the sector are:

9.75 Central Pollution Control Board (CPCB): It is the apex body to coordinate the activities of all state pollution boards (SPCBs), the latter setup to regulate the Pollution Control Acts and Rules framed. The major works for which budgetary support is required are setting up number of stations for monitoring air and water quality, carrying out certain studies, R&D activities and support to State Pollution Control Boards.

9.76 Industrial Pollution Abatement Through Preventive Strategies: This Scheme lays emphasis on preventive aspects of pollution abatement and promotion of technological inputs to reduce industrial pollution. The preventive strategy for abatement of industrial pollution includes Environmental Audit, Waste Minimisation, Cleaner Production and Environmental Management Systems. Environmental Audits provide for a structured mechanism to analyse, evaluate and assess effects on environment due to activities and products of an enterprise. Waste Minimisation Circles are to be set up in cluster of small scale industries with a view to encourage them to adopt cleaner production practices.

Hazardous Substance Management

9.77 Various programmes have been taken up in the Eighth and Ninth Plans to enhance safety in

handling and management of hazardous substance and these will continue in Tenth Plan. These include preparation of a comprehensive chemical profile, facility for treatment and disposal of hazardous wastes in States and capacity building in ports/custom laboratories. During the Ninth Plan, an expenditure of Rs. 14 crore was incurred on these activities.

India-Canada Environment Facility

9.78 This is an ongoing project funded by the CIDA which supports environmentally sustainable development projects for land, water and energy resources. Of the 21 ongoing India-Canada Environment Facility (ICEF) projects, two have been completed and the rest are under various stages of implementation.

National River Conservation Plan

9.79 Under this scheme, polluted stretches of major rivers have been identified for sewage collection and treatment. At present, 153 towns have been considered under the National River Conservation Plan (NRCP), out of which 74 towns are located on Ganga, 21 on Yamuna, 12 on the Damodar, six on the Godavari, nine on the Cauvery, four each on the Tungabhadra and Sutlej, three each on the Subarnarekha, Betwa, Wainganga, Brahmini, Chambal and Gomti, two on the Krishna and one each on the Sabarmati, Khan, Kshipra, Narmada and Mahanandi. This project was started with 100 per cent funding by the Centre. However, given resource constraints, states have to share 30 per cent of the cost during the Tenth Plan.

9.80 The scheme plans to tackle river pollution by setting up additional sewage treatment plants where there is a shortage, diverting raw sewage flowing in open drains to these plants, construction of low cost sanitation facilities to prevent open defecation on river banks, setting up crematoria (electric or improved wood based) etc.

9.81 The works under NRCP, including that of Ganga Phase-I, are expected to cost Rs. 3,780 crore. Till January 2002, Rs. 1,295 crore has been

spent on the scheme. About 45 per cent of the cleaning of the Ganga has been completed. However, overall progress is poor because of delays in land acquisition and slow pace of work by municipal corporations.

National Lake Conservation Plan

9.82 The National Lake Conservation Plan was initiated in 1994 for cleaning important urban lakes with high levels of silting and pollution. Initially, ten lakes were identified for coverage – Ooty, Kodai-kanal, Powai, Dal, Sukhna, Sagar, Nainital, Udaipur, Rabindra Sagar and Hussain Sagar. However, work has started on only one lake and project reports for three lakes namely Ooty, Powai and Kodaikanal have been prepared and approved till date. The progress regarding other lakes is extremely slow because of delays in the finalisation of detailed project (DPRs), tender procedures and award of contract. The progress of work on Dal Lake has been hampered by the delay in approval of the DPR by the State Government.

Grant For Common Effluent Treatment Plants

9.83 This is an ongoing scheme initiated in 1991 under which the Centre and States together provide 50 per cent grant for setting up of common effluent treatment plants for a cluster of small-scale industry (SSI) units. While the Centre and the States provide 25 per cent each of the cost of the plant, the SSI units contribute 20 per cent of the cost while financial institutions will provide the balance 30 per cent as a loan. The target of spending Rs. 21 crore during the Ninth Plan has been met.

Other Ongoing Schemes

9.84 A few other ongoing schemes are:

- Botanical and Zoological Survey of India.
- G.B. Pant Institute of Himalayas and Development.
- Biosphere Reserves - the scheme has been continuing since 1986 as a centrally sponsored scheme, which facilitates the conservation of

major bio-geographic zones. Fifty-two new research projects were sponsored during the Ninth Plan, involving an expenditure of Rs. 18 crore.

- Conservation and management of mangroves, which involved an expenditure of Rs. 14 crore during the Ninth Plan.
- Conservation and management of wetlands. The scheme attempts management and conservation of wetlands through catchment area treatment, water management, bio-diversity conservation and community participation. A sum of Rs. 15 crore has been spent during the Ninth Plan.

NEW INITIATIVES FOR TENTH PLAN

9.85 While the emphasis in the Tenth Plan would be on completing the ongoing schemes, the introduction of a few new programmes/schemes has been felt necessary. These are:

- The scope of the Common Effluent Treatment Plants scheme will be enhanced to cover assistance for modernisation and capacity expansion of existing plants.
- **Scheme with International Cooperation:** More number of new schemes would be taken up during the Tenth Plan under eco-restoration, watershed management, water and energy sectors, bio-diversity, climate change, ozone layer protection, land degradation etc. with the financial and technical help from India Canada Environment Facility (ICEF), Global Environment Facility (GEF), Indo-German Technical Cooperation etc. which are having schemes since Ninth Plan.
- **Schemes under the Clean Development Mechanism (CDM):** Direct measurement of temperature as well as other visible effect like rise in sea level has confirmed that a change in climate is taking place which is going beyond the normal limit of change and can be put under the category of *effectively* irreversible over the many human life times. The cause for this change is increase in six green house gases

(GHGs) in atmosphere and mainly over the last fifty years of the increased economic activities that have multiplied the consumption of fossil fuels many times. Most of the nations of the world (including India) have *ratified* the United Nations Framework Convention on Climate Change (UNFCCC), which aims to bring the GHGs level in atmosphere *back to the pre industrial era*. A legal instrument as *Kyoto Protocol* has been devised under which the developing countries would make commitments for reduction of 5% or more by 2012 of the their GHGs emission at 1990 level. This puts a cut of 20% from the present level of emission of the developing countries. The Kyoto Protocol has not been put into force as requisite number of ratification has not been made yet. Clean development mechanism (CDM), an offshoot, of the Protocol, however, has been put into force since November 2001 under Marrakech agreement. Under the CDM, developed countries having commitment of GHG reduction can get *credit* by investing in developing countries in schemes that would reduce GHGs emission like affore-estation, renewable energy sources, efficient conversion and utilisation of energy sources etc. Presently, Netherlands has shown interest in CDM projects in India. With Kyoto Protocol coming into force, more countries will like to take up CDM projects in the country.

- Six projects mainly of non-conventional energy sources having been selected for funding from Netherlands under the CDM.
- The State Of Environment Scheme: The central aim of the scheme is assessment of physical parameters, sensitisation of development planners and introduction of corrective measures in mainstreaming environmental concerns. State of Environment Report would be prepared for States/Union Territories.

9.86 An international quality Botanical garden is to be established in NOIDA, near Delhi, to conserve the endangered/ threatened plants of the country. Under the scheme of Assistance to Botanical gardens for ex-situ conservation of rare endemic plants' it is proposed to grant initial support

to identified organisations in areas where botanical gardens do not exist. These organisations would be given suitable land free of cost and must agree to maintain them for three years after setting up the botanical gardens.

- The thrust areas of the Zoological Survey of India during the Tenth Plan should include: exploration survey of state fauna (district wise), studies on selected eco systems of the Indian region, survey of conservation areas including tiger reserves, taxonomic studies of faunal components, status survey of endangered species, chromosome mapping and DNA fingerprinting.
- It is proposed to cover 30 identified mangrove and four coral reef areas for intensive conservation and management. Conservation and Management of Mangroves and Wetlands is an ongoing scheme and shall be strengthened in Tenth Plan by conservation and management through catchment area treatment, water management and bio-diversity conservation and community participation.
- Several initiatives were taken in the Coimbatore charter on Environment and forest in 2001 and resolutions adopted by the National River Conservation Authority (NRCA) in the tenth meeting for improving the sustainability of river and lake cleaning programmes.
- All major polluted rivers are targeted to be cleared by 2007. The focus would be given on cleaning of the river Ganga and its tributaries.
- A decentralised approach to sewage interception, diversion and treatment will be adopted as this would not only minimise the capital cost but also the operation and maintenance (O&M) work.
- Demonstration models are to be developed for total treatment and disposal of sewage in small colonies or housing societies.
- Root zone treatment/constructing wetland technologies would be promoted singly and in combination with other conventional methods. These are cost effective, low on O&M costs and are resource generating. This would also

help in improving flows in rivers during dry seasons.

- The non-point sources of pollution would be addressed more aggressively through the local municipal bodies.
- Treated sewage would be utilised for irrigation after disinfection wherever feasible.
- A more effective river front development approach would be adopted where extensive plantation of trees, shrubs or perennial grasses/reeds along both banks would be taken up. Planting of *Nirmali* is to be encouraged.
- Apart from the pollution control boards, universities and colleges would also be involved in monitoring the water quality in rivers and lakes.
- Projects would be approved only when there is a firm commitment on meeting O&M costs on the part of local bodies/State Governments.
- Institutional arrangements at the State level would be strengthened for effective and timely implementation of the programme.
- Assessment of minimum flow requirements in different rivers would be made and efforts would be made to ensure minimum flow regimes in critical stretches of all rivers.
- A legislation for a River Regulation Zone on the lines of Coastal Regulation Zone would be attempted.

THE PATH AHEAD

9.87 The major instrument with the State to check environmental degradation is undoubtedly regulation. The country has adopted almost all environmental protection Acts and rules enforced in developed countries. But environmental degradation continues despite the existence of a long-standing policy, and legal-cum-institutional framework for environmental protection. The need for reducing the gap between principle and practice, cannot be over-emphasised.

9.88 The environmental clearance of projects by SPCB takes sometimes a long time. There is a need for standardisation of procedure and setting of time frames.

9.89 For control of industrial pollution, limits on effluent discharge have been laid down. An economic instrument can also be introduced to force the industry to move towards zero discharge. Industry would pay higher penalty if its effluent discharge contains a higher level of pollutants.

Air pollution

9.90 The monitoring network needs to monitor more pollutants like RPM_{10} , $\text{RPM}_{2.5}$, O_3 , Pb, CO and hydro-carbons such as benzene and PAHs and should cover all class I cities after class I in the first phase.

9.91 Vehicular pollution control requires action on many fronts: fuel specifications to match engine technology, more checks on maintenance levels, curbing fuel adulteration, phasing out of two-stroke engines, greater promotion for the use of compressed natural gas (CNG)/liquefied petroleum gas (LPG)/battery operated vehicles

9.92 There is also a need to prevent burning of biomass, garbage or any other material, except approved fuel, in cities and towns to minimise secondary sources of air pollution. Aerosol has a significant effect on local weather.

Water pollution

9.93 The major bottleneck in the management of fresh water resources is the current complex institutional set up. As many as eight agencies are involved in collecting data and this results in duplication of effort.

9.94 A proper legal framework for regulating withdrawals of ground water is not in place. Though efforts have been made to check overexploitation of ground water through licensing, credit or electricity restrictions, these are directed only at the creation of wells. In any case, the licenses do not monitor or regulate the quantum of water extracted.

9.95 Most of the sewage treatment plants have not been commissioned for lack of electricity and manpower to run the machines. While municipalities should try to sell bio-sludge to farmers and also supply bio-gas as domestic or industrial fuel,

the receipts from these are not expected to be enough to meet the total running cost of the plant. In the event, municipalities have to bear a part of cost through raised sewage tax lest the investments made go to waste.

Solid Waste

9.96 The major reason for the poor solid waste management in cities is due to organisational inefficiency and lack of financial discipline within municipal bodies. Besides, there are policy gaps that need to be addressed. These relate to steps that would desist people from throwing garbage on the road. There is also need to stress segregation of garbage into non-biodegradable and biodegradables, etc. Segregation is the major step for viable utilisation of waste energy and recovery of recyclable materials. As transportation adds to the cost of handling of wastes, there is need to encourage decentralised waste management and set up decentralised sewage treatment plants. There is also need to use proper technology for digestors that would maximise recovery of biogas and would meet most of the running cost of the sewage treatment plants.

Climate Change

9.97 The problem of "Climate Change" is becoming a growing concern of the world community. Under Kyoto Protocol, developed countries would have to take *definite* commitment for reducing emission of GHGs during the first phase of the five years 2008-12. Developing countries are not required to take any commitment during this phase, however, under the Protocol all countries have to reduce emission of GHGs by making mitigation efforts like improving efficiency of energy conversion and utilisation, afforestation, stabilising population growth, limiting methane emissions through proper waste management and phasing out subsidies on power utilisation.

PLAN OUTLAY

9.98 An outlay of Rs 5945 crore has been fixed for Ministry of Environment & Forests in the Tenth Plan. The schemewise breakup of the Tenth Plan is given in the Appendix.

Annexure 9.1

Annual Plan Approved Outlay for Forestry and Wildlife Sector from 1997-2002

(Rs. crore)

States	Ninth Plan Outlay	1997-98	1998-99	1999-2000	2000-01	2001-02
Andhra Pradesh	179.13	64.81	98.00	110.58	88.74	92.11
Arunachal P	67.61	17.28	110.84	16.63	10.63	15.20
Assam	190.00	29.68	33.53	33.53	37.50	35.89
Bihar	269.45	20.15	20.00	12.00	6.88	2.35
Goa	17.00	2.21	2.20	2.40	3.05	
Gujarat	803.00	150.40	174.00	200.00	227.00	188.00
Haryana	218.70	35.26	50.04	40.30	29.60	32.30
H P	365.00	55.50	80.33	87.11	72.47	72.76
J & K	497.00	40.27	56.16	48.60	45.76	51.03
Karnataka	350.00	14.12	94.75	134.35	118.67	157.00
Kerala	141.00	27.00	44.00	69.00	75.00	42.00
Madhya Pradesh	447.09	129.74	121.07	142.89	50.57	60.55
Maharashtra	489.60	100.08	95.91	131.66	46.73	41.28
Manipur	41.40	5.35	4.50	4.60	2.20	3.67
Meghalaya	100.50	7.50	8.00	8.00	10.00	8.50
Mizoram	40.56	6.20	6.82	5.20	5.20	5.20
Nagaland	51.00	5.22	3.64	3.64	3.45	5.03
Orissa	122.75	20.30	23.56	29.77	36.22	25.56
Punjab	243.70	8.06	53.83	68.66	96.41	115.05
Rajasthan	549.85	94.21	118.68	164.35	62.96	53.13
Sikkim	40.00	4.25	4.85	5.50	5.85	
Tamil Nadu	600.00	94.67	125.28	121.18	137.71	151.63
Tripura	27.33	4.46	3.96	3.41	8.07	10.49
Uttar Pradesh	650.00	108.40	130.40	132.01	162.03	101.93
West Bengal	171.80	35.95	45.11	44.09	21.83	39.89
Chattisgarh						37.94
Jharkhand						81.75
Uttaranchal						105.73
Union Territories						
A&N Islands	61.00	8.00	9.72	11.00	11.00	11.90
Chandigarh	5.00	0.80	2.11	3.31	6.88	6.88
Dadra & N H	14.80	2.60	2.29	2.11	2.02	2.02
Daman & Diu	2.23	0.37	0.38	0.24	0.29	1.98
Delhi	35.00	3.02	5.00	10.00	7.00	
Lakshadweep	0.00	0.00	0.36	0.23	0.23	0.25
Pondicherry	559.00	1.08	1.08	1.08	1.08	1.18

CHAPTER -10

SCIENCE AND TECHNOLOGY

10.1 Science and technology (S&T) is widely recognised as an important tool for fostering and strengthening the economic and social development of the country. India has made significant progress in various spheres of science and technology over the years and can now take pride in having a strong network of S&T institutions, trained manpower and an innovative knowledge base. Given the rapid pace of globalisation, fast-depleting material resources, increasing competition among nations and the growing need to protect intellectual property, the importance of strengthening the knowledge base is an important issue that needs to be recognised during the Tenth Plan. Recognising the global economic order, the focus of the Tenth Plan in the science and technology sector would be to: strengthen application-oriented research and development (R&D) for technology generation; promote human resource development, especially in terms of encouraging bright students to take up science as a career; encourage research in and application of S&T for forecasting, prevention and mitigation of natural hazards; integrate the developments in science and technology with all spheres of national activities; and harness S&T for improving livelihood, employment generation; environment protection and ecological security.

APPROACH AND THRUST

10.2 Recognising that in the globally integrated knowledge-based world, the comparative advantage is shifting to those with the capability of absorbing, assimilating and adopting the spectacular developments in S&T for national development, the Tenth Plan will give a special thrust to the sector by leveraging the strong institutional framework built up in post-independent India.

10.3 The approach in the Tenth Plan would be to lay greater emphasis on the development of

indigenous technologies and focus on latest technologies available elsewhere. Significant efforts will be made in those areas where India has a competitive edge globally and where the benefits of S&T can percolate to people who have been denied these benefits so far. This will require emphasis on the development of innovative technologies to meet the country's needs and to preserve, protect and add value to indigenous resources and biodiversity and protect and preserve the country's rich traditional knowledge. Harnessing of the full range of technologies (traditional, conventional and modern) would go a long way in national development.

10.4 Indian exports today derive their competitive advantage on the basis of cheap labour and abundance of natural resources. The Indian export basket does not have a significant amount of technologically-intensive products. This situation needs to change. Therefore, emphasis would be on the export of high-tech products and export of technology.

10.5 The Tenth Plan will give high priority to technologies that are oriented towards human welfare. These include technologies that provide creative and cost-effective solutions in health services, population management, mitigating the effects of natural hazards, conservation of land, water and energy resources and their integrated management for sustainable development.

10.6 Human resource development in science and technology is an area of concern today. The declining popularity of science and the unwillingness among the youth to take up science as a career will jeopardise India's future. Imaginative and innovative programmes would need to be undertaken to attract the students to science and technology and enhance the number of young scientists.

10.7 Science is an endless frontier, a unique human activity without limits. During the Tenth Plan, massive support would be provided to basic research, especially in universities, so that India can contribute significantly towards advancing that frontier.

10.8 While building on the comparative advantage that India possess in the emerging areas of information technology (IT) and biotechnology, special attention would be given to agriculture and agro-based industries and infrastructure sectors like energy, transportation, communication and housing. S&T concerns will be integrated into various policies and programmes covering the economic, energy, environmental and other socio-economic sectors. This integration will be reflected in the identification of technological choices, the investments and the S&T interventions in the individual sectors. The approach will be to make S&T an essential component in the Plans and programmes of development sectors.

10.9 The following would be important focus areas during the Tenth Plan:

Interface Between Industry, R&D Institutions and Academia

10.10 S&T has enormous significance for economic growth at the macro level and for building business competitiveness at the micro level. Globalisation and liberalisation have thrown up immense opportunities and some challenges for S&T. In an increasingly competitive world, Indian industry needs the support of indigenous S&T in a big way. Over the past few years, it has been increasingly recognised that greater coordination and cooperation between industry on the one hand and the R&D/academic institutions on the other is necessary for facing these challenges and taking advantage of the opportunities offered.

10.11. At the macro level, S&T management should focus on meeting the needs of the nation (including industry), and encompass a wide spectrum of activities, namely basic research, applied research, technology transfer, design, development, fabrication, tests and trials, manufacturing, marketing, maintenance and product support during the life cycle. At the micro

level, R&D institutions and the academia must move from R&D to R&D and Engineering so that the indigenous technology can meet the specific requirements of the Indian industry.

10.12 In the present liberalised, competitive environment, industry should pay much more attention to the external sources of technology and upgrade its technology through quantum leaps in technological inputs. It should anticipate and take advantage of technological changes to develop new products. Customers' experiences and preferences may project new demands, which will stimulate the development of newer technologies. Technology management for industry can, thus, be viewed as a continuous process.

10.13 In order to strengthen the interface between industry–R&D–academia and to enhance the level of industry participation, appropriate steps need to be taken at various levels by all concerned — Government, industry associations, R&D institutions and universities. The awareness of mutual strengths and requirements would require measures like: joint workshops/seminars and exhibitions; promotion of sandwich programmes involving attachment of students to an industry during their academic stints; establishment of sustained one-to-one linkages between R&D/academic institutions and the industries located in a particular region; and setting up of accurate, up-to-date, reliable, realistic and user-friendly database on indigenous technological expertise/infrastructure, S&T personnel, R&D programmes, technological breakthroughs and innovations etc. Encouraging the mobility of S&T personnel between industry and R&D/academic institutions would also be a thrust area. Academic institutions and R&D laboratories also need to organise appropriate training programmes for industry personnel in order to cater to the specific requirement of industry. Policy, procedures and systems should be reformed to encourage the academic faculty to accept contract/collaborative research for industry.

10.14 Technology transfer to industry would be another thrust area. R&D/academic institutions should give appropriate importance to design and product engineering aspects, the application and constant upgrading of the technology to be transferred. Interaction with the industry should not

end with technology transfer but the agency providing the technology must constantly interact with the user industry for problem solving, technology absorption, and improvement/upgradation of the technology. Government and industry associations should work together for the establishment of independent test facilities for reliable quality-checks, calibration and also for technology validation. Establishment of Industry S&T Interface Institutions (ISTI), with technology management centres manned by qualified personnel, could also be considered, besides the establishment of S&T entrepreneurship parks, Technology Business Incubators, upgrading R&D infrastructure of the industry through consortiums of industry associations. Incentive/support measures would also need to be introduced for promoting the purchase of products developed through indigenous technologies.

Application of Science & Technology for the Society

10.15 There is an urgent need to make all-out efforts to ensure that appropriate research outputs, which can be put to use for the benefit of society, are generated and reach the people. It is, therefore, essential to evolve a mechanism and identify programmes for application of S&T for improving the quality of life of the people, particularly the weaker sections and women, for the development of rural areas to reduce regional imbalances and for inculcating scientific awareness among the masses. During the Tenth Plan, a mechanism would need to be instituted through which the scientific institutions/departments take stock each year of the industrial products developed and the impact of these on improvement in the quality of life in the rural areas, in terms of health and nutritional status, purchasing power potential and increasing knowledge and empowerment.

10.16 The S&T interventions must aim at providing simple, affordable scientific solutions, which help the individual save time and energy and augment income. The kind of technologies to be provided should be what people want rather than what someone else wants them to adopt. This approach would not only ensure acceptability of the technological innovations but would also help in inculcating a scientific temper amongst the masses.

Technologies that aim at value addition in the products of cottage/small scale industry can play a vital role in improving their competitiveness. Broadly speaking, S&T can play important role in reaching IT to the remotest parts of the country by emphasising on computer literacy, making it accessible even to those not having formal education. The 'problem population' can thus be converted into a valuable 'human resource' through activity-oriented training and skill improvement, helping to develop entrepreneurship and facilitating self-employment by using new technologies. For this, it is important to involve people by working on scientific and research-based solutions for their long-term problems like drought, epidemics, drinking water shortage, nutrition, sanitation, health, housing etc. and other day to day problems including shift towards non-conventional energy sources and product packaging.

10.17 It is also important to find ways of making people cultivate the habit of using natural resources like wood, bamboo, medicinal plants etc. more judiciously through application of environmentally-clean technologies. In order to measure the success of these endeavours, the Research Audit Cells (RACs) may be set up not only to judge the merit of the R&D endeavors but also to weigh the claims of the developing agency. In order to optimise the impact of R&D efforts, there is a need to introduce a network approach amongst the various agencies involved in R&D. Information dissemination on useful technologies needs to be strengthened and the concept of Common Facility Centres needs to be introduced for motivating people to use various technologies for their benefit and to provide necessary assistance to the user groups on new technologies. These centres, which may be located close to the user groups as permanent service institutions, are expected to maintain both forward and backward linkages and provide a link between the user and the S&T agency.

10.18 Special emphasis would be given to identifying, promoting and supporting grass root innovations, adding value to them and disseminating them to ensure that the impact of such innovations is reflected in improved prospects of livelihood of a large number of people. Efforts would be made to scout for advanced time and energy-saving tools/machineries and equipment available in other countries, their adaptation, motivation of

entrepreneurs to take up their manufacture and also encourage the innovators of advanced tools and equipments.

International Cooperation in S&T

10.19 International cooperation in science and technology is essentially a mechanism to enable interaction between scientific researchers to update and refine the knowledge base, develop advanced technology and to take mutual advantage of complementary scientific and technological capabilities. This helps in the creation of national science and technology assets through optimum utilisation of available resources. The aim is on building capability in terms of upgrading skills, modernisation of facilities and exchange of information. The thrust during the Tenth Plan would be on: participation in major international programmes; establishment of centres of excellence/international quality facilities by wooing non-resident Indian as well as foreign scientists to work in these institutions; intensification of cooperation with developing countries by offering fellowships to science and technology personnel from those countries to work and be trained in India; programmes for attracting talented young Indian researchers working abroad to work in Indian institutions or Swarnajayanti Fellowship, initiated in 1997; and also inviting foreign scientists to undertake research in Indian institutions and utilise international class facilities like the Giant Meter Radio Telescope in Pune, telescope facilities in Hanley in Ladakh etc. The Tenth Plan would also emphasise catalyzing technology development by establishing joint R&D centres for pre-commercial technology development; showcasing Indian expertise/technologies through exhibitions; integration of the S&T International Cooperation Programme with major national programmes like natural disaster mitigation, AIDS/cancer research, alternate energy sources, clean technologies; protection of intellectual property rights arising from joint research/cooperative projects; coordination of international S&T cooperation and management of the database/information system, enhancing S&T representation in Indian missions abroad etc. Some of the science and technology areas identified for international cooperation include: basic sciences, high performance ceramics, high performance polymers, nano-materials, nano-technology and

nano-electronics, sensors, manufacturing technology, bionics, development of coupled atmosphere-ocean models for extended range prediction/climate prediction, global networking for natural disaster management, functional genomics and proteomics, diagnostics and vaccine research, plant and agricultural biotechnology, technologies for exploration and exploitation of ocean resources, training of scientists/technologists from developing countries in coastal zone studies, research in the ocean atmosphere coupled models with advanced countries, science popularisation/communication (like the establishment of a Chair) etc.

Human Resource Development in Science and Technology

10.20 Although there has been a phenomenal growth in the number of universities and colleges imparting science education, there has been a consistent decline in the percentage of school students opting for science after passing the higher secondary examinations, from 32 per cent in 1950 to 15 per cent now. There has also been a marked change in the profile of students taking up the science stream. Today, high school students opting for science are often those with low scores while in the past, those with high scores would opt for science. Even the majority of the meritorious 150 students selected for the mathematics, physics, chemistry and biology Olympiads do not opt for careers in the sciences. The drop-out rate among the research fellows qualifying the National Entrance Test (NET) is also a fairly high 35 per cent.

10.21 Human resource/manpower development assumes a special significance in the process of developing technological innovations as well as implementation of new technologies and finding solutions to problems arising during the process of modernisation. It is also a measure of the strength of the country as it contributes to socio-economic development. Development of S&T manpower depends on the quality of higher education in science and technology. Considerable strengthening of the scientific and technical manpower will be needed with the liberalisation of the economy and the thrust on science and technology programmes. This would be done by selectively nurturing excellence in S&T education; identifying talented students and motivating them

to take up science and technology as a career; providing avenues and opportunities for those engaged in the science and technology field to update and enhance their knowledge and skills; devising strategies to retain the best talents in active scientific work and involve the corporate sector in science education and R&D. All this will be achieved through setting up of specialised science institutes as centres of excellence on par with the Indian Institutes of Technology (IITs) and Indian Institutes of Management (IIMs); adoption of at least one school and one undergraduate college by each national laboratory; attracting talented students to R&D through an assured career opportunity scheme; and upgrading the knowledge base of teachers through the concept of floating academics on a regional basis in new emerging areas like genomics, bio-informatics, conducting polymers etc. Other measures will include: liberalisation of travel grants for attending conferences/seminars abroad, co-joint appointments with universities abroad; getting the corporate sector to sponsor chairs in specialised institutes and to adopt a school or college; providing graduate-level and postgraduate-level merit scholarships/fellowships from a central fund for netting young talented scientists etc.

ACHIEVEMENTS DURING NINTH FIVE YEAR PLAN

10.22 Some of the significant achievements made by the Central S&T departments/ agencies during the Ninth Plan are:

Department of Space

10.23 The major thrust of the space programme during the Ninth Plan has been towards strengthening the space-based services for the country's socio-economic development. One of the major targets set for the Ninth Plan in the launch vehicle area was the development of the Geosynchronous Satellite Launch Vehicle (GSLV) towards achieving self-reliance in launching the Indian National Satellite System (INSAT) satellites. The activities in earth observation systems were oriented towards building state-of-the-art satellite systems configured for applications related to the management of land and ocean resources, addressing both emerging national needs as well as global service requirements. In the area of

satellite communication and meteorology, the efforts were directed towards augmenting the INSAT system with additional capacity and newer services through the development and launch of third generation INSAT satellites, based on demands voiced by the users. A number of studies and experiments were also planned in the areas of space science and environment. Besides, significant progress was made in the participation of industry, policy initiatives, international co-operation, commercialisation of space capabilities and human resource development.

10.24 The major milestones in the Indian Polar Satellite Launch Vehicle (PSLV) programme were the successful flight of PSLV-C1 on 29 September, 1997 carrying the Indian Remote Sensing Satellite (IRS), IRS-1D, into orbit, PSLV-C2 on 26 May, 1999 placing three satellites — Indian IRS-P4 (Oceansat) and two auxiliary foreign satellites TUBSAT (German) and KITSAT (Republic of Korea) — and PSLV-C3 on 22 October, 2001 carrying the Technology Experiment Satellite (TES) in addition to two foreign piggyback satellites like BIRD of Germany and PROBA of Belgium. All this strengthened India's capability to tap the vast global potential that exists in this field. The TES demonstrated advanced technologies for future high resolution imaging systems. The launch of IRS-P4 (Oceansat) has opened up new vistas for ocean development and coastal studies. The PSLV C2 and C3, apart from being commercial ventures, have established the multiple satellite and the multiple orbit launching capability of PSLV. The production of PSLV has now been taken up with substantial industry participation. Another major landmark in the Indian space programme was the successful launch of the first development flight, GSLV D1, carrying the Geo-stationary Satellite (GSAT) on 18 April, 2001. The GSLV project, with complex developments involving cryogenics, was a major step towards achieving self-reliance in launching the 2T INSAT type of satellite.

10.25 The launch of INSAT-2E, India's most advanced communication satellite, started in April 1999, INSAT-3B, the first in the third generation INSAT satellites, in March 2000 and the INSAT-3C in January, 2002 enhanced the capacity of INSAT's space segment for developmental and other applications like mobile communication

services. It also strengthened India's capability to successfully fabricate and operate the INSAT class of satellites.

10.26 The remote sensing applications have grown over the years to cover diverse themes as a part of the National Natural Resources Management System (NNRMS) for which the Department of Space is the nodal agency. The data from IRS satellites has played a vital role in implementing several national missions in key areas of social development. The network of international ground stations receiving the IRS data has been expanded with the addition of seven ground stations. Important applications of IRS data are in wasteland development; generation of developmental action plans for sustainable development for 175 problem districts; characterisation of the bio-diversity at landscape level in the bio-rich areas of the North Eastern Himalayas, Western Himalayas, Western Ghats and the Andaman and Nicobar Islands. Other applications include: landslide risk zoning using satellite maps along important tourist and pilgrim routes in Uttaranchal and Himachal Pradesh; national mission on drinking water; seasonal snowmelt runoff estimation; operationalisation of satellite remote sensing-based crop acreage and production estimation (CAPE). In addition, IRS data was also used in Coastal Regulation Zone (CRZ) mapping, environment impact analysis, wetland mapping, grassland mapping; disaster management support; forest cover mapping; drought monitoring; and flood monitoring, land use/land cover mapping; mineral targeting etc.

10.27 The INSAT, established in 1983 with the launch of INSAT-1B, is providing operational space services in the areas of telecommunication, television broadcasting and meteorology. INSAT-2E heralded new capabilities such as global beams and capacity lease to the international telecommunication organisation (INTELSAT). INSAT-2E is the most advanced satellite in INSAT-2 series and is a forerunner of the forthcoming INSAT-3 series. The INSAT-3B and INSAT-3C have augmented the private VSAT (very small aperture terminal) networks and the NICNET services. INSAT-3B provides fixed satellite services in extended C-band and Ku-bands and mobile satellite services in S-band. One of the transponders is also used for setting up the Education and

Training Network in Andhra Pradesh. Work on INSAT 3A, 3E and 3D are also in progress. With the growth in the INSAT system, the application services have also been expanded to include additional Doordarshan channels/regional services and news gathering services, expansion of the VSAT networks for remote rural communication and business communications and educational channels. The application services also cover communication services in strategic applications, developmental communication networks in different states, mobile satellite services, internet services, search and rescue services, VSAT services using C band and extended-C band, meteorological services and a host of other services. One of the important applications of the INSAT system has been the satellite-based interactive network for rural development. Towards this end, a pilot project to demonstrate the developmental communications and training for rural development in the Jhabua district of Madhya Pradesh, has been successfully completed. Other services introduced in the INSAT system relate to tele-medicine for remote and rural areas and flood forecasting through 100 real time hydro-meteorological data collection platforms.

10.28 Another important initiative of the Ninth Plan was the setting up of a North-Eastern Space Applications Centre (NE-SAC) at Shillong as an autonomous body under the Department of Space to provide access to high technology space infrastructure for focussed development activities of the north-eastern states.

10.29 In the area of international co-operation, the Department of Space has acquired a significant role as a result of the recognition by other countries of India's achievements in the areas of satellite technology, space applications and the operational capability to launch satellites. A significant event was India playing host to the second ministerial conference on space applications for sustainable development on behalf of the United Nations Economic and Social Commission for Asia and the Pacific (UN-ESCAP) in 1999. The conference adopted a Delhi Declaration which launched the second phase of ESCAP's regional space applications programme identifying common denominator projects under a minimum common programme of the region. At the initiative of UN, India has also established a Centre for Space

Science and Technology Education for Asia and the Pacific (CSSTE-AP) with a view to provide capacity- building opportunities in space science and technology for the countries in the region.

10.30 There has been significant progress in marketing of the space capabilities developed through the space programme. Two important achievements in this direction are the leasing of eleven 36MHz transponders on board INSAT-2E to INTELSAT and launching of four foreign satellites of Belgium, South Korea and Germany on board PSLV-C2/C3. Several other export contracts for providing space services and supply of space hardware have also been executed during the Plan period.

10.31 The Department of Space has also taken several policy initiatives. A policy framework for satellite communication in India including provisions for the use of INSAT capacity by the non-government sector and also provisions for the private sector to establish satellite systems has been approved by the Cabinet. A remote sensing data policy, taking cognizance of the issues relating to the availability of high resolution data for development purposes has also been drawn up. The Department is also working on the adoption of a map information policy with reference to the usage and digitisation of Survey of India toposheets. A National Spatial Data Infrastructure is also being conceptualised to provide access for the country's map information in computerised digital geographic information system (GIS) format to facilitate developmental planning and decision-making.

Department of Atomic Energy (R&D Sector)

10.32 The projects being pursued under the R&D sector of the Department of Atomic Energy (DAE) envisage comprehensive research in several areas related to nuclear energy and its applications. The programmes are being pursued by several constituent units and aided institutions. This sector provides much-needed research support to the peaceful applications of nuclear energy.

10.33 The nuclear power programme involves a long-term strategy for exploiting the indigenous nuclear fuel resources in the country. It consists of setting up of Pressurised Heavy Water Reactors

(PHWRs) in the first stage, Fast Breeder Reactors (FBRs) in the second stage and Thorium-Based Reactors in the third stage. The first stage is already in the commercial domain and has demonstrated excellence in performance standards. However, sustained R&D support to continually upgrade technology for safe operation at high capacity factors, life extension and further improvement of economic viability will be an ongoing programme. Investments made in R&D in this area have resulted in India mastering all aspects of this difficult technology and the power reactors and fuel cycle facilities are operating satisfactorily.

10.34 All the technology objectives of the Fast Breeder Test Reactor have been realised and the reactor is operating satisfactorily with its advanced plutonium-uranium carbide fuel, far exceeding its originally stipulated performance standards. The design of the 500 MWe Prototype Fast Breeder Reactor (PFBR) is progressing well.

10.35 The Bhabha Atomic Research Centre (BARC), Mumbai, has made good progress in the design and development of the Advanced Heavy Water Reactor (AHWR), which aims to utilise the country's vast thorium reserves. The design of this reactor incorporates advanced safety features. Various activities are being pursued to ensure the completion of the detailed project design report. As a part of setting up of a critical facility for AHWR and 500 MWe PHWRs, detailed design of various systems has been completed and preliminary safety analysis report has been prepared. Process design and detailed engineering for the Advanced Reactor Experimental Facility have been completed.

10.36 BARC has contributed significantly towards the development of several control and instrumentation systems for the nuclear power plants being set up by Nuclear Power Corporation of India Limited (NPCIL). Systems developed by BARC include programmable digital comparator system, dual processor hot stand-by process control system, dual processor hot stand-by reactor regulating system, channel temperature monitoring system, on-power fuelling control system, and supervisory control and data acquisition system (SCADA). BARC has handed over three channel inspection systems (BARCIS) to NPCIL for their field use and operators from the sites have been trained

to operate the system. The ANUPUM Supercomputer developed by BARC is being continuously upgraded.

10.37 In the area of technology development for recycling of nuclear waste, a facility for the separation of Uranium-233 from thorium and thorium targets irradiated in the Dhruva and Cirus reactors has been completed and is undergoing commissioning trials. A waste immobilisation plant at Trombay for the treatment and immobilisation of high level waste from the reprocessing plant at Trombay has been commissioned. Revamping and refurbishing of waste management facilities at Trombay, Tarapur and Kalpakkam has made significant progress.

10.38 Indigenous efforts for the design and development of turbo-expanders, helium compressor, cryo-heat-exchangers and simulation rigs, which are critical equipment for decontamination and upgrading of heavy water, are in various stages of progress. Construction of a desalination plant at Kalpakkam to demonstrate the feasibility of coupling a desalination plant with a nuclear reactor is progressing well.

10.39 The radiation technology applications include health-care, agriculture, food preservation, industry and research. Important programmes under health care include: setting up of a Radiation Medicine Centre (RMC) at BARC, which has become the nucleus for the growth of nuclear medicine in the country; comprehensive treatment for cancer and allied diseases at the Tata Memorial Centre, Mumbai; a Regional Radiation Medicine Centre at Kolkata as a part of the Variable Energy Cyclotron Centre (VECC); radiation detection interface and software to estimate the percentage of labeling of radio-pharmaceuticals at RMC; besides upgrading/modernisation of major equipments like magnetic resonance imaging (MRI), X-ray machines, mammography, orthopatograph and ultrasonography machines.

10.40 Application of radiation to agriculture has resulted in the release of 22 improved varieties of seeds. Of these, black gram (urad) accounts for 95 per cent of the cultivation of pulses in Maharashtra. Applications of radiation technology for industry

span a wide range including radiography, water hydrology, gamma scanning of process equipment, use of tracers to study sediment transport at ports and harbours, flow measurements etc. To enhance the analytical capabilities of the isotope hydrology laboratory, sophisticated instruments like computer-aided tomography facilities for advanced industrial non-destructive testing applications, isotope-processing facilities and shielded lead cell set up for development of radio-pharmaceuticals have been procured.

10.41 The areas that are receiving attention under technology development are lasers and accelerators. Besides the Synchrotron Radiation Source (SRS) Indus-1 at Centre for Advanced Technology (CAT), Indore, the second SRS, 2.2 GeV Indus-2, is being operationalised. In addition, few other accelerators are under development at CAT, which can be used for radiation processing of paper pulp, surface modifications, paint and resin curing and other industrial applications; and accelerators for radiation processing of agricultural products and sterilisation of the medical products. An Electron Beam (EB) Centre at Kharghar, Navi Mumbai is being set up in collaboration with the Society for Applied Microwave Electronic Engineering and Research (SAMEER) for further enhancement of facilities for the commercial application of EB irradiation. The heavy ion accelerator programme and the radioactive ion beam programme is also progressing well at VECC. The Laser Programme which has industrial and medical applications developed a surgical CO₂ laser system and a dozen of them have been supplied to various hospitals.

10.42 Important technologies transferred to other agencies include: development of finite element-based software package specially tailored to rotor dynamic analysis of turbo-pumps required for indigenous development of cryo-engines and Nickel-Titanium shape memory sleeves for the lightning insulator assembly for LCA; constricted arc plasma generator for testing strategic thermal protection systems for rocket motors and re-entry simulator devices; development of a pipe inspection gauge for monitoring the health of cross-country oil pipelines for Indian Oil Corporation etc.

Department of Biotechnology

10.43 The main thrust of the biotechnology programmes was on short-term and long-term research support for excellence, new products or processes, large-scale demonstrations, validation of R&D leads, involvement of user agencies and industries, technology development and transfer, innovations for patenting purposes and high quality research publications. Emphasis was also laid on establishing new centres of excellence, facilities, programme support in priority areas, expansion of bio-informatics network and human resource development. Efforts were made to ensure that biotechnology tools are utilised to harness the biological wealth for societal and economic benefit of the country on an environmentally sound basis. Some of the new initiatives in bio-technology research include: setting up of a national facility for virus diagnosis and quality control of plants raised by tissue culture; programme on genomics; bioprospecting of biological wealth; setting up of a Women's Biotechnology Park at Chennai; setting up of a Biovillage at Mocha at Porbandar in Gujarat; and setting up of a patent facilitating cell.

10.44 A major thrust has been given to product and process-oriented biotechnological R&D for application in agriculture, health sector and industry. Basic research was supported through R&D projects to develop expertise and understand basic biological processes for further applications in protein engineering, drug and molecular design, identified potential molecules for development of vaccines and diagnostics for infectious diseases. Some of the achievements in plant biotechnology are: the International Rice Genome Sequencing Programme; development of markers for high quality protein content; development of molecular methods for hybrid seed mustard; production of transgenic plants of tobacco with viral resistance etc.

10.45 Under the biofertilisers programme, technologies were transferred to four industries producing mycorrhizal and rhizobial biofertilisers for mass multiplication and distribution. Biopesticide formulation technologies have been transferred to the industry under the Integrated Pest Management programme.

10.46 In animal sciences, the embryo transfer technique in camels was standardised and a new protocol for camel superovulation was developed for the first time. Seven different types of transgenic mice carrying antibiotic markers, Hepatitis-B antigens, interleukin genes and other markers have been developed and a new rabies vaccine for animals has been produced and is being tested for technology transfer.

10.47 Considerable progress was made in the areas of bio-prospecting and molecular taxonomy, serbiotechnology, medicinal and aromatic plants, biodiversity conservation, medical and food biotechnology. Fourteen genetic clinics were established for providing molecular diagnosis and counselling for the common genetic disorders prevalent in the country. Powerful computational capability for handling large-scale human genome sequence data for functional genomics programme, robotic methodologies for genotyping and Polymerase Chain Reaction (PCR) based diagnostics for common genetic disorders have also been developed.

10.48 Four Jai Vigyan National S&T Missions in the areas of development of new generation vaccines, biotechnology for herbal product development, coffee improvement and establishment of mirror sites for genomics were launched. About 25 technologies have been transferred to different industries. These include, diagnostic kits for HIV, hepatitis, dengue, assessment of reproductive hormones, Japanese encephalitis, vaccines for leprosy, drug formulation for septic shock, plant tissue culture protocols, formulation of biofertilisers, high protein gene from *Amaranthus* and bioremediation technology for mine spoiled dumps and crude oil spillage.

10.49 Fifty five centres set up under the Bio-informatics Biotechnology Information System (BTIS) net and six interactive computer graphic facilities have continued to disseminate information to the researchers under the bioinformatics programme. The main focus of human resource development has been to generate highly trained scientists/students in large numbers through consolidation of 38 post-graduate, post-doctoral and one-year diploma courses and 19 additional courses including one-time support for strengthening post-graduate programmes.

10.50 Some significant contributions were made by the autonomous institutes in basic R&D of new products and technologies. At the National Institute of Immunology (NII), New Delhi, one Australian, two American and one Canadian patents were granted and a biosafety level-3 facility has been established. A number of studies conducted at National Centre for Cell Sciences (NCCS), Pune, on cell culture, tissue banking and engineering have resulted in the development of biocompatible synthetic matrices suitable for controlled drug release and immuno-isolation of islets and dermal equivalents for transplantation for burn patients. The Centre for DNA Finger-printing and Diagnostics (CDFD), Hyderabad, started a new born screening programme for diagnosing in born errors of metabolism. The National Brain Research Centre (NBRC), New Delhi, was established in 1999 with the main aim to undertake, aid, promote, guide and coordinate research in basic and clinical neuroscience. At the National Centre for Plant Genome Research (NCPGR), New Delhi, which started functioning from 1 April 1998, a novel gene has been used for generating transgenic plants of agronomic importance. The relevant technology has been transferred to Cadila Pharmaceuticals for industrial production of animal feed supplement.

10.51 During the Ninth Plan, the National Bioresource Development Board (NBDB) was set up under the chairmanship of the Minister of Science and Technology with the main objective of developing a policy framework for the effective application of biotechnological and related scientific approaches for R&D and sustainable utilisation of bioresources, especially for the development of new products and processes.

Department of Science and Technology

10.52 The activities of the Department of Science and Technology are primarily focussed towards scientific research, technology development, socio-economic development, scientific services, international cooperation and supporting autonomous S&T institutions.

10.53 Some of the major R&D programmes supported by the Department include: sub-Himalayan cenozoic sediment studies; macromolecular crystallography; bio-organic

chemistry; Raman spectroscopy study on strongly correlated systems; laser application in high resolution molecular spectroscopy; non-accelerated particle physics; etc. A programme on drug development was initiated for promoting collaborative R&D in drugs and pharmaceuticals involving national laboratories, industry and academic institutions. Thirty research projects relating to new chemical entities/formulations to treat diseases like cancer, arthritis, diarrhoea, gastritis, pancreatitis, tuberculosis, Hepatitis-B, rabies etc. were funded. Four national facilities for identification of the immuno-modulating potential of herbal products and extracts of natural origin, pharmacological testing, characterisation of crystals and medium throughput screening in different national laboratories were established.

10.54 Several major research facilities/centres of excellence and programmes were established during the Ninth Plan. These were: the National Centre for Computational Fluid Dynamics at IIT-Chennai; Technical Acoustics facility at the Indian Institute of Science (IISc), Bangalore; Laser Scanning Confocal Microscope Facility at the Banaras Hindu University (BHU), Varanasi; X-ray facility for Structural Biology at the IISc (along with DBT); National Single Crystal X-Ray Diffractometer Facility at the University of Hyderabad; cross flow turbine technology for microhydel application etc.

10.55 The Swarnajayanti Fellowships and the Kishore Vaigyanik Prothshahan Yojana were launched, with support from the IISc, IIT-Mumbai and the All India Institute of Medical Sciences, New Delhi. These programmes were aimed at encouraging young scientists, besides providing sophisticated analytical instruments such as ICP, WMR, EPR Mass Spectrometer XRD, TEM, SEM etc to the scientists from academic and research institutes and users from industries.

10.56 Technology development programmes have been pursued through the Technology Development Board, Technology Information Forecasting Assessment Council (TIFAC), New Delhi, and Advanced Research Centre, Hyderabad. The Technology Vision 2020 Reports published by TIFAC have, for the first time, documented new areas of S&T covering various science disciplines. Besides, it also released 31 reports on frontier

technologies like transgenic seeds, recombinant DNA products, bio-degradable plastics etc. TIFAC also facilitated networking of seven engineering/research institutions with high performance computing facilities for taking up selected technology demonstration projects.

10.57 Keeping in view the importance of protection of intellectual property rights in the globalised world, a Patent Facilitating Centre (PFC) was set up in 1995 which has helped in generating patent awareness. Under the Technopreneur Promotion Programme (TePP) started jointly by the DST, Department of Scientific and Industrial Research (DSIR), and TIFAC, several projects relating to zeolite-based catalytic converter, next generation membrane oxygenator etc. were supported.

10.58 Through the IS-STAC mechanism, 12 joint technology projects have been taken up in the areas of column flotation technology for ore beneficiation and pilot plant for enrichment of helium from hydrothermal sources etc. As a means of promoting S&T for socio-economic development, Rural Technology Parks have been set up in the northeastern region. A number of need-based S&T projects were supported in several places including hilly regions in the farm and non-farm sector. These covered areas like: inland aquaculture, sustainable agriculture, solar/bio-mass-based energy devices/systems, post harvest technologies, land-based activities, women's health, rural engineering etc. Three women's technology parks were also set up at Dehradun, Manipal and Barmer. A major breakthrough was achieved with the launching of a project on food security by installing a fish aggregation device in Andaman Island for the primitive tribal group.

10.59 Project-mode support to tackle state-specific problems was provided to the State S&T Councils. These projects related to: the problem of high mortality of broiler birds at Namakkal, Tamil Nadu; drying of large cardamom in Sikkim; documentation of medicinal plants in the Thar region of Rajasthan and in Madhya Pradesh; documentation of traditional fishing crafts and gears in Manipur; cultivation of ginseng by tissue culture technique in Manipur; use of hydrams for irrigation purpose in Himachal Pradesh; demonstration plants

for cupola furnace in Bihar and solar passive housing technology in Manipur.

10.60 Under the S&T Communication and Popularisation Programme, four National Children's Science Congress (NCSC) were organised. A television serial *Kudratnama* on science and technology was also telecast and video programmes on different scientific topics exhibited. Under the NRDMS programmes, 15 GIS database centres were set up, Planning Atlas for some districts of Gujarat was prepared and coordinated programmes for ground water modeling, coastal zone management and conservation, and bio-geo database and ecological modeling were taken up.

10.61 Since the DST is a nodal department for international S&T cooperation, several programmes were undertaken in this area. These include: setting up of an Indo-US S&T Forum; launching of the Department of Science and Technology-National Science Foundation (DST-NSF) programme from 1999; supporting technology-oriented projects on surface engineering of components; steel for automobiles; special plastics processing and pharmaceuticals development under an Indo-German programme; and DST-DAAD project-based Personnel exchange Programme. In addition, several joint projects in the fields of advanced materials and manufacturing technologies, information technology etc. were taken up. Agreements were also concluded with the Third World Academy of Sciences (TWAS) and International Centre for Theoretical Physics (ICTP).

10.62 Scientific services in the areas of meteorology, survey and mapping have been provided to the user agencies through the Indian Meteorological Department (IMD), Survey of India (SOI), Dehradun, National Atlas and Thematic Mapping Organisation (NATMO), Kolkata and the National Centre for Medium Range Weather Forecasting (NCMRWF), New Delhi. Significant achievements of the IMD are: commissioning of two Doppler Radars at Chennai and Kolkata; installation of 10 High Wind Speed Recorders; Cyclone Warning Dissemination Systems; Current Weather Instrument System at the Ahmedabad and Guwahati airports; new instrument for measuring Runway Visual Range at the New Delhi and Kolkata airports; upgrading of the seismological network

through the establishment of a National Seismological Data Centre at New Delhi, which is connected online to the Global Seismological Network. In view of modern technologies and multi-disciplinary approach being adopted in the planning process, the SOI introduced digital cartography techniques in its circles and units to create Digital Cartographic Data Bases (DCDBs) from the topographical maps.

10.63 Thirteen DST-aided autonomous institutions continued their research activities and transfer of technologies to industries. Significant achievement of these institutions include: development of a folion spray beneficial to crop yield; development of laboratory-scale process for microbial detoxification of cyanide and metal-cyanide complexes; nano-structured semiconductor and CMR materials and devices; and establishment of the world's highest observatory for optical astronomy in the Himalayas. Professional science academies continued their efforts in promoting scientific activities such as publication and communication programmes in S&T and promotion of engineering education and research.

Department of Scientific and Industrial Research (DSIR) including Council of Scientific and Industrial Research (CSIR)

10.64 The DSIR has been providing project-based support to industries under the Programme Aimed at Technological Self Reliance (PATSER) for the development and demonstration of indigenous technologies. Thirty-five technology development and demonstration projects were completed in the Ninth Plan in the areas of digested organic supplement from agriculture waste, earth moving machinery, cold rolling mill, ginger oil-based on green ginger, upgradation of technology for solar photovoltaic cells, interactive voice response system, nuclear-based moisture and density gauge etc. These resulted in the commercialisation of products and processes and led to the filing of 20 patents. Thirty projects were taken up jointly with the DST under the TePP. In addition, recognition was given to 249 newly announced R&D units in industry and 104 non-commercial Scientific and Industrial Research Organisations (SIROs). Other activities of the DSIR included: publication of 50 quarterly newsletters and organising the annual

national conference on in-house R&D in industry. The National Research Development Corporation (NRDC), New Delhi, continued its efforts on development and transfer of indigenous technology through invention and promotion programmes, particularly in the areas of biodegradable plastics, rice husk particle board, glucose bio-sensor, spirulina algae, glycol-based anti-freeze coolant, manufacture of shrimp food, etc. Central Electronics Ltd. (CEL), Sahibabad, was engaged in the development of technologies in the areas of solar photovoltaics, high throughput aluminium metallisation of Ultra High Efficiency (UHE) solar cells, switched mode power plant, new ferrite technology etc. The National Information System for Science & Technology (NISSAT) was further strengthened through sectoral information centres on food, drugs and pharmaceuticals, chemicals and textiles; setting up of the Value Added Patent Information System (VAPIS), and launching of 100 short-term courses on information science and technology.

Council of Scientific & Industrial Research (CSIR)

10.65 As a premier national R&D organisation, CSIR continued to provide through its 40 laboratories and 80 field centres, valuable scientific and industrial R&D not only for India's sustained development but also for meeting its strategic needs. Implementation of various programmes in the CSIR was done in accordance with a white paper on Vision 2001 and CSIR's mission statement that seeks to provide scientific industrial R&D to maximise economic, environmental and societal benefits. The important organisational reforms envisaged by CSIR are: organisational restructuring to enable CSIR to be more responsive to the customer and the market; linking R&D to the market place through alliances and networking; stimulating intellectual property management, both within the CSIR and outside; investing in select high quality science; and refurbishing the ageing human capital.

10.66 The broad achievements of CSIR include: the total external cash-flow for the 1997-2001 period crossed Rs. 1,000 crore and this catalysed industrial production to the tune of over Rs. 17,000 crore; filing of nearly 1,400 Indian patents and 650 foreign

patents and increasing the impact factor per research paper from 1.26 to 1.552.

10.67 The Ninth Plan programmes/activities of the CSIR were implemented in 16 broad sectors. These were: aerospace; biology and biotechnology; chemicals; drugs and pharmaceuticals; earth resources and natural hazards mitigation; ecology and environment; electronics and instrumentation; energy; food and food processing; housing and construction; information products; leather; machinery and equipment; minerals, metals and materials; rural development; and exports of R&D and services. Some of the significant achievements of CSIR in these sectors are: design fabrication and air worthiness testing of a 9-14 seater light transport aircraft; certification of the two-seater trainer aircraft – HANSA-3 designed and built by National Aerospace Laboratory (NAL), Bangalore, and commencement of commercial production. Other programmes were: development of several new products and processes like a versatile universal polymer support; a promising genotype of *Mentha arvensis* through cross-pollination of Gomti and Kalka varieties and its release for commercial cultivation; a new strain of *Withania* (Ashwagandha), yielding about 14 quintals of dry roots/hectare; catalyst-free esterification and transesterification of vegetable oils for the preparation of lubricants; mini refineries with capacities varying from 0.5 to 2.0 million tonnes per annum (MTPA) and self-contained, skid mounted, low cost and low maintenance units congenial for installation in any location. Other achievements were: a new anti-malarial drug (EMAL) and a new drug, Ablaquin for treatment of recurring malaria, now being manufactured and marketed by Nicholas Piramal India Ltd., Mumbai; Chamber Ventillation Technique using injection of high-pressure, highly stable nitrogen foam for the control of fires in the long wall panels in mines which was successfully used in putting out the fires in Jharia, Bihar; cokeless cupola, replacing coke by natural gas fuel in foundries and reducing the emissions of polluting gases; process for treatment of paper mill effluent water to separate the lignin; fluorescence-based prototype kit for detection of adulteration of mustard oil; a high quality synthesis system useful for the visually handicapped persons as a 'reading' machine as well as for information retrieval in railways/airlines/tourism industry and

toys with voice synthesis; a technology for the display of vital flight parameters at about the pilot's eye level; an eco-friendly mining method known as wide stall mining without stowing, for optimal recovery of coal; a simple retrofit technology for conversion of two-stroke engines of petrol/diesel run three-wheelers to CNG-operable engines; pre-harvest and post-harvest technologies for export of mango, litchi, strawberry, guava and grapes; controlled/modified atmosphere storage of fruits and vegetables; process for extraction of ginger oil from fresh ginger; alternate building materials which utilise wastes and economise on energy and are eco-friendly; an Interlocking Concrete Block (ICB) pavement technique for special locations such as bus or container terminals, industrial roads, snow-bound regions as well as for rehabilitation of old concrete surfacing; powder x-ray diffractometer; an environment-friendly process for manufacture of synthetic rutile; a high homogeneity superconducting magnet with superconducting shims for radial and axial field corrections suitable for NMR spectrometer application; and a low cost online water purification system. A centralised unit for R&D on information products was also set up to convert the dispersed and non-digital databases of CSIR to merchandisable information products. In addition, a major coordinated drugs and pharmaceutical programme was mounted for the development and commercialisation of bioactive molecules that which will help to put in place state-of-art expertise and facilities for new drug design.

10.68 One of the important activities undertaken by the CSIR was the modernisation of various national laboratories by introducing some state-of-the-art instrumentation facilities. An important contribution made by CSIR under the S&T-HRD scheme was to foster, sustain and upgrade the stock of the highly specialised scientists, engineers and technologists required for R&D. The scheme has provided support to the academic community for research schemes, award of fellowships/scholarships and scientists' pool placement.

Department of Ocean Development

10.69 The programmes and activities undertaken by the Department of Ocean Development during the Ninth Plan relate to sustainable and environment-friendly exploration and utilisation of

marine resources, both living and non-living. With a view to promoting polar science and as a treaty obligation, scientific expeditions to the Antarctica were undertaken on an annual basis. The activities undertaken during these expeditions included: commissioning of three component seismometer that recorded 360 seismic events; trial test of fuel cells and wind energy audit for application studies; mapping of seasonal variation of geomagnetic field and total magnetic field intensity; installation of two remote Automatic Weather Stations which recorded various surface energy flux; establishment of a permanent Global Positioning System (GPS) station; and a permanent environmental lab at Maitri.

10.70 Under the Drugs from Sea programme, six organisms possessing anti-diabetic, anti-diarrhoeal, anti-hyperlipidaemic, anti-anxiety, anti-cholesterol, anti-bacterial and larvicidal properties were identified and 84 compounds having interesting biological activity and novel chemical structure were isolated. The activities under marine living resources programme include: acquisition of benchmark data on marine benthos in the shelf waters of India to undertake studies on the impact of bottom trawling on marine benthos. Systematic collection of environment and productivity data of the exclusive economic zone for summer, winter and inter-monsoon periods was also undertaken for possible correlations with fluctuations in the availability and distribution of living resources.

10.71 Survey and exploration in the Central Indian Ocean Basin (CIOB) mine site was continued for re-validation of relative concentration and quality characteristics of polymetallic nodules in different pre-determined blocks. As a part of its obligation as a pioneer investor, the Department relinquished 30 per cent of the allocated 1,50,000 sq. km. area to the International Sea Bed Authority (ISBA). An environmental impact assessment study was carried out at CIOB and the impact of disturbance in the test and reference site is being monitored periodically to ascertain the recolonisation effect of the benthic organism on the basis of the benthic disturbance.

10.72 As part of technology development for mining, demonstration of shallow bed mining technology at a depth of 420 m in open sea off

Tuticorin was conducted in March 2000 in which slurry was pumped. An improved Remotely Operated Vehicle (ROV) system is also ready for test in waters upto 250 meters depth. The ROV is capable of inspecting underwater structures, pipelines, sampling etc. As a part of technology development for extractive metallurgy, a demonstration pilot plant was set up with a capacity of 500 kg/day. In order to revalidate the laboratory scale process package, demonstration campaigns were carried out at Regional Research Laboratory (RRL), Bhubneshwar and BARC.

10.73 Processing of data from the National Marine Data Centre on marine pollution at the Mumbai regional centre of the National Institute of Oceanography, Goa, was undertaken under the coastal and marine area management programme and the information was disseminated to the Pollution Control Boards whenever necessary. Under the Integrated Coastal and Marine Area Management (ICMAM) programme, GIS-based critical habitat information system was developed for the Pichavaram mangroves, Gulf of Mannar, and Kadamat, Malvan and Gahirmata (Lakshadweep) and environment impact assessment guidelines were formulated for major coastal developmental activities and processes like construction of ports and harbours. In addition, assimilative capacity was determined for the Tapi estuary in Gujarat and Ennore creek near Chennai in Tamil Nadu.

10.74 Ocean Observation and Information Services were carried out by deploying the moored buoys, drifting buoys, current meter arrays for undertaking studies on oceanographic processes and validation of satellite data. An autonomous centre, the Indian National Centre for Ocean Information Services (INCOIS), was established at Hyderabad to cater to the need for generating and disseminating quality data and data products. Fifty units of Integrated Fish Finder cum Navigation Guidance System (IFFNGS) were distributed in West Bengal, Orissa, Maharashtra, Pondicherry, Andaman and Nicobar Islands, Gujarat and Lakshadweep under the Coastal Community Programmes (Societal Programmes). These programmes were taken up by the Department of Ocean Development for locating fishing shoals and the position of fishing vessels in the sea. The Potential Fishing Zone (PFZ) advisories were also

generated regularly and disseminated on a bi-weekly basis. The Department has also been assisting various institutions and universities to create infrastructure facilities, taking up research and building up a skilled human resource base in marine sciences.

10.75 The National Institute of Ocean Technology (NIOT), Chennai, completed the testing of a OTEC pilot plant of a capacity of 1 MW, undertook the work on design and manufacture of an underwater thruster of 800 W power rating and 140 mm diameter for operations at 1,000 metre depth and an underwater connector suitable for operations at 1,000 metre depth in coastal and environmental engineering. It also took up indigenous development of instruments/hardware for marine and oceanographic use. To create ocean awareness among the public, the Department participated in a number of fairs/exhibitions and funded various seminars, conferences, workshops etc.

10.76 Several activities were undertaken to promote international cooperation and fulfill international obligation. India participated in meetings of the International Seabed Authority and the Antarctic Treaty Consultative Committee. It also participated in the programmes of the Commission on Conservation of Antarctic Marine Living Resources, Scientific Committee on Antarctic Research, International Oceanographic Commission, Regional Seas and Independent World Commission on Oceans. In addition, it signed MoUs with a number of bilateral organisations for undertaking joint ocean-related programmes. The Department's efforts lead to the International Seabed Authority finally approving India's application for work for the exploration of polymetallic nodules in the pioneer area.

TENTH FIVE YEAR PLAN PROGRAMMES

10.77 In order to achieve the goals envisaged for the Tenth Plan, efforts would be made to build upon the strengths of the country's S&T system and address its weaknesses. While the S&T system is robust and has a graded organisational structure, lack of linkages with industry has resulted in R&D being largely academic in nature, with very few applications and very little commercialisation and

patenting. Although the S&T infrastructure facilities in strategic areas as well as areas of basic sciences have been strengthened significantly over the years, it is not robust enough to take on the national challenges in some of the key areas. There is also the problem of obsolescence in a large number of our research laboratories and academic institutions, since the scientific instruments are changing at a very fast pace and have a much shorter shelf life. India has also demonstrated its strength in several areas of R&D which has led to the country achieving self-sufficiency in food grain production; eradication of communicable diseases like small pox and plague, substantial decrease in the infant mortality rate and increase in life expectancy; and the development of indigenous technologies and their commercialisation particularly in health, engineering, drugs, agriculture, electrical systems; etc. In the strategic sectors, India has demonstrated its capability to build and operate nuclear reactors, including FBRs, build and launch satellites including cryogenic technology for GSLV, and application of space technology for resource management, meteorological services etc. India has also emerged as a significant basic research power, with world-class scientists in almost all areas of basic research, a fact that is reflected in the quality and number of publications. Our scientists have built world-class facilities like Giant Metre Wave Radio Telescope (GMRT), Variable Energy Cyclotron, Synchrotron Radiation Sources etc. and are also in the process of building superconducting cyclotron and a superconducting steady state Tokamak. At the international level, India is now participating as an equal partner in several front-ranking experiments like the compact mono solenoid (CMS) experiment and a large ion collider experiment (ALICE) experiment at European Organisation for Nuclear research, CERN, Geneva, experiments at Fermilab in the United States and RIKEN and KEK in Japan etc. However, India's strength in R&D has not translated into commensurate benefits for society due to lack of a sufficient number of competent scientists working in the areas of technological innovation and commercialisation. Barring some landmarks like GMRT and developments in the strategic sectors, the instrumentation activities, particularly machineries and equipment, have been declining. India's failure to compete technologically with the developed world has resulted in outright

import of machineries and equipment. Further, the Government has so far been the main source of funding S&T activities in the country. This needs to be significantly supplemented by the industry. Therefore, the focus during the Tenth Plan would be on important areas of basic research, technology development, demonstration and dissemination including strengthening and creation of infrastructural facilities, development of skilled and trained manpower and providing technology for societal benefits in the fields of space sciences, nuclear sciences, ocean sciences, biotechnology, scientific and industrial research and science and technology. The Salient features of the thrust of the Tenth Plan and related programmes in each of these sectors are:

Space Science

10.78 The primary objective of the space programme has been to establish operational space services in a self-reliant manner in the areas of satellite communications; satellite-based information for the management of natural resources and meteorological applications through indigenous development of satellites, launch vehicles and associated ground segment. The thrust will be on the development of space technology and large-scale applications of this technology in priority areas to act as a catalyst for economic development, a tool for enhancing the quality of human resources and to strengthen national security. Technology advancement, which is essential to maintain competitive relevance, will be an important thrust area for future space endeavours. Considering the expected multi-fold increases in the demand for space services in the years to come, concerted efforts will be planned to identify and develop industries to meet the production capacity requirements. Suitable policy initiatives would be taken to promote industry participation in the space programme. The focus will be to substantially enhance the participation of industries from a mere fabrication/production function to assembly and testing at system/subsystem level with the overall goal of realising the 'produced, tested and accepted' space systems and services from industry in a 'ready-to-use' condition. The remote sensing applications have grown to cover diverse themes as a part of the NNRMS and the data from IRS satellites have

played a vital role in implementing several national missions in key areas of social development.

10.79 With the broad vision of developing India as a leader in space technologies, the overall direction of the Space Programme, formulated within the framework of a Ten Year Profile (2001-2010), will be to consolidate the gains and build upon the achievements of the Ninth Plan. The major goals set by the Department of Space for the Tenth Plan are: to acquire new capabilities for space communications by positioning Indian satellite systems – GRAMSAT and INSAT networks – for operational services; to maintain leadership in earth observations by positioning earth observation infrastructure to meet the national imaging demands and supporting the NNRMS and Disaster Management Support (DMS). The other areas of action will be developmental activities and improved weather and ocean state forecasting; major thrust for space transportation by regular production of PSLV, operationalising GSLV, upgrading launch capabilities and undertaking major R&D leading to future generation vehicles; to encourage space science enterprise by mobilising high quality scientific groups for advanced space science endeavours; to encourage spin-offs in human resource development and with industry and international partnerships.

10.80 The major objective of the satellite communications programme would be to develop a self-sustaining satellite-based communication network : GRAMSAT programme - for developmental communications, e-governance, tele-medicine, tele-education and rural development with the involvement of state governments and non-government organisations (NGOs). The INSAT system has five satellites — INSAT-2C, 2DT, 2E, 3B and 3C. With INSAT-2C and 2DT reaching the end of their life in 2002, INSAT- 3A and 3E are planned for launch in 2002-03. Thus, by the first year of the Tenth plan (2002-03), it is expected that INSAT-2E, INSAT-3B, 3C, 3A and 3E will be in service and remain operational throughout the Plan period. Together, they will provide a total capacity of 116 transponders. The fourth generation INSAT-4 satellite series, with a total capacity of 142 transponders, has been planned to meet the capacity and service requirements projected for the Tenth Plan. One of the primary considerations in

configuring the INSAT-4 has been the planned availability of GSLV Mk II with a lift-off capability of 2T satellite by 2003-04.

10.81 The meteorological services provided by the INSAT system are planned to be substantially enhanced with improved/new payloads as well as through establishment of dedicated meteorological satellites, METSATs. To provide backup for the crucial meteorological segment of INSAT, the first satellite, METSAT-1, carrying a Very High Resolution Radiometer (VHRR) and Data Relay Transponder (DRT) is planned for launch on board PSLV. The METSAT-2 satellite, carrying VHRR and DRT, is planned for launch on PSLV during 2004-05. This will also eventually be a replacement for METSAT-1. The other communication satellites that are scheduled to be launched during the Tenth Plan are: GSAT-3, GSAT-4 and Advanced Communication Satellite.

10.82 Within the framework of the long-term vision, the Indian Earth Observation Programme will continue to serve as the mainstay of the NNRMS. A disaster management support programme drawn up by the Indian Space Research Organisation (ISRO)/Department of Space will be implemented during the Tenth Plan. The programme, with special focus on the northeastern region involves: mapping and monitoring support; creation of thematic and cartographic information database for flood-prone and cyclone-prone areas and ortho-photomaps of earthquake-prone areas; demonstration of the applicability of GIS-based decision support system for disaster management; infrastructure, including networking facilities; R&D support etc.

10.83 Based on the launch vehicle requirement scenario and the long-term vision of the space transportation system, programmatic targets have been set. PSLV would remain the workhorse vehicle for earth observation and space science and meteorology satellites. The development flights and operationalisation of GSLV (Mk I and II) with indigenous cryo stage and the establishment of second launch pad at Sriharikota Range (SHAR) will be completed. The development of GSLV Mk III will be an important thrust area. It is also proposed to develop the critical technology base related to the Recoverable Launch Vehicle (RLV)

and realisation of the proto unit of RLV technology demonstrator.

10.84 While bilateral and multilateral efforts to pursue international cooperation will continue, the major thrust will be on: space mission operations, meteorology, environment and humanitarian services such as Megha Tropiques; a cooperative satellite mission with Synthetic Aperture Radar; international charter on Space Disaster Management Support, Global Observing Strategy, Global Precipitation Mission etc.

10.85 Another thrust area would be organisational development and human resources. These would relate to: consolidation of core competences and enhanced outsourcing; reorientation of administrative systems and efficiency improvement; motivation, improving morale and maintaining organisational health; succession planning through induction and retention of talent; learning and knowledge management etc.

10.86 The major identified mission mode programmes would include: operationalisation of NNRMS, technology development for future generation launch vehicle, development of all-weather remote sensing technology, and application of space technology in education and health.

Nuclear Science

10.87 Nuclear science involves a chain of activities viz. research, development, demonstration and deployment of technologies, which has been a crucial factor in building a self-reliant capability in all aspects of the nuclear fuel cycle. Concerted efforts have been made in the field of nuclear science to carry forward the developments in advanced technologies in order to insulate the country from technology denial regimes. Since energy security is important for economic as well as strategic reasons, thorium-based nuclear energy systems will have to be a major component of the Indian energy mix in the longterm. Realising that India has to be in the lead in the development and deployment of thorium utilisation technologies, the future policy of the Department of Atomic Energy will be to build a strong indigenous R&D infrastructure as well as to marshal the trained scientific and engineering manpower in their future programmes.

10.88 India is pursuing a three-stage nuclear power programme which has been formulated to provide long-term energy security based on indigenous nuclear fuel resources. The programme envisages a closed fuel cycle involving reprocessing of the spent fuel to separate the fissile fuel for recycling. The focus would be on R&D to ensure that the technology does not become obsolete, the safety and economic competitiveness of nuclear power is continually improved, and capacity utilisation is maximised. Technology for the fuel cycle needs to be pursued along with the nuclear reactor technology with the objectives of: improvement in the existing technology for the enhancement in process performance; development of cross-cut technologies to merge nuclear reprocessing and waste management; development of new process and technologies to cater to the programmes involving FBR and AHWR fuel cycles etc. In addition, health, safety and environment programmes form an integral component of the entire spectrum of activities in the nuclear fuel cycle.

10.89 The Tenth Plan objectives in the field of nuclear sciences include: utilisation of thorium as fuel on a commercial scale; large-scale deployment of nuclear power; improving cost-efficiency as compared to alternate options for energy generation; attaining higher levels of safety through utilisation of inherent and passive safety features; utilising the proliferation resistant potential of the thorium fuel cycle to the fullest extent. It will also attempt to provide for adaptability to non-electrical applications, particularly desalination and high temperature processing applications, including those for generation of non-fossil fluid fuels.. Emphasis would also be laid on basic research in nuclear sciences and allied areas. This would cover frontier areas in physics (condensed matter physics, nuclear physics, plasma physics, astrophysics, accelerator and laser physics); in chemistry (radiation and photo-chemistry, laser chemistry, interfacial chemistry and chemical dynamics); in biology (molecular biology, radiation biology, genetics, cancer research); in agricultural sciences and food technology; and in mathematical and computer sciences. The radiation technology applications programme will continue to develop research reactors, accelerators and lasers and other advanced technologies. Important mission mode

programmes would be identified in some of these areas. Recognising the long-term strategic necessity of ensuring the availability of adequate and quality human resource, emphasis would be laid on research-education linkages and evolving a mechanism to facilitate large-scale deployment of applications, especially in agriculture.

10.90 The first stage of the nuclear power programme started with the indigenous development of nuclear power plants based on uranium cycle in PHWRs. In the case of operating plants, continuing R&D will be deployed in some areas like ageing management, life extension, in-service-inspection, repair technologies which can carry all jobs remotely with minimum man-rem consumption and also in other programmes like progressive introduction of MOX fuel in the reactors at Tarapur. Technology for the front end and the back-end of the fuel cycle also will be pursued hand in hand with the nuclear reactor technology.

10.91 The second stage started with the FBR Programme at Indira Gandhi Centre for Atomic Research (IGCAR), Kalpakkam utilising plutonium-based fuel. Improvements and upgradation in the technology will be an important part of the programme in the coming years. For irradiation of fuel and structural materials to be used in the fast reactors, various projects are to be pursued in the areas of physics and shielding, chemistry, materials, thermal hydraulics, structural mechanics, component development, fuel development, in-service-inspection, instrumentation and control and fuel cycle.

10.92 The third stage pertains to designing and developing advanced nuclear power systems that will utilise the plutonium resources in an optimum way to maximise conversion of thorium to ^{233}U , extract power in-situ from the thorium fuel, and recycle the bred ^{233}U in future reactors.

10.93 Keeping the objectives and the current international trends in nuclear technology in view, a roadmap has been drawn up for the third stage of the nuclear power programme. This involves four steps viz., development of AHWR for utilising thorium for commercial power generation; design and development of high temperature reactor-based power packs, mainly for process heat and non grid-

based electricity generation applications; Accelerator Driven Sub-critical Systems (ADS) to produce several times more electrical energy than that required to run the accelerator; and accelerator-driven system with a fast reactor sub-critical core, together with a mainly thorium-fuelled thermal core somewhat similar to that present in the AHWR.

10.94 Under the radiation technology application programme, one of the major activities to be initiated is the setting up of a research reactor for isotope production and associated isotope processing facilities at a new campus to be set up for BARC. Development of technologies for desalination will be given further impetus. Efforts to develop technologies for the production of strategic materials in the country will be intensified. The DAE will also initiate projects around all its installations for the deployment of technologies. Some examples are: farming for the production of breeder seeds using mutants developed by BARC; setting up of laboratory facilities for the production of saplings by tissue culture techniques for distribution to farmers in the area; any other technology which could provide improved means of livelihood to the people. For this purpose, land around nuclear installations will be utilised with the farmers and the DAE scientists working together.

10.95 The important mission mode programmes would be relating to the development of technology for utilisation of thorium, water desalination, nuclear medicine, and application of irradiation technology for farm products.

Ocean Science

10.96 The ocean science programmes in the Tenth Plan would be in the areas of exploratory survey, assessment and sustainable utilisation/harnessing of the ocean resources (living and non-living) and renewable sources of ocean energy and technological advances geared towards the protection and preservation of the marine environment. Other programmes would cover development of technology relating to instrumentation, diving systems, position fixing, materials development, oceanic data collection devices, submersibles, etc.; developmental activities related to integrated coastal and marine area management, coastal community

development, etc.; establishment of an ocean-related information system; international co-operation in ocean science and technology; development of technologies relating to seabed mining, extractive metallurgy and conducting environmental impact assessment studies. In addition, strengthening of front-ranking research in polar sciences through Antarctica expeditions; basic and applied research in ocean science and technology; human resource management; creation of centres of excellence in academic institutions; and public awareness on the potential uses of ocean would also be taken up. Drugs from the sea programme would be directed towards product development, commercialisation of the products and confirmation and optimisation of new leads already developed. Thrust would also be given to survey and exploration, mining and allied technology development and metallurgy of polymetallic nodules, and monitoring the health of coastal waters; management of the marine environment through capacity building using GIS for management of critical habitats; and development of a model for critical habitat information system and zonation of coastal waters etc. Indian National Centre for Ocean Information Service (INCOIS), Hyderabad will continue to process and disseminate data relating to ocean information to the user community involved in areas like fisheries, weather forecasting, climate, ports, shipping, etc. It will also take up development and issue of Ocean State Forecast. Emphasis would also be given on research in the areas of biological productivity, weather and climate studies, sea level variability, air-sea interaction, deep and bottom ocean circulation, bio-geochemical studies, technology development for energy and fresh water from sea, deep sea technologies including mining, technologies for coastal and off-shore applications, technology for data buoy and marine instrumentation system etc.

10.97 Several new initiatives are proposed to be undertaken in the Tenth Plan. These include: setting up of a second permanent station in the Antarctica; research programmes in Southern Ocean Oceanography and in Polar Environment and Ecology; biotechnological studies of Antarctica microbes and biodegradation of organic wastes by employing psychrophilic bacteria; bioluminescence and its significance in the Eastern Arabian Sea,

survey of marine mammals of Indian EEZ; Climate and Marine Fisheries, Assessment of tuna resources of the Indian exclusive economic zone (EEZ). Other activities will relate to: basic research on marine living resources; comprehensive systematic EEZ topographic surveys; marine biogeochemical studies; monitoring of harmful algal blooms (HAB) by setting up a regional centre for monitoring and surveillance of HAB in the Indian Ocean sector etc. A new multipurpose vessel for technology services and demonstration is proposed to be procured. Mission mode programme in the areas of technology development and demonstration of drugs from the sea, technology development of gas hydrates and large-scale technology demonstration of Ocean Thermal Energy Conversion (OTEC) plant would be initiated.

10.98 Under the Polymetallic Nodules Programme, survey and exploration, environment impact assessment, mining and allied technology development, and metallurgy will be continued. Bay of Bengal Fan (BENFAN) programme will also be taken up with emphasis on long coring of the sediments at selected locations. Comprehensive systematic EEZ topographic surveys using state-of-the-art multi-beam systems will be initiated to identifying areas for future detailed surveys for the non-living resources exploration. A strategy would then be evolved for comprehensive assessment of resource potential of the Indian EEZ including gas hydrates, cobalt crust, etc.

10.99 The existing stations for collection of near-shore samples identified under the Coastal Ocean Monitoring and Prediction System (COMAPS) programme will be more carefully planned to reflect the pollution load occurring close to the shore. The activities under Integrated Coastal and Marine Area Management (ICMAM) capacity building programmes funded by the World Bank, training to coastal states on the use of GIS and on critical habitat information system using GIS, and zoning of coastal waters will continue. As a pre-requisite for the preparation of ICMAM plans in selected areas, eco-system modelling studies which can be used for management of the shoreline land, particularly to control erosion and accretion, will be conducted. Other R&D activities in this area include: decision support system for management of small to large habitats, migratory patterns of turtles, long-

term monitoring of pollutants, development of online pollutant detection system using sensors for hotspot areas etc.

10.100 Under the Ocean Observation Systems, the number of moored buoys would be increased to 40 with indigenisation of its prototypes. The number of drifting buoys would be increased to about 150, tide gauges to 34, besides 150 Array of Real Time Geostrophic Oceanography (ARGO) floats. Extended Bathy Thermograph (XBT) line would also be added. Development of algorithms, models etc. will continue to make full use of the newly planned Indian and foreign satellite missions such as Megha Tropiques, Oceansat-II etc. Consolidation of the ongoing efforts under the Indian Ocean Modeling and Dynamics (INDOMOD) for operational applications will be continued on a priority basis.

10.101 Under the ocean energy programme, modification of the 1 MW OTEC plant to function as a land-based or shelf-mounted plant for islands would be taken up. Deep sea technology activities include development of technologies for direct applications to shallow and deepwater mining and technology base for deepwater applications. The technology and necessary expertise for the exploration and recovery of gas hydrates will also be developed. National Institute of Ocean Technology (NIOT), Chennai would endeavor to have institutional cooperation/collaboration for technology development with reputed national and international research laboratories, academic institutions, international organisations and private R&D institutions. New initiatives include: development of wave-powered data buoys for offshore applications and establishment of a marine meteorology cell, and marine instrumentation and sensors calibration cell.

10.102 Under the Marine Research and Capacity Building and Ocean Awareness programme, Ocean Science and Technology Centres (OSTCs) will be further strengthened. Some of the new initiatives include training programmes for foreign students in India and taking ocean sciences to schools and to the common man.

10.103 The Department of Ocean Development would continue to participate in the meetings of the Law of the Sea, International Sea Bed Authority,

Antarctic Treaty System, Inter-governmental Oceanographic Commission and the Regional Seas Programme. It will also initiate bilateral scientific cooperation. Under the Southern Ocean Marine Living Resources programme, two cruises will be conducted for assessment of krill and tuna fish in the Indian Ocean sector of the Antarctic waters in collaboration with South Africa, Poland and Russia.

10.104 Two research vessels ORV Sagar Kanya and FORV Sagar Sampada, which are on the verge of becoming obsolete, would be upgraded/renovated. In addition, it is also proposed to acquire/construct a new multipurpose vessel for technology services and demonstration to serve as a platform for the programmes and as a utility science vessel, which will augment the capacity needed for the living and non-living marine resources programmes.

10.105 Since developments in the ocean sector have national, regional and global implications and the management of diversified programmes involving the Central and State Governments and their agencies is a complex task, an apex body – the Ocean Commission – on the lines of the Space Commission and Atomic Energy Commission is proposed to be set up.

10.106 Some of the mission mode programmes identified for the Tenth Plan include: (i) large scale technology demonstration of OTEC plant (ii) studies on exploration and technology development of gas hydrates (iii) ocean information service aimed at generation, analysis, modeling, product development and dissemination of ocean data and data products to users, and (iv) technology development and demonstration of drugs from the sea.

Biotechnology

10.107 India is well poised to embark upon biotechnology-based national development. The underlying assumption of the policy framework is that the developments in the field of biotechnology will have the greatest impact on food, nutrition, health, environment and livelihood security. The recent advances in many areas of biological research, notably genomics, cell biology, structural biology and molecular approaches to biological function hold great promise for future developments

in biotechnology. Long-term support would be provided for basic biology research in areas related to infectious diseases, metabolic engineering, biomaterials, stem cell research, chemical ecology etc. by providing the necessary infrastructure and instrumentation facilities. Some important areas for research would be food and nutritional security; optimal utilisation of biological resources through biotechnological interventions; genomics; cost-effective, easy-to-administer and affordable healthcare regime, especially molecular medicine; biotechnological solutions for environmental issues like biodiversity conservation, and waste recycling and pollution abatement. Conversion of indigenous research leads into biotech products and processes would continue to be a major endeavour. This will be facilitated by instituting new academia-industry and private-public partnerships. Human resources needed for biology research and biotech development would be generated through specific programmes. The Department of Biotechnology's mission is to develop biotechnology as an intellectual enterprise, to provide the impetus to help utilise this knowledge for the benefit of mankind and to launch well-directed efforts for harnessing biotechnological tools for generation of products, processes and technologies that will enhance the efficiency and productivity of agriculture and forestry improve nutritional security, development of molecular medicine and environmentally safe technologies for pollution abatement, biodiversity conservation and bio-industrial development and creation of a strong infrastructure both for research and commercialisation of bio-products, bioprocesses and biotechnologies.

10.108 Concerted and long-term support would have to be provided to basic research in the new areas of modern biology and biotechnology and mechanisms to identify creative talents among the youth need to be established. Commercialisation of the knowledge base should be facilitated through simplification of some procedures and policies. These include: single window clearance mechanism for the biotech industry, especially based on recombinant DNA technology; venture capital funding to encourage large-scale production of biotech products, incubators or pilot plants through the joint efforts of the public and private sectors and tax holidays to publicly supported indigenous R&D. Bioscience enterprises will be identified and

encouraged in three major areas: agriculture, health-care and the environment. The commercialisation of bio-products will be encouraged by developing innovative policies in conjunction with other government departments and agencies. Besides the ongoing programmes on genetic counseling, emphasis would also be placed on genomics of humans, animals, plants and microbes, human genome diversity studies, molecular epidemiology; setting up of network facilities in at least four to five centres for high throughput screening, functional genomics, microarray and structural genomics, etc. The major funding for this would come from industry, with the Government providing only a nominal support. Major mission mode programmes would be initiated in the areas of genomics, new drugs and molecules from important medicinal plants, bio-resources characterisation, bio-fuels, new generation vaccines, food and nutritional security.

10.109 In the field of agriculture, biotechnology research will be used mainly in crop improvements for high export-value products through genetic modification of other crops or through in-vitro techniques. Other approaches in this field are: fine mapping of genome regions harbouring useful genes; developing transgenic biofertilisers; creating an awareness among farmers on the benefits of bio-pesticides and integrated pest management (IPM) technologies etc.

10.110 Research on plant biotechnology would be directed towards molecular and genetic phenomena associated with the process of infection, progression of disease (infectious and systemic) and the underlying pathology; metabolic engineering using recombinant DNA technology; characterisation of enzymes involved in carbon and nitrogen assimilation; plant tissue culture; bio-prospecting of wild plants; generation of a network programme on bioengineering of crops for Bio-fuels and Bio-energy; development of medicinal and aromatic plant crops with value addition in terms of proteins, minerals, vitamins and bio-molecules of therapeutic value and industrial use, genomics of selected medicinal and aromatic plants etc. In animal biotechnology, the focus will be on large animals and employment of newer techniques like cloning and stem cell derived animals (transformed and non-transformed).

10.111 In the area of aquaculture and marine biotechnology, a Marine Biotechnology Centre would be set up for research on novel enzymes, bio-remediation, extremophilic organisms, bio-medicals, genomics and proteomics of various marine organisms. The areas of focus for medical biotechnology research are: tuberculosis, HIV, malaria, cholera, Japanese encephalitis, edible vaccines, helicobacter pylori, rabies, cancer and drug delivery systems. The programmes will be prioritised taking into consideration criteria like disease burden, cost effectiveness of technologies and the potential utility of these technologies for community needs.

10.112 Broad areas of activity identified for genomics (human, animal, plant and microbial) are: computational genomics and genome-sequence data analysis, micro-array technology, structural genomics of humans and microbes, single-nucleotide polymorphism (SNP) analysis and pharmaco-genomics.

10.113 In the field of environment and biodiversity, the projects to be initiated relate to: collection, conservation and sustainable use of bio-diversity; bio-remediation, waste recycling and wasteland reclamation; development of biosensors, bio-indicators; phyto-remediation; and engineering of microbes for pesticide degradation, production of industrial and specialty chemicals, resource recovery and waste recycling etc.

10.114 Major new initiatives are also planned in the expanding area of bioinformatics. These include: dedicated high speed network for the BTIS net to achieve near-instantaneous access to the biological databases; setting up of teraflop supercomputer facilities for bioinformatics; establishment of a National Bioinformatics Institute for carrying out various activities like policy making; establishment of a Centre for Genome Informatics for carrying out research related to genomics and proteomics that include database mining, computational gene discovery, sequence similarity searching, gene expression analysis, etc.

10.115 Besides continuing the existing biotech facilities and repositories at various places, the new facilities to be set up pertain to: high field nuclear magnetic resonance (NMR) imaging facility, mass

spectrometry and microarray facilities at two to three centres; pilot plant facilities and biotech incubators for diagnostics; good manufacturing practices (GMP), facilities in collaboration with private industry participation etc. Biotechnology parks and biotechnology incubators will be set up in a few states in collaboration with the concerned State Governments. A few centres of excellence will also be set up in emerging areas such as: marine biology, high altitude biology, medical molecular biology, molecular ecology, invertebrate neurobiology and computational biology. To address biotechnology-related intellectual property rights (IPR) issues in a holistic manner, a Biotechnology-IPR Centre will be set up as an autonomous society under the DBT for organising training programmes and setting up of a Patent Information Networking System.

10.116 In the area of human resource development, support would be provided to 20 additional institutions and between 100 and 150 fellowships, besides instituting distinguished biotechnology professorships, biotechnology chairs and national bio-sciences career awards. Popularisation of biotechnology will be intensified through the mass media and co-curricular programmes. In order to attract a large number of small and medium scale biotech entrepreneurs, a Biotech Venture Capital Fund will be initiated in collaboration with organisations like the Small Industries Development Board (SIDBI), Industrial Development Bank of India (IDBI) etc.

10.117 While the existing programmes of international collaborations will continue, the focus for the initiatives will be on basic research in new biology for understanding molecular and genetic phenomena of pathogenesis in plants, animals and human beings; plant molecular biology; biosensor development; metabolic and tissue engineering; and product and process-oriented research involving scale up/ field trials and validations through technology transfer of both techniques and materials.

10.118 The autonomous institutes under the jurisdiction of DBT — NII, NCCS, CDFD, NBRC, NCPGR and the Institute for Bioresources and Sustainable Development (IBSD) — will continue to conduct research within the framework of the policy guidelines laid down for the Tenth Plan. Each

of institutes will implement one or more Mission Mode programmes.

10.119 Mission Mode Programmes would be launched in the areas of genomics, development of new drugs and molecules from important medicinal plants with special emphasis on validation and standardisation of the active constituents already identified and bioresource characterisation and inventorisation and documentation of the endangered eco-system. They would also cover production, demonstration and testing of biofuels, development of new generation vaccines, and food and nutritional security through enhancement of crop productivity, value-addition and genetic engineering for enhanced nutritional status.

Scientific and Industrial Research

10.120 The plans and programmes relating to scientific and industrial research are implemented by the DSIR and CSIR. The DSIR is concerned with the promotion of industrial R&D, development of new technologies and processes, acquisition, management and export of technology and development of consultancy capabilities. The objectives/activities of the various programmes of DSIR covers financial support for SIROs, fellowship, traineeship and international R&D collaborations; support to new technology development projects; support to grass roots decentralised projects; support for technology innovations and resource centres and chairs in technology and innovation management; support for technology trade facilitation centres, technology counselors in developing countries and product design centres.

10.121 During the Tenth Plan, various programmes of DSIR relating to technology and R&D promotion in industries would be converged under one umbrella programme. In addition, support to the programmes of the NRDC and CEL would continue.

10.122 Important activities under the programme on technology and R&D promotion in industries include: recognition of new in-house R&D centres and SIROs; organising annual national conferences for presenting R&D awards to industries; approval of commercial R&D companies and in-house R&D centres u/s 35(2AB) of the Income Tax Act;

financial support to recognised SIROs; award of fellowships to selected meritorious research workers who opt to work in recognised R&D centres; assistance to small and large industrial units for international R&D collaborations; support to technology development projects in various areas; TePP; technology evaluation studies in important sectors/areas and marketing of technologies; workshops and seminars. In addition, technology development studies, studies on technology and innovation management and preparation of directories of foreign collaborations would also be supported.

10.123 The NRDC will continue to undertake the projects under two programmes — Invention Promotion Programme (IPP) and Technology Promotion Programme (TPP). In addition to awards, assistance to investors, publications etc, some new programmes have been proposed for IPP like organisation of Inventors' Clubs and exhibitions and revamping their publications to cater to the needs of the small-scale industry. Under the TPP, for the development and promotion of rural technologies, a demonstration-cum-operating centre will be set up near Delhi for demonstration of rural and household technologies. In order to promote the export of technologies, the NRDC will participate in international exhibitions/seminars/trade fairs and prepare multimedia compact disc presentations of technologies. Other measures under the TPP relate to: setting up a technology information-related portal covering information on indigenous and foreign technologies, IPR, R&D institutes and awards, training programmes etc.; interactive multimedia package on IPR; funding of technology development programmes in the areas of gene delivery systems, digital fountain clock, slow release spray of pesticides etc.; and providing loan/equity/convertible loan/grant to licensees of NRDC technologies, etc. CEL will continue to work on technologies relating to 250 micron thick silicon wafers for manufacturing solar cells, and manufacture of 125 mm and 150 mm pseudosquare multicrystalline solar cells. CEL would also initiate R&D work on thin film solar cells; photovoltaic products for use as building materials; strategic electronic equipments and systems so as to make this area of operation contribute to about 20 per cent to 30 per cent of the turnover; digital axle counter and other signalling and safety systems for Indian Railways and export; and hybrid remotely-operated PV systems for microwave repeater

stations, and applications of piezo electric elements for defence and automobiles.

Council Of Scientific And Industrial Research (CSIR)

10.124 CSIR seeks to foster the values of excellence in science; global competitiveness in technology based on high science; local relevance in tune with socio-cultural and economic ethos of the people and innovation in all the spheres of activities ranging from science to technology management to financing. These principles, coupled with the results of a SWOT analysis carried out in CSIR laboratories, were taken into consideration in drawing up the opportunities for CSIR technologies in the market place. Accordingly, CSIR will seek to form strategic partnerships with Indian industry for innovative research; application and development of technology; commercialisation of technology; technology transfer, especially to SMEs and helping certain weak industrial sectors to regain their growth rates and become competitive globally.

10.125 Other factors which influenced the formulation of CSIR programmes for the Tenth Plan are: responsibilities arising out of the international IPR arena; continuous training and retraining of CSIR staff; advancement of knowledge through enlarging the scope of fellowships to trans-disciplinary areas and supporting basic research; and extension of S&T to the masses by involving the NGOs.

10.126 The focus of the CSIR would be to provide scientific industrial research and development that maximises the economic, environmental and societal benefits. The major thrust of the programmes would be on needs of and the opportunities in the market place; partnerships with industry for innovative R&D; development, application and technology transfer in areas that promote global competitiveness; technology based on high science and finding holistic and optimal solutions to the pressing problems of the nation. The core programmes include: high science and technology for national aerospace programmes; medicinal plant chemotypes for enhanced marker and value-added compounds; globally competitive chemical processes and products; development of speciality polymers; industrial waste minimisation and clean up; coal

preparation for quality enhancement; biomolecules; infectious diseases handling; design analysis and health assessment of special structures etc. The activities in the area of leather processing technology, leather product technology, leather environment technology, biotechnology in leather would be strengthened. Mission mode programmes would be launched in the areas of leather technology, carcass utilisation technology, design and development of civil aircraft, documentation of traditional knowledge, exploration and exploitation of the nation's microbial wealth, molecular biology of selected pathogen, evolving pollution monitoring system/devices for air /water /solid waste, microwave tube technology and rural technology.

10.127 The Tenth Plan programmes of the national laboratories have been formulated under 14 heads. These are: aerospace, biology and biotechnology, chemicals, earth resources and natural hazards mitigation, ecology and environment; electronics and instrumentation, energy, food and food processing, health-care and drugs and pharmaceuticals; housing and construction, information dissemination and products like leather, materials, minerals and metals and manufacturing.

10.128 Under the S&T human resource development programme, support to the CSIR Programme for Youth Leadership in Science scheme and Shyama Prasad Mukherjee fellowship scheme will continue. In addition, a 'training and motivation' programme will be initiated for selected science teachers. In order to attract youth to science and to promote interest, excitement and excellence in science education at the school and undergraduate levels, each CSIR laboratory will adopt at least one school and one college in its area. It will not only offer its facilities for project work and experimentation but also carry out student guidance and motivational programmes. Fellowships will be offered to researchers in trans-disciplinary areas and a spirit of entrepreneurship will be inculcated among research scholars through appropriate motivation, skills development and venture financing so they may establish their own R&D enterprises.

10.129 The IPR regime is presently in a state of flux and there are major unresolved issues with

respect to 'traditional knowledge', 'genomic sequences', 'copyright on the Net' etc. National Institute of Science, Technology and Development Studies (NISTADS), New Delhi in CSIR has been mandated to coordinate this activity through enhancing the portfolio of foreign patents from 500 to 2,500 by the end of the Tenth Plan; identifying potential threats to and opportunities in the IPR regime; creating electronic/digital database on CSIR's intellectual property and knowledge- base holdings; developing educational programmes on intellectual property and technology management, etc.

10.130 During the Tenth Plan, CSIR has envisaged the establishment of an organisational Human Resources Development Centre at Ghaziabad as a follow up to the recommendations of the CSIR Review Committee in 1986. The Centre is expected to train around 600 senior personnel annually. Other activities under R&D management support include: partnerships that could add value to R&D activities in the national laboratories; popularisation of CSIR activities among masses through various media; and continuing support to the Unit for R&D in Information Products to catalyse and mobilise packaging of information products based on CSIR databases in order to make it self-sustaining.

10.131 The objective of the New Millennium India Technology Leadership Initiative (NMITLI) scheme, initiated in February 2000, is to help India capture the global leadership position in a few selected technology areas. In the first year of its operation, CSIR initiated nine 'proof of concept projects'. On completion, five of these projects will qualify for the next stage of specific product/process/application/development and upscaling. Around 20 per cent of the funding for these projects will come from external sources. This scheme will enable India to acquire global leadership/monopoly position in at least three niche technology domains.

10.132 Programmes under infrastructure renovation and refurbishment include: internet connectivity to all laboratories through a national level Internet service provider (ISP) including Virtual Private Network (VPN) solutions to establish a CUG (Closed User Group) and refurbishing of the antiquated physical infrastructure which was built

or acquired more than thirty years ago. Some of the laboratories like the Central Drug Research Institute (CDRI), Lucknow, Central Food Technology Research Institute (CFTRI) Mysore, Central Salt and Marine Chemicals Research Institute (CSMCRI), Bhavnagar etc. are housed in centuries-old palaces which were converted into laboratories by carrying out minor renovations. Most of the CSIR laboratories are not suited for modern day R&D especially in terms of good laboratory practices (GLP), International Standards Organisation (ISO), National Accreditation Board for Testing Laboratories (NABL) requirements for accreditation and certification. Also many buildings are dilapidated and unsafe and need renovation.

10.133 Mission mode programmes have also been identified in the design and development of civil aircraft like Stretched SARAS and HANSA; exploration and exploitation of the country's microbial wealth for novel compounds and bio-transformation processes; molecular biology of selected pathogens for drug targeting; study of mesozoic sediments for hydrocarbon exploration in coordination with the Department of Ocean Development; pollution control and monitoring system/devices for air, water and solid waste; development of microwave electron tube technologies for ultra high frequency communication for large-scale applications; development of technology for control of asthma resulting from pollution; standardisation, validation and introduction of newer scientific herbal preparations; setting up of a Traditional Knowledge Digital Library (TKDL) for tracking and storing comprehensive information and document on traditional knowledge; and environment-friendly leather processing technology, including carcass utilisation.

Science & Technology

10.134 It is widely recognised that long-term technological competence and international competitiveness can only come from a strong foundation of high quality basic research. While encouraging research in basic sciences, there is need to ensure that such research must be relevant to national priorities and goals. Above all, it should be geared towards stimulating economic growth. The broad strategy in this area would be according priority to synergy among science and technology,

public policy and organisation in order to achieve the national goals; focussing on knowledge capital as a tool for faster economic development; reorganising the technology transfer systems to make them client-controlled and user-driven so that technology dissemination losses could be minimised; making efforts to fulfil the S&T vision in a socially relevant and participatory mode. Other elements of the strategy would be to raise the country's capability and excellence in science and technology relevant to long-term strategy for overall development; orient efforts towards finding solutions to poverty eradication, employment, environment and other related issues on a priority basis; evolve an integrated science plan focusing as much on population, education, gender, nutrition and environment as on production, sustainable growth and trade; enhance government and private investments in research over the next five years; accelerate national, regional and international collaboration for technology generation, assessment and transfer through information and communication technologies, while safeguarding against the attendant risks of globalisation. In order to get the maximum gains of science to society and the economy, it is necessary that a proper atmosphere be created for original and basic research and financial support provided for it. The decline of Indian contribution to this field has been a matter of deep concern. It is necessary to remember that there can be no high technology without high science and vice versa. Indeed, science provides new insights and approaches for technology development. It is, therefore, of utmost importance to create a strong edifice of basic research on which future aspirations of Indian S&T can be built.

10.135 India, with its rich intellectual capability, can be a leader in basic research, if proper strategic thinking, adequate funding and facilitating mechanisms are provided. If the problem of the dwindling number of young students opting for science and scientific R&D is not effectively addressed in the near future, India will cease to be a storehouse of quality technical manpower. Our national laboratories, universities and higher educational institutions have an aging faculty profile requiring infusion of quality young manpower. Secondly, adequate infrastructure for contemporary R&D is lacking even in national laboratories and is

almost absent in higher educational institutions. Systematic efforts need to be made to refurbish the R&D infrastructure for basic research, especially in the higher educational sector. Given its scope for generating sustainable livelihood and reducing pressure on timber resources, a comprehensive programme in the bamboo sector would be initiated to boost the usage of bamboo, promote specialised product development for commercialisation etc. The programme will identify the technology-oriented business opportunities for processing raw bamboo into value-added products and expedite their economic and marketing feasibilities. The areas identified for mission mode programmes would include: technology for bamboo products, drugs and pharmaceutical research, instrument development including development of machinery and equipments, seismology, nano science and technology business incubators.

10.136 The thrust of the Tenth Plan programmes of the DST would be on basic research, technology development, S&T manpower development, providing scientific services to the community and to undertake programmes relevant to societal needs. Within the framework of the broad strategy, some new initiatives will be taken. These will include: restructuring of Science & Engineering Research Council (SERC) into a National Science and Engineering Board (NSEB) as an autonomous body to provide directions to basic research; building strengths in a few chosen emerging S&T areas like system/integrative biology, nano-technology, synchrotron facility, 6 to 8 M optical telescope, molecular electronics; evolving a tripartite arrangement for the involvement of scientific agencies, national laboratories/IITs and universities to prepare an Integrated Manpower Development Programme; providing industrial research fellowships to promote interaction between industry and academic institutions; formulating a separate scheme for women scientists with either excellent scholastic record or good publications to their credit; promotion of India's capability to set up centres of excellence jointly with other countries through its bilateral S&T programmes; encouraging talented young Indian researchers working abroad to return by offering competitive career awards to work in Indian institutions of their choice in nationally important programmes; encouraging higher value addition activities and preservation of natural

resources through the development and application of high technologies such as biotechnology, new materials, computers, telecommunications and information techniques and systems, micro-electronics, etc.

10.137 The SERC mechanism is a major programme under the R&D schemes. Though it has gained reputation among the scientists, it was felt that it requires a new system of governance, which ensures a greater freedom for choice of research areas, faster utilisation of funds and quicker disbursement to investigators. That is the reasoning for restructuring SERC into the NSEB. Several new national facilities will be set up, namely, Radioactive Ion Beam Facility, Crystal Growth Facility, Low Temperature and High Magnetic Fields Facilities, Biomedical Imaging and Spectroscopy Facilities, XRD and TEM facility, etc. Research centres will also be set up in the areas of non-linear and integrated optics, molecular manufacturing, bio-engineering, tissue engineering, etc. The scheme on Fund for Improvement of S&T Infrastructure in Academic and Related Institutions (FIST) will be continued and about 1,000 departments will receive support during the Tenth Plan. Another continuing scheme is the Young Scientists Programme which includes the Kishore Vaigyanik Protsahan Yojana, Schemes for Young Scientists, Boyscast, Swarnajayanti Fellowship for Basic Research and the Fast Track proposals for the Young Scientists (FAST TRACK). All these programmes will be brought under NSEB.

10.138 The other new initiatives of DST include: Patent facilitation scheme to create an awareness about the latest information on patents; creation of an NSEB Chair and providing emeritus scientist position to superannuated scientists etc. Flexibility in manpower deployment and enhancement of research fellowships will be introduced to attract more candidates to Junior Research Fellowships, Senior Research Fellowships, Post-Doctoral Fellowships (JRF/SRF/PDF). Other programmes relate to selective support to professional bodies for quality based activities; encouragement to the senior and young scientists in scientific events/seminars by providing internal/international travel support; refurbishment of the Regional Scientific Instrumentation Centres (RSICs) to minimise obsolescence; expanding the scope of the National

S&T Management Information System (NSTMIS) to undertake activities relating to development of national level databases in selected S&T areas like R&D outputs leading to commercialisation, outcomes of extramural sponsored research projects, scientific manpower, scientific equipments & instruments, etc; national level study on commercialisation of patents; preparation of a national manual on the measurement of S&T activities; development of S&T indicators in the new knowledge economy etc. Some new initiatives will be taken under the seismicity programme in the light of the earthquakes disasters at Latur, Jabalpur and Bhuj.

10.139 The Technology Development Programme will be given a boost by undertaking activities relating to development of new and innovative technologies through national as well as international programmes and funding of multi-disciplinary, multi-institutional technology programmes in high, traditional and socially relevant areas and mega projects on infra-red detector, image processing, etc. A more interactive approach would be evolved by creation of a DST-IS-STAC Forum with the development departments/Ministries and creating an independent website covering the various STACs, their R&D efforts and S&T related policy issues, besides, replication and extending the existing activities of the Patent Facilitating Cell to more centres.

10.140 Under the drugs and pharmaceuticals research programme, several new projects relating to nutritional deficiency and related diseases —iron and protein deficiency, herbal drugs, new drug delivery systems etc. — would be initiated. Efforts will also be made to set up new national facilities for screening of anti-viral activity, combinatorial synthesis, high throughput screening, regulatory toxicology, clinical pharmacology, etc.

10.141 The ongoing activities of TIFAC like preparation of TIFAC reports, Technology Vision 2020 reports, homegrown technology programme etc. will continue.

10.142 In view of rapid globalisation and the growing need to protect intellectual property rights, the DST will give a new thrust to international S&T cooperation by encouraging participation of Indian scientists and the laboratories in the setting up of

major facilities abroad, establishment of international class facilities within the country, intensification of cooperation with developing countries by offering fellowships etc., encouraging young Indian researchers working abroad to return, showcasing Indian expertise/technologies through exhibitions and ensuring linkages of international collaborations with large programmes like natural disaster mitigation, AIDS/cancer research, superconductivity, technology missions etc. In addition, R&D programmes would be initiated in a few focused national priority areas like high performance ceramics, nano materials, photonics, sensors, bionics, process engineering, exploitation of ocean resources etc.

10.143 The science and society programmes comprise need-based individual projects for technology development/modulation and demonstration where people's need for technology component and services will be given adequate attention. They will focus on the farm and non-farm sector, horticulture and processing techniques, inland aquaculture, modern nursery, solar/biomass-based energy devices/systems etc. Bamboo farming will be undertaken in the form of a technology mission. The programmes will be implemented at selected locations through networking of people and S&T-based field groups by linking them with S&T institutions.

10.144 The scheme on S&T for Women is aimed at empowerment of women through the introduction of S&T in the areas relating to technological needs of women. The focus of this scheme will be on increasing incomes and creating employment based on local resource; capacity building; inter-linkages with R&D institutions for promoting and sourcing technology for women; non-traditional occupations; etc. Some successful technology packages will be replicated in other locations as coordinated programmes through networking of local women, S&T-based field groups and S&T institutions, besides initiating a few multi-sectoral programmes for biomass utilisation, income generation and health issues of women and disaster management in these remote areas. Women Technology Parks will be set up in all the agro climatic zones of the country.

10.145 Efforts under the tribal sub-plan will be continued to undertake research, development and

demonstration in the traditional vocations for socio-economic upliftment and improving the quality of life of scheduled tribes. Some of the areas for research under the special component plan meant for the development of scheduled castes include coordinated programme on waste re-cycling and management; animal husbandry with reference to smaller animals; quality product from bio-mass; etc.

10.146 The NRDMS network will be expanded by setting up at least one district NRDMS centre in all states to expose the respective state governments to the methodology of NRDMS and train the administration in the adoption of the data-based approach for district level planning. Developments in the field of communication technology will be exploited to reach out to different groups with need-based science and technology.

10.147 Under the National Science and Technology Development Board (NSTEDB), the scope and contents of the newly-initiated scheme for the establishment of Technology Business Incubators (TBIs) will be enlarged to help in the development of knowledge intensive enterprises, new product development and innovative ideas. Special training programmes as well as awareness programmes will be organised in the fields of quality control, pollution and environmental control and IPRs. Besides adopting a cluster approach for modernisation through technology and design inputs and the possibility of setting up new enterprises would also be explored.

10.148 The National Centre for Medium Range Weather Forecasting (NCMRWF) will be further strengthened and encouraged to meet the ever-growing demands of weather forecasting through appropriate communication infrastructure for reaching out to the user community. The IMD will continue to emphasise on the major areas of Space Meteorology, Telecommunications, Cyclone Warning, aviation services, seismology and observational organisations by inducting the latest technologies, particularly by providing cutting-edge S&T in high value sectors. New programmes proposed to be undertaken by IMD pertain to: starting a commercial cell; establishment of a satellite based network of 1,000 stations for automatic collection of meteorological data for assimilation in numerical models in near-real-time and pursuance of scientific work to develop improved

climate prediction models. Some of the important initiatives of the SOI include: introduction of dual series of topographical maps; upgradation of photogrammetric potential; establishment of National Geo-spatial Digital Infrastructure Centre; Airborne Laser Terrain Mapping Technology etc. NATMO's ongoing schemes like District Planning Maps; Economic Science and Technology Atlas and revision of the Forest Atlas of India, etc. will continue during the Tenth Plan.

10.149 The autonomous institutions under the DST will continue to pursue fundamental and applied research in various related areas; produce high quality manpower in unique and frontline areas of science and engineering and initiate work on upgradation of facilities. They will be modernised to undertake research at par with developed countries. The network of State S&T Councils will be further strengthened by continuing support with focus on S&T manpower, suitable career advancement of scientists working in S&T secretariats; identification, formulation and implementation of location-specific and multi-sectoral programmes in the states; etc.

THE PATH AHEAD

10.150 It is recognised that technology plays a pivotal role in national development. A three-pronged development strategy is called for covering societal transformation, wealth generation and knowledge/resource protection. For societal transformation, the focus should be on education, health-care, agriculture and governance. These will eventually lead to employment generation, higher industrial growth, higher national efficiency and productivity, empowerment of women, and rural prosperity. The important areas in relation to wealth generation include information technology and communication, biotechnology, space technology, materials technology, and oceanography. The service-driven areas include weather forecasting, disaster mitigation, tele-medicine, tele-education, infotainment, conventional and non-conventional energy, environment and ecology etc. In order to benefit from the potential of these areas, attention should also be given to the informal sector. This would not only accelerate the growth of gross domestic product (GDP) but would also help improve the quality of employment and increase incomes of workers in the informal sector.

Growth of knowledge society requires the development of capabilities for protecting the knowledge/resource and, therefore, involves areas like strengthening of intellectual property rights, protection of biological and microbial resources, protection of native knowledge and culture, protection of network and information generators from all kinds of electronic attacks.

10.151 The developmental strategy with technological-orientation should focus on meeting the needs of the nation, including industry, and encompass a wide spectrum of activities, namely basic research, applied research, technology transfer, design, development, fabrication, tests and trials, manufacturing, marketing, maintenance and product support during the life cycle. In the present liberalised environment, industry should pay much more attention to external sources and upgrade its technology through radical technology jumps. It should anticipate and take advantage of technological changes, acquire appropriate new technology depending on its business strategy and commercially exploit it to develop and produce new products for the competitive markets.

Tenth Plan Outlays for Science and Technology

10.152 The Plan outlays for the Central S&T Departments/Agencies and for the S&T in States and Union Territories under State Plan for the Tenth Plan are given in Annexure 10.1 and 10.2 respectively. Schemewise breakup of Tenth Plan outlays for the Central S&T Departments/Agencies is given at Appendix.

R&D IN INFORMATION TECHNOLOGY

10.153 Out of the total of 1,180 R&D units presently registered with the DSIR, there are about 300 units in electronics & IT. Some good institutions like the Central Electronics Engineering Research Institute (CEERI) Pilani, Electronic Research and Development Centres (ER&DCs), Centre for Development of Advanced Computing (C-DAC), SAMEER, IITs/ IISc, Optel, National Physical Laboratory (NPL), Electronics Corporation of India Ltd (ECIL) etc., have significant innovations in the field of electronics and IT to their credit. However, the present investment in R&D within the country is not on par with rest of the world.

10.154 Besides the public and private investment in R&D, a number of Central/State Government agencies like the Department of Information Technology, the DAE, DBT-, Department of Ocean Development, DST, CSIR, DRDO, Indian Council of Agricultural Research, Indian Council of Medical Research, ISRO, University Grants Commission (UGC) and others provide financial support for R&D at academic institutions, R&D laboratories and in the industry. These agencies play a catalytic role in scientific innovations for accelerating the pace of development and creating infrastructure to enhance the country's production capabilities.

Ninth Plan Review

10.155 Besides the Department of Space, DAE and DRDO, which have their own R&D programmes, other government agencies invested about Rs.200 crore on R&D programmes in electronics and IT annually during the Ninth Plan. These programmes have been able to help India establish a technological base besides generating specific products.

10.156 During the Ninth Plan, over 200 R&D projects were initiated at a number of institutions. Some of the areas where significant success has been achieved through sponsored R&D projects are:

- Future Air Navigation System (FANS) programme led to the development of GPS and Differential Global Positioning System (DGPS) and other airport modernisation equipment.
- Design and development of 'PARAM' series of Supercomputers by C-DAC.
- Design and development of meteorological instruments like Cyclone Warning Radar and MST Radar which was the third of its kind in the world.
- Development of diagnostic and therapeutic instruments for cancer therapy.
- Fibre optics systems such as fibre optic node controller, fibre optic railway signaling system, fibre optic remote terminal unit, etc. were developed.

- Development of technologies relating to e-commerce, IT security and e-governance. A Versatile Online Information System (VOICE) for the needs of citizen, civic administration and municipal corporations, etc., has been implemented in Andhra Pradesh.
- Prototyping of digital mobile radio for secure and reliable mobile communication with full duplex voice and option for encryption. Other major communication and broadcasting equipment developed are ultra high frequency (UHF) wireless data modems for high speed data communication and spread spectrum radio modem for various networking applications.
- Thirteen resource centres for Indian Language Technology Solutions covering all the languages listed in the Constitution were set up. Various information processing tools to facilitate human-machine interaction in Indian languages were developed.
- Retrofit automation for various manufacturing and process industries including computerised energy management, were developed and implemented.
- An indigenously developed 200 KV, 200 MW national high voltage direct current (HVDC) project was successfully implemented. A state-of-the-art digital SCADA system was implemented at the 1500 MW Singrauli-Rihand-Delhi HVDC project.
- Advanced software in the areas of intelligent computing, visual computing, internet technology, on-line education, etc., were developed.
- Application Specific Integrated Circuits (ASICs) for various applications were developed under the Microelectronics Development Programme.
- Various simple to operate agro-instruments like fertiliser testing kit, soil and grain moisture indicating instruments, soil nutrient measuring instruments, rice polish measurement have been developed.

Issues and Concerns

10.157 The IT industry is a highly knowledge and skill-intensive one and requires R&D on a regular basis. Most of the leading international players, especially those in Very Large Scale Integrated (VLSI) chip design, have set up their design and R&D centres in India. Some Indian companies have also made successful entry into global R&D services for developing world-class products. However, even though the software sector has done so well, the following concerns need to be addressed in the Tenth Plan:

- The software export industry has been mainly concentrating on the services sector. Here, the overall productivity, which is much lower than in the developed countries, needs to be increased.
- The IT services sector has been able to provide sustained growth over the last decade. In order to continue this, Indian industry needs to take immediate steps to move up the value chain.
- Though Indian professionals and the Indian software industry have contributed to the development of intellectual property, the Indian industry owns very few patents.
- The performance of the hardware industry has been below expectations.

10.158 For India to become an IT superpower, it is necessary that an integrated approach that boosts the hardware and software sectors, strengthens manufacturing and lays emphasis on education, R&D and generation of IPR is evolved and implemented.

Major Objectives and Initiatives- Tenth Plan

10.159 In line with the commitments required under the World Trade Organisation's Information

Technology Agreement (WTO-ITA), the IT sector would be brought to a zero duty regime by 2005. Therefore, it has become imperative for India to develop technologies, products and services of international cost and quality and become a global leader at least in some selected fields. Pursuing purposeful R&D is the only way to meet this challenge. However, we have to be careful not to fritter away our scarce financial and human resources by trying to tackle all the areas. The following classification and strategy is envisaged for R&D in IT:

- In the long-term R&D, the focus should be on key emerging subjects of basic research like nano-technologies, bio-informatics, etc., which are expected to be all pervasive and have far-reaching impact. Research in such technologies should be taken up in universities and reputed R&D laboratories.
- In the medium-term R&D, the focus should be on current technologies like high-end computing, wireless technologies, microelectronics, GPS hardware, Photonics, Microelectronic Mechanical Systems (MEMs), next generation internet, blue-tooth technology, high-end computing cyber security, robotics etc., which have mass deployment potential and would create necessary infrastructure for achieving accelerated growth. This would also enable us to apply these technologies for the development of new applications and upgrade existing products and services at a lower cost as compared to imported technologies. Medium-term R&D can be pursued at technical institutions / R&D centres and industries.
- In the short term R&D, the focus should be on improving products and reducing costs. Thrust areas identified for R&D in this category may be in technologies related to low cost personal computers, capital goods, GIS software, e-commerce, e-governance, e-learning, transport and safety, large database, multimedia, smart card, etc.

10.160 Apart from these, a number of R&D initiatives are proposed to be taken up in Tenth Plan. These include: Media Lab Asia, telemedicine, e-commerce and cyber security, IT application for visually handicapped, Internet-based distance education, IT for watershed development, IT for the masses etc. A few centres of excellence are proposed to be set up at the existing reputed institutions in the areas of nanoscale technologies, communications system and networking, multimedia, signal and image processing, speech recognition and synthesis for Indian languages.

Financial Resources

10.161 The Working Group on Information Technology for the Tenth Five Year Plan has observed that the IT industry needs to spend a minimum of 5 per cent of their revenue earnings on R&D to remain competitive. The Working Group has estimated a total R&D investment to the tune of Rs.3,400 crore per year to be shared by industry and Government in the ratio of 80:20. The R&D models can be designed based on the strategic value, gestation period, technology risk and commercial potential of the technologies. A few options for R&D funding are:

- The benefits of long-term R&D are uncertain and the gestation period could be more than 10 years. Such technologies may be unattractive for private sector funding and therefore, long term R&D will have to be funded by the government.
- The gestation period of the medium-term R&D could be three to six years. Development of such technologies should be funded by private sector enterprises with partial funds from the Government, if need be.
- The gestation period of short-term R&D projects is normally one to three years. Since these technologies have immediate commercial potential and, therefore, should be funded to a large extent by industry with minimum support from the government funds.

- The small and medium enterprises (SMEs) are neither able to set up their own R&D infrastructure nor retain high quality research professionals. The industry associations like Manufacturer's Association of Information Technology (MAIT), Confederation of Indian Industry (CII), National Association of Software and Services Companies (NASSCOM) etc., should come forward for creating proper linkages to share R&D between SMEs and large manufacturing industries with a view to enhance hardware production.
- International R&D cooperation needs to be utilised more effectively, especially in the areas of long-term and medium-terms research programmes. India should seek international cooperation in these areas, based on the strength of cooperating countries, institutions, research labs or industries.

**Central Scientific Department
Progress of Plan Expenditure**

S. No.	S&T Departments /Agencies	(Rupees in Crore)														
		Ninth Plan 1997-02 Outlay	Annual Plan 1997-98 Outlay	Annual Plan 1997-98 Actuals	Annual Plan 1998-99 Outlay	Annual Plan 1998-99 Actuals	Annual Plan 1999-2000 Outlay	Annual Plan 1999-2000 Actuals	Annual Plan 2000-01 Outlay	Annual Plan 2000-01 Actuals	Annual Plan 2001-02 Outlay	Annual Plan 2001-02 RE	Ninth Plan 1997-02 A.E.	Tenth Plan 2002-07 Outlay		
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15		
1	Department of Atomic Energy (R&D Sector)	1,500.00	225.00	173.93	300.00	243.08	325.00	320.99	420.00	367.89	459.00	417.86	1523.75	3,443.00		
2	Deptt. of Ocean Development	510.62	88.10	83.85	88.00	86.03	90.00	83.16	135.00	79.89	142.00	120.00	452.93	1,125.00		
3	Deptt. of Science and Technology*	1,497.35	280.00	276.79	305.00	228.02	310.00	272.37	362.00	340.22	410.00	398.00	1515.40	3,400.00		
4	Deptt. Of Bio-technology	675.00	107.00	85.23	107.00	104.46	110.00	116.46	125.00	140.90	175.00	175.00	622.05	1,450.00		
5	Scientific & Industrial Research	1,327.48	230.00	220.53	230.00	222.50	289.00	270.98	355.00	314.84	360.00	340.42	1369.27	2,575.00		
6	Department of Space	6,511.72	990.00	838.73	1,381.00	1,165.85	1519.00	1,424.24	1,700.00	1,593.98	1,710.00	1600.00	6622.80	1,3250.00		
	Grand Total	12,022.17	1,920.10	1,679.06	2,411.00	2,049.94	2,643.00	2,488.20	3,097.00	2,837.72	3,256.00	3051.28	12106.20	25,243.00		

* : Actual Expenditure & RE in respect of Department of Science and Technology is excluding Capital Works Component.

S&T Plan Outlay/Expenditure for Ninth Plan (1997-2002) and Tenth Plan (2002-07) under State Plan

(Rs.in lakh)

S. States/UTs No.	9th Plan (1997-2002) Outlay	1997-98 B.E.	1997-98 Actual	1998-99 B.E.	1998-99 Actual	99-2000 B.E.	99-2000 RE	2000-01 B.E.	2000-01 RE	2001-02 B.E.	2001-02 R.E.	Ninth Plan Anti. Expdfr.	Tenth Plan Outlay
U.Ts.													
1 A&N Islands	199.85	28.26	22.93	66.00	25.19	60.00	14.00	20.00	22.44	20.00	20.00	104.56	212.00
2 Chandigarh	37.00	13.00	3.75	7.95	5.72	28.00	28.00	18.00	16.50	32.00	32.00	85.97	60.00
3 D & N Haveli	30.00	6.00	4.75	7.00	6.94	7.00	7.00	6.00	7.50	6.00	6.00	32.19	35.00
4 Delhi	15.00	1.00	6.07	3.00	13.63	5.00	5.00	4.00	50.00	5.00	385.00	459.70	700.00
5 Daman & Diu	47.00	14.00	8.45	15.00	8.17	9.00	9.00	22.00	9.81	10.00	10.00	45.43	80.00
6 Lakshadweep	643.81	83.05*	27.73	82.00*	28.22	35.56	35.56	35.57	39.33	41.00	37.24	168.08	307.64
7 Pondicherry	60.00	10.00	5.25	35.00	19.87	35.00	35.00	35.00	25.53	35.00	35.00	120.65	140.00
Total UTs.	1032.66	155.31	78.93	215.95	107.74	179.56	133.56	140.57	171.11	149.00	525.24	1116.58	1534.64
Grand Total	37679.67	8042.31	4014.93	7239.95	6523.74	8521.71	6770.06	5951.95	6706.11	5505.29	16332.24	40347.08	125032.64

* Including Ecology and Environment

@ excluding Technical Education

! Including earmarked outlay for TFC

\$ excluding Information Technology.

N.A. Not Available

** Includes Information Technology

@@ Proposed Outlay

Ministry / Department wise Tenth Plan (2002-07) Outlay

(Rs. in Crore)

Sl.No.	MINISTRIES / DEPARTMENTS	Gross Budget Support	IEBR	Plan Outlay		
				Central Schemes	Centrally Sponsored Schemes	Total
1	2	3	4	5	6	7
Ministry of Agriculture						
1	Department of Agriculture and Cooperation	13200	0	5791	7409	13200
2	Department of Agricultural Research and Education	5368	0	5368	0	5368
3	Department of Animal Husbandry and Dairying	2500	0	631	1869	2500
4	Ministry of Agro and Rural Industries	2950	0	2944	6	2950
5	Department of Atomic Energy Ministry of Chemicals and Fertilizers	21550	10820	32370	0	32370
6	Department of Chemicals and Petro-Chemicals	300	2744	3044	0	3044
7	Department of Fertilizers	1050	4850	5900	0	5900
8	Ministry of Civil Aviation Ministry of Coal and Mines	400	12528	12928	0	12928
9	Department of Coal	1050	30541	31591	0	31591
10	Department of Mines Ministry of Commerce and Industry	1271	8187	9458	0	9458
11	Department of Commerce	4547	15	2837	1725	4562
12	Department of Industrial Policy and Promotion	2000	0	1679	321	2000
Ministry of Communication and Information Technology						
13	Department of Information Technology	2714	2778	5492	0	5492
14	Department of Posts	1350	0	1350	0	1350
15	Department of Telecommunications	1500	85484	86984	0	86984
Ministry of Consumer Affairs and Food and Public Distribution						
16	Department of Food & Public Distribution	250	485	735	0	735
17	Department of Consumer Affairs	55	0	55	0	55
18	Department of Development of North Eastern States	150	0	150	0	150
19	Ministry of Environment and Forests	5945	0	1671	4274	5945
20	Ministry of External Affairs Ministry of Finance	2811	0	2811	0	2811
21	Department of Economic Affairs	300	0	300	0	300
22	Department of Expenditure	2	0	2	0	2
23	Department of Revenue	1	0	1	0	1
24	Ministry of Food Processing Industries	650	0	650	0	650

Ministry / Department wise Tenth Plan (2002-07) Outlay

(Rs. in Crore)

Sl.No.	MINISTRIES / DEPARTMENTS	Gross Budget Support	IEBR	Plan Outlay		
				Central Schemes	Centrally Sponsored Schemes	Total
1	2	3	4	5	6	7
Ministry of Health and Family Welfare						
25	Department of Health	9253	0	4218	5035	9253
26	Department of Family Welfare	27125	0	0	27125	27125
27	Department of Indian Systems of Medicine & Homeopathy	775	0	551	224	775
Ministry of Heavy Industries and Public Enterprises						
28	Department of Heavy Industry	700	1363	2063	0	2063
29	Department of Public Enterprises	50	0	50	0	50
30	Ministry of Home Affairs	2000	0	2000	0	2000
Ministry of Human Resource Development						
31	Department of Elementary Education and Literacy	30000	0	121	29879	30000
32	Department of Secondary Education and Higher Education	13825	0	11479	2346	13825
33	Department of Women and Child Development	13780	0	1158	12622	13780
34	Ministry of Information and Broadcasting	2380	2750	5130	0	5130
35	Ministry of Labour	1500	0	1145	355	1500
Ministry of Law, Justice and Company Affairs						
36	Deptt. of Company Affairs	50	0	50	0	50
37	Deptt. of Justice	700	0	70	630	700
38	Ministry of Non-Conventional Energy Sources	4000	3167	6167	1000	7167
39	Department of Ocean Development	1125	0	1125	0	1125
40	Ministry of Personnel, Public Grievances and Pensions	250	0	250	0	250
41	Ministry of Petroleum and Natural Gas	0	103656	103656	0	103656
42	Ministry of Planning	340	0	340	0	340
43	Ministry of Power	25000	118399	143399	0	143399
44	Ministry of Railways	27600	33000	60600	0	60600
45	Ministry of Road Transport and Highways	35000	24700	59176	524	59700
Ministry of Rural Development						
46	Department of Drinking Water Supply	14200	0	0	14200	14200
47	Department of Land Resources	6526	0	1526	5000	6526
48	Department of Rural Development	56748	0	440	56308	56748

Ministry / Department wise Tenth Plan (2002-07) Outlay

(Rs. in Crore)

SI.No.	MINISTRIES / DEPARTMENTS	Gross Budget Support	IEBR	Plan Outlay		
				Central Schemes	Centrally Sponsored Schemes	Total
1	2	3	4	5	6	7
Ministry of Science and Technology						
49	Department of Bio-Technology	1450	0	1450	0	1450
50	Department of Science & Technology	3400	0	3400	0	3400
51	Department of Scientific and Industrial Research	2575	0	2575	0	2575
52	Ministry of Shipping	2350	11870	14200	20	14220
53	Ministry of Small Scale Industries	2200	384	2584	0	2584
54	Ministry of Social Justice and Empowerment	8530	0	4916	3614	8530
55	Department of Space	13250	0	13250	0	13250
56	Ministry of Statistics and Programme Implementation	725	0	725	0	725
57	Ministry of Steel	65	10978	11043	0	11043
58	Ministry of Textiles	3500	80	2629	951	3580
Ministry of Tourism and Culture						
59	Department of Tourism	2900	0	1882	1018	2900
60	Department of Culture	1720	0	1720	0	1720
61	Ministry of Tribal Affairs	1754	0	925	829	1754
Ministry of Urban Development and Poverty Alleviation						
62	Department of Urban Development	7000	5168	7694	4474	12168
63	Department of Urban Employment and Poverty Alleviation	4050	13501	14928	2623	17551
64	Ministry of Water Resources	3600	0	1758	1842	3600
65	Ministry of Youth Affairs and Sports	1825	0	1340	485	1825
GRAND TOTAL		405735	487448	706475	186708	893183

Table : 1
SCHEME-WISE BREAK-UP OF TENTH PLAN OUTLAY OF DEPARTMENT OF
AGRICULTURE AND COOPERATION (2002-07)

(Rs in Crore)

Sl No.	Schemes	Tenth Plan Outlay	
		Central Schemes	Centrally Sponsored Schemes
CROPS			
1	Technology Mission on Cotton-ICDP Cotton		300.00
2	On Farm Water Management for increasing production in Eastern States		500.00
3	Varietal and Diversification and Popularisation of recently evolved technologies	50.00	
TMOP			
4	Post Harvest Technology on Oilseeds, Pulses & Maize (PHT)	85.00	
5	NOVOD Board will also include new scheme on Tree Borne Oilseeds	30.00	
6	Integrated Oilseeds Pulses, Oil Palm and Maize Development Pro.		835.00
HORTICULTURE			
7	Technology Mission on Horticulture Development for the North Eastern Region		585.00
8	Coconut Development Board including Technology Mission on	150.00	
9	Hilly/Tribal Areas Development	45.00	
10	National Horticulture Board	585.00	
11	Hi-Tech Horticulture & Precision Farming	340.00	
12	Technology Intervention for Sustainable Development of Horticulture		240.00
SEEDS			
13	Implementation of Protection of Plant Varieties & Farmer's Rights Legislation	52.00	
14	Development & Strengthening of Infrastructure facilities for production & distribution of quality seeds	148.00	
15	Restructuring of NSC & SFCI	75.00	
INTEGRATED NUTRIENT MANAGEMENT (INM)			
16	National project on organic Farming	92.50	
17	National Project on Fertilizer Quality Control	17.50	
PLANT PROTECTION			
18	Strengthening and modernisation of Pest Management in the country	123.95	
19	Strengthening and modernisation of Plant Quarantine Facilities in India	96.05	
AGRI. IMPLEMENT AND MACHINERY			
20	Strengthening of Farm Machinery Institute and demonstration of Agricultural Equipments	60.00	
21	Establishment of National Institute for Agricultural Mechanisation and Appropriate Technology	15.00	
RAINFED FARMING SYSTEM			
22	Watershed Development Council	12.00	

Contd. Table : 1

NATURAL RESOURCE MANAGEMENT (NRM)		
23	All India Soil and Land Use Survey	32.00
24	National Land Use & Conservation Board	8.00
CREDIT		
25	National Agriculture Insurance Scheme (NAIS)	1500.00
26	Investment in Debentures of State Land Development Banks	499.96
27	Centre for International Cooperation and Training in Agriculture Banking (CICTAB)	0.04
Cooperation		
28	Cooperative Education and Training	231.00
29	Assistance to NCDC for Development of Cooperatives	269.00
Extension		
30	National Agricultural Extension Project-1(NAEP-1)	7.48
31	Extension Support to Central Institutes/ DOE	86.50
32	Support to States Extension Programme	188.75
Externally Aided Project		
33	National Agricultural Technology Project(NATP)	239.27
34	UNDP Project on National Food Security	25.00
35	New Schemes	3.00
DIRECTORATE OF ECONOMICS AND STATISTICS		
36	Improvement of Agriculture Statistics (CSS)	118.26
37	Studies on inputs for Agriculture Economic Policy	127.00
38	Forecasting and Remote Sensing Application in Crop Husbandry	18.74
39	Livestock Census	6.00
40	Forecasting of Agriculture Output Using Space, Agro-Metrology and land Based Observation (FASAL)	95.00
AGRICULTURE CENSUS		
41	Agriculture census	60.00
AGRI. MARKETING		
42	Market Research Surveys and Marketing Information Network	35.00
43	Grants to National Institute of Agricultural Marketing (NIAM)	15.00
44	Construction of Rural Godowns	360.00
45	Development of Market Infrastructure, Grading and Standardisation	190.00
INFORMATION TECHNOLOGY		
46	Strengthening /Promoting Agricultural Information Systems	95.00
	(a) IT Apparatus in DAC Hqrs. Including early warning system	
	(b) IT in field offices (Dte. Of DAC)	
47	Strengthening of IT Apparatus in Agricultural & coop. For States&UTs	5.00

Contd. Table : 1

NATURAL DISASTER MANAGEMENT		
48	Natural Disaster management	5.00
TRADE		
49	Establishment of Agri. Clinics	175.00
50	Support to SFAC	15.00
MACRO-MANAGEMENT		
51	Macro-Management in Agriculture	4313.00
SECRETARIAT ECONOMIC SERVICE		
52	Secretariat Economic Service	40.00
Total		5790.99
Total of the Department		7409.01
		13200.00

Table : 2
SCHEME-WISE BREAK-UP OF TENTH PLAN OUTLAY OF DEPARTMENT OF
AGRICULTURAL RESEARCH AND EDUCATION (2002-07)

(Rs in Crore)

Sl No.	Schemes	Tenth Plan Outlay	
		Central Schemes	Centrally Sponsored Schemes
1	National Bureau of Plant Genetics Resources, New Delhi	43.50	
2	IARI, New Delhi	178.15	
3	Central Rice Research Institute, Cuttack	84.50	
4	Vivekananda Parvitya Krishi Anusandhan Shala, Almora	15.00	
5	Indian Institute of Pulses Research, Kanpur	106.65	
6	Directorate of Wheat Research, Karnal	44.60	
7	NRC Sorghum, Hyderabad	57.00	
8	Indian Grassland and Fodder Research Institute, Jhansi	68.00	
9	Central Tobacco Research Institute, Rajamundry	14.00	
10	Indian Institute of Sugarcane Research, Lucknow	43.00	
11	Central institute of Cotton Research, Nagpur	88.00	
12	DOR, Hyderabad	134.50	
13	Project Directorate of Biological Control, Bangalore	32.25	
14	National Seed Project	47.40	
15	National Bureau of Agril. Important Microbes & Insects	9.00	
16	Indian Institute of Horticultural Research, Bangalore	120.37	
17	Central Institute of Temperate Horticulture, Srinagar	15.00	
18	Central Institute of Arid Horticulture, Bikaner	25.50	
19	Indian Institute of Vegetable Research, Varanasi	66.50	
20	Central Potato Research Institute, Shimla	45.85	
21	Central Plantation Crops Research Institute, Kasargod	50.00	
22	Central Agricultural Research Institute, Port Blair	17.00	
23	Indian Institute of Spices Research, Calicut	29.13	
24	NRC Medicinal and Aromatic Plants, Anand	23.00	
25	National Bureau of Soil Survey and Land Use Planning, Nagpur	33.50	
26	Central Soil and Water Conservation Research & Training Institute, Dehradun	29.00	
27	Indian Institute of Soil Sciences, Bhopal	52.50	
28	Central Soil Salinity Research Institute, Karnal	30.60	
29	ICAR Research Complex for Eastern Region	37.50	
30	Water Technology Centre for Eastern Region, Bhubaneshwar	56.70	
31	Central Research Institute of Dryland Agriculture, Hyderabad	58.50	
32	Central Arid Zone Research Institute, Jodhpur	21.10	
33	Project Dte. on Cropping System Research, Modipuram	62.50	
34	NRC-WS, Jabalpur	29.20	

35	ICAR Research Complex Goa	13.00
36	ICAR Research Complex for NEH Region	75.00
37	Central Institute of Agricultural Engineering, Bhopal	96.20
38	Central Institute on Post harvest Engineering and Technology, Ludhiana	55.90
39	Indian Lac Research Institute	8.10
40	Central Institute of Research on Cotton Technology, Mumbai	12.00
41	National Institute of Research on Jute & Allied Fibre Technology	9.20
42	National Bureau of Animal Genetic Resources, Karnal	31.00
43	National Dairy Research Institute, Karnal	53.55
44	Central Sheep and Wool Research Institute, Avikanagar, Rajasthan	26.00
45	Central Institute for Research on Goats	27.00
46	Central Institute for Research on Buffaloes, Hissar	30.00
47	National Institute of Animal Nutrition and Physiology	44.00
48	NRC on Camel, Bikaner	12.00
49	NRC on Equines	22.00
50	Project Directorate – Cattle	26.00
51	PD on Foot & Mouth Disease	10.00
52	Central Avian Research Institute, Izatnagar	41.00
53	Indian Veterinary Research Institute, Izatnagar	94.00
54	NRC on Meat and Meat Products Technology, Hyderabad	20.00
55	NRC on Pig	20.00
56	Central Marine Fisheries Research Institute	50.00
57	Central Inland Capture Fisheries Research Institute	37.25
58	Central Institute of Fisheries Technology	29.00
59	Central Institute on Fisheries Education	50.75
60	Central Institute of Freshwater Aquaculture	22.00
61	National Bureau of Fish Genetic Resources	22.50
62	Indian Agricultural Statistical Research Institute	22.00
63	Krishi Vigyan Kendras	1021.00
64	NRC for Women in Agriculture	20.00
65	Directorate of Information & Publication in Agriculture	8.00
66	Strengthening of Agricultural Education (including Jammu University)	618.68
67	National Academy of Agricultural Research & Management (NAARM)	18.00
68	DARE including Central Agricultural University	227.65
69	Strengthening and Modernization of ICAR Headquarters	70.00
70	National Agricultural Technology Project	429.50
71	Indo-French proposal Seabeas Breeding & Culture (EAP)	2.50
	New Initiative/Pipeline projects	

Contd. Table : 2

72	Impact of Climate Change on Agril. Productivity	10.00
73	Network Project on Organic Farming	5.00
74	Networking on Transgenics	40.00
75	Institute on National Bureau of Indian Veterinart Type Culture	15.00
76	Network on Biosystematics of Insects	15.00
77	NRC for Agricultural Extension	15.00
78	Other New Initiatives/Pipeline Projects	124.22
	Total of the Department	5368.00

Table : 3
SCHEME-WISE BREAK-UP OF TENTH PLAN OUTLAY OF DEPARTMENT OF
ANIMAL HUSBANDRY AND DAIRYING (2002-07)

(Rs in Crore)

Sl No.	Schemes	Tenth Plan Outlay	
		Central Schemes	Centrally Sponsored Schemes
Animal Husbandry			
1	Central Cattle Development organisation	70.00	
2	Central Sheep Breeding Farm	25.00	
3	Central Fodder Development Org.	45.00	
4	Central Poultry Development Org.	40.00	
5	Directorate of Animal Health	50.00	
6	Dairy/Poultry Venture Capital Fund (new)	25.00	
7	National Project for Cattle & Buffalo Breed prog.		400.00
8	Feed & Fodder Production Enhancement Prog, (new)		30.00
9	Assistance to State Poultry/Duck Farms		25.00
10	Mod. of Slaughter Houses and CUC for hygienic meat		45.00
11	Integrated Sample Survey		50.00
12	Building Infrastructure for AH Extension Prog. (new)		25.00
13	Conservation of Threatned Livestock Bredds small ruminals &Pack Animals		15.00
14	Animal Disease Control		265.00
15	National Project on Rinderpest Eradication		40.00
16	Professional Efficiency Development		30.00
17	Creation of Disease Free Zones		200.00
Dairy Development			
18	Assistance to Cooperatives	140.00	
19	Delhi Milk Scheme	1.00	
20	Integrated Dairy Development Project		184.00
21	Stengthening Infrastcture for quality and clean milk production		30.00
Fisheries			
22	Assistance to Fisheries Institutes	175.00	
23	Strengthening of Database & Infr. Networking (new)	45.00	
24	Secretariat & Economic Services	15.00	
25	Aquaculture		120.00
26	Inalnd Capture Fisheries		15.00
27	Development of Marine Fisheries		125.00
28	Dev. Of Infrastruture & post harvest operations		125.00
29	Maintenance of Dredging Equipment		10.00
30	Welfare Programme/Human Res. Dev.		135.00
Total		631.00	1869.00
Total of the Department			2500.00

Table : 4
SCHEME-WISE BREAK-UP OF TENTH PLAN OUTLAY OF MINISTRY OF
AGRO AND RURAL INDUSTRIES (2002-07)

(Rs in Crore)

Sl No.	Schemes	Tenth Plan Outlay	
		Central Schemes	Centrally Sponsored Schemes
KHADI (KVIC)			
1	Khadi Grant	383.37	
2	Khadi S&T	9.35	
3	Interest Subsidy	95.00	
4	Khadi Loan	7.34	
VILLAGE INDUSTRIES (KVIC)			
5	VI Grant	357.04	
6	VI Loan	0.05	
7	Rural Employment Generation Programme (REGP)	1177.60	
8	Interest Subsidy	25.00	
9	VI Grant S&T	25.25	
C. Coir Board			
10	Research & Development	28.60	
11	Training, Extension, Quality Improvement, Mahila Coir Yojana and Welfare Measures	10.00	
12	Development of Production Infrastructure	13.30	
13	Domestic Market Promotion	32.25	
14	Export Market Promotion	10.00	
15	Trade Information Service, Information Technology and Strengthening of HQ	13.55	
16	Economic Market Research	1.55	
17	Co-operativisation in Coir Sector		5.75
D	Prime Minister Rozgar Yojana	750.00	
E	National Programm for Rural Industrialisation	5.00	
Total		2944.25	5.75
Total of the Ministry			2950.00

Table : 5
SCHEME-WISE BREAK-UP OF TENTH PLAN OUTLAY OF DEPARTMENT OF
ATOMIC ENERGY (2002-07)

(Rs in Crore)

Sl No.	Schemes	Tenth Plan Outlay	
		Central Schemes	Centrally Sponsored Schemes
POWER SECTOR			
Nuclear Power Corporation of India Ltd.			
1	TAPP-3&4	4357.00	
2	KAIGA-3&4	2645.00	
3	RAPP-5&6	2442.00	
4	KK-1&2	11141.00	
5	LWR-3&4	619.00	
6	6NP-1&2	288.00	
7	Pre-Proj.(LWR-5&6)	150.00	
8	Pre-Proj.(6NP-3&4)	150.00	
9	R&D Schemes	157.00	
10	R&M Schemes	1058.00	
11	Other Schemes	209.00	
Indira Gandhi Centre for Atomic Research			
12	PFBR - 500 Mwe	2000.00	
13	PFBR ST A PH-1	36.50	
Bhabha Atomic Research Centre			
14	AHWR	278.50	
15	ADD.Spent Fuel Storage	27.21	
16	ADD. UPGRD. Facility	5.60	
17	Hot Cell Facility PIE	7.49	
18	RAPS - 1 CCR & UPGRD.	5.70	
RESEARCH AND DEVELOPMENT SECTOR			
19	Bhabha Atomic Energy Research Centre (BARC)	1100.00	
20	Indira Gandhi Centre for Atomic Research (IGCAR)	247.00	
21	Centre for Advance Technology (CAT)	490.00	
22	Variable Energy Cyclotron Centre (VECC)	155.00	
23	Atomic Mineral Division (AMD)	62.00	
24	Tata Memorial Centre (TMC)	200.00	
25	Tata Institute of Fundamental Research (TIFR)	265.00	
26	Saha Institute of Nuclear Physics (SINP)	105.00	
27	Institute of Physics (IOP)	30.00	
28	Institute of Mathematical Sciences (IMS)	12.50	
29	Harish Chandra Research Institute (HRI)	12.00	

Contd. Table : 5

30	Institute of Plasma Research (IPR)	200.00
31	DAE Projects	4.50
32	Atomic Energy Regulatory Board (AERB)	15.00
33	Grant-in-Aid	330.00
34	Directorate of Construction, Services & Estate Management (DCSEM)	215.00
INDUSTRY AND MINERALS SECTOR		
35	Atomic Minerals Division (AMD)	45.00
36	Bhabha Atomic Research Centre (BARC)	640.00
37	Board of Radiation & Isotope Technology (BRIT)	42.00
38	Centre for Advance Technology (CAT)	1.60
39	DAE Projects	202.40
40	Heavy Water Board (HWB)	85.00
41	Indira Gandhi Centre for Atomic Research (IGCAR)	307.00
42	Nuclear Fuel Complex (NFC)	286.00
43	Electronic Corporation of India Ltd. (ECIL)	181.00
44	Indian Rare Earth Ltd. (IREL)	493.00
45	Uranium Corporation of India Ltd. (UCIL)	1067.00
Total of the Department		32370.00

Table : 6
SCHEME-WISE BREAK-UP OF TENTH PLAN OUTLAY OF DEPARTMENT OF
CHEMICALS AND PETROCHEMICALS (2002-07)

(Rs in Crore)

Sl No.	Schemes	Tenth Plan Outlay	
		Central Schemes	Centrally Sponsored Schemes
1	Support to existing Public Sector Undertakings (PSUs)		
	(1) Indian Petrochemicals Corporation Ltd (IPCL)	2470.00	
	(2) Hindustan Organic Chemicals Ltd. (HOCL)	150.00	
	(3) Hindustan Insecticides Ltd. (HIL)	60.00	
	(4) Indian Drugs and Pharmaceuticals Ltd. (IDPL)	0.01	
	(5) Bengal Chemicals and Pharmaceuticals Ltd. (BCPL)	80.00	
	(6) Hindustan Anti-biotics Ltd. (HAL)	24.00	
	(7) Smith Stainstreet Pharmaceuticals Ltd. (SSPL)	0.01	
	(8) Bengal Immunity Ltd. (BIL)	0.01	
2	Support to Autonomous Bodies on Project Basis		
	(1) Central Institute of Plastic Eng. and Technology (CIPET)	100.00	
	(2) Institute for Pesticides Formulation (IPFT)	17.00	
	(3) National Institute of Pharmaceuticals Education and Research (NIPER)	53.07	
3	Others		
	(1) Chemicals Promotion and Development Scheme (CPDS)	2.00	
	(2) Chemical Weapons Convention (CWC)	0.25	
	(3) Pharmaceuticals Research and Developemnt Prog. (PRDP)	1.25	
	(4) Secretariat	0.03	
	(5) Assam Gas Crackers Ltd.	56.37	
	(6) North East Region	30.00	
	Total of the Department	3044.00	

Table : 7
SCHEME-WISE BREAK-UP OF TENTH PLAN OUTLAY OF DEPARTMENT OF FERTILISERS (2002-07)

(Rs in Crore)

Sl No.	Schemes	Tenth Plan Outlay	
		Central Schemes	Centrally Sponsored Schemes
Support to existing PSU's on Project Basis			
1	Fertilizer and Chemicals Travancore Ltd. (FACT)	475.00	
2	Fertilisers Corporation of India	380.00	
3	Hindustan Fertilisers Corporation	275.00	
4	Madras Fertilisers Ltd.	99.00	
5	National Fertilisers Ltd.	160.00	
6	Pyrites Phosphate & Chemical	1.00	
7	Project Development India Ltd.	10.00	
8	Rashtriya Chemicals India Ltd.	1900.00	
Support to existing Co-operatives on Project Basis			
9	Krishak Bharati Cooperative	1680.00	
10	Indian Farmers Fertilizers Cooperative	810.00	
11	Other Schemes	110.00	
Total of the Department		5900.00	0

Table : 8
SCHEME-WISE BREAK-UP OF TENTH PLAN OUTLAY OF MINISTRY OF CIVIL AVIATION (2002-07)

(Rs in Crore)

Sl No.	Organisation	Tenth Plan Outlay	
		Central Schemes	Centrally Sponsored Schemes
1	Air India	2661.39	
2	Indian Air Lines	4240.50	
3	Airports Authority of India	5404.21	
4	Pawan Hans Helicopters Ltd.	458.90	
5	Hotel Corporation of India Ltd.	15.00	
6	Indira Gandhi Rashtriya Uran Akademi	10.00	
7	Directorate Genaral of Civil Aviation	14.00	
8	Aero Club of India	10.00	
9	Bureau of Civil Aviation Security	114.00	
Total of the Ministry		12928.00	0.00

Table : 9
SCHEME-WISE BREAK-UP OF TENTH PLAN OUTLAY OF DEPARTMENT OF
COAL (2002-07)

(Rs in Crore)

Sl No.	Schemes / PSU's	Tenth Plan Outlay	
		Central Schemes	Centrally Sponsored Schemes
1	Coal India Ltd.	14310.00	
2	Singareni Collieries Co. Ltd.	2113.00	
3	Neyveli Lignite Corporation	14133.48	
4	Science and Technology	100.00	
5	Environmental Measures and Subsidence Control	163.00	
6	Regional Exploration	275.80	
7	Detailed drilling in non-CIL Blocks	70.66	
8	Voluntary Retirement Scheme	425.06	
Total of the Department		31591.00	

Table : 10
SCHEME-WISE BREAK-UP OF TENTH PLAN OUTLAY OF DEPARTMENT OF MINES (2002-07)

(Rs in Crore)

Sl No.	Schemes	Tenth Plan Outlay	
		Central Schemes	Centrally Sponsored Schemes
National Aluminium Co. Ltd			
1	Special Grade Alumina	6.22	
2	Equity Participation in I.A.P.L	34.00	
3	Mines & Refinery	126.02	
4	Smelter & Power Plant	697.06	
5	VIII Unit of C.P.P.	384.40	
6	Schemes Aimed at Maximising Benefits	402.30	
7	Alumina 4th Stream	1193.00	
8	Aluminium 4th Potline	1575.00	
9	CPP (2 x 120 MW)	855.00	
10	Equity participation of Qatar Project	1573.00	
11	Coal Mine (one block)	210.00	
Hindustan Copper Ltd.			
12	Replacement & Renewals	50.00	
Hindustan Zinc Ltd.			
13	Research & Development	1.25	
14	Exploration & Feasibility	10.00	
15	Additions/ Modification/ Renewals/ Replacement	267.30	
16	Augmentation of Water Supply	105.65	
17	Environment Protection/ Energy Conservation	85.90	
18	Deepening of Shafts at Mines	11.05	
19	Sindesar Khurd	102.05	
20	Information and Techn-Hardware & Software upgradation	4.50	
21	Expansion of Rampura Agucha Mines Phase - II	313.5	
22	Expansion of Existing capacity - CLZS	65.00	
23	Joint Venture - Abroad/ Indian	29.00	
24	Lead Battery Recycling Plant	69.80	
25	10 MW Wind Power Project	48.50	
Mineral Exploration Corporation Ltd.			
26	Promotional	45.00	
27	Capital	5.00	
28	Geological Survey of India	1000.00	
29	Indian Bureau of Mines	103.00	
30	Science & Technology Programmes	57.50	
31	Construction	28.00	
Total of the Department		9458.00	

Table : 11
SCHEME-WISE BREAK-UP OF TENTH PLAN OUTLAY OF MINISTRY OF
COMMERCE (2002-07)

(Rs in Crore)

Sl No.	Schemes	Tenth Plan Outlay	
		Central Schemes	Centrally Sponsored Schemes
Industrial Sector			
1	Assistance to States for Infrastructure		1725.00
2	Agricultural and Processed Food Products Export Development Authority (APEDA)	310.00	
3	Marine Products Export Development Authority	200.00	
4	Anti Dumping	5.00	
5	Export Credit Gaurantee Corporation	432.00	
6	Export promotion Quality Control and Inspection		
	(1) EAN	2.00	
	(2) Export Inspection Council	15.00	
	(3) Centre for WTO Studies	5.00	
	(4) Market Access Initiatives	552.00	
	(5) Assistance to Institutions		
	(a) Indian Institute of Foreign Trade	25.00	
	(b) Indian Institute of Packaging	30.00	
	(6) Quality Council of India	0.60	
7	Modernisation and Upgradation		
	(a) Secretariat - Economic Services	10.00	
	(b) Director General of Foreign Trade	14.00	
	(c) Director General of Commercial Intelligence and Statistics	12.40	
8	Footwear design & Development Institute	5.00	
9	Computerisation in Directorate General of Supplies & Disposals	7.00	
Agricultural Sector			
10	Tea Board	350.00	
11	Rubber Board	415.00	
12	Coffee Board	300.00	
13	Spices Board	140.00	
14	Tobacco Board	2.00	
15	Cashew Export Promotion Council	3.00	
16	Institute of Plantation Management (IIPM)	2.00	
Total		2837.00	1725.00
Total of the Ministry			4562.00

Table : 12
SCHEME-WISE BREAK-UP OF TENTH PLAN OUTLAY OF DEPARTMENT OF
INDUSTRIAL POLICY AND PROMOTION (2002-07)

(Rs in Crore)

Sl No.	Schemes	Tenth Plan Outlay	
		Central Schemes	Centrally Sponsored Schemes
1	Capital Investment Subsidy Scheme (old)	10.00	
2	Computerisation (Secretariat Economic Service)	3.50	
3	International Centre for Advancement for Advancement of Manufacturing (ICAMT)	7.00	
4	Central Manufacturing Technology Institute (CMTI)	50.00	
5	Central Pulp and Paper Research Institute (CPPRI)	25.00	
6	Indian Leather Dev.Programme (ILDIP)	400.00	
7	Investment Promotion Activities / IC&JV	19.00	
8	Quality Council of India	0.45	
9	National Institute of Design (NID)	35.00	
10	Strengthening of Infratructure and Trade Marks Registry (TMR)/ Geographical Indications registry	10.00	
11	Patent Offices Modernisation	92.55	
12	Automotive Resaerch Association of India (ARAI)	20.00	
13	Upgradation of Department of Explosives, Nagpur	10.00	
New Projects of Autonomous Institutions			
14	National Council for Cement and Building material (NCCBM)	40.00	
15	Indian Ruber Manufacturers Association (IRMRA)	12.00	
16	National Productivity Council (NPC)	20.00	
17	Research Studies (Economic Adviser Office,Tariff Comm., Survey of Boiler)	10.50	
18	Lumpsum Provision for NER & Sikkim	9.00	191.00
19	Package for special category states, J&K	11.00	
20	Upgradation of Industrial Clusters Scheme)	675.00	
21	Technology Upgradation / Moderanisation Scheme	219.00	
22	Transport Subsidy Scheme (Rs. 150 crore provision for NER & Sikkim is covered under Sl. No. 18)		100.00
23	Growth Centre Scheme		30.00
Total		1679.00	321.00
Grand total of the Department			2000.00

Table : 13
SCHEME-WISE BREAK-UP OF TENTH PLAN OUTLAY OF DEPARTMENT OF
INFORMATION TECHNOLOGY (2002-07)

(Rs in Crore)

Sl No.	Schemes	Tenth Plan Outlay	
		Central Schemes	Centrally Sponsored Schemes
R&D PROGRAMMES			
1	SAMEER	120.00	
2	Industrial Electronics Promotion Programme	40.00	
3	Microelectronics & Nano-Tech. Dev. Programme - NMC	18.00	
4	Technology Development Council	33.00	
5	Dev. Of Strategic Electronic Eqpt.	18.00	
6	Components & Material Development Programme	51.00	
7	C-DAC	119.50	
8	Photonics/Optoelectronics	18.00	
9	Electronics Research and Development Centres	354.62	
10	Electronics in Health and Bio-Informatics	30.00	
11	Technology Dev. For Indian Languages	40.00	
12	Development of CG Industry	11.00	
13	Transport & Power Electronics	55.82	
14	Centre for Liquid Crystal Research	8.00	
15	IPR Promotion Programme	3.00	
16	Promotion/R&D in IT/Special IT Projects	85.00	
17	IT for Masses (Incl. Citizen Portals)	70.00	
18	Media Lab. In Asia	2007.50	
INFRASTRUCTURE DEVELOPMENT			
19	Education and Research Network (ERNET)	21.00	
20	Vidya Vahini & Gyan Vahini Programme	80.00	
21	Standardisation Testing and Quality Control (STQC)	133.00	
22	Software Technology Parks of India & Electronic Hardware Technology Parks	50.00	
23	IT Venture Capital	10.00	
24	Electronic Governance	651.00	
25	IT Bill / Certification & Network Security	25.00	
26	Semiconductor Layoyut Design Act - 2000	4.00	
27	Community Information Centres (CIC)	120.00	
HUMAN RESOURCE DEVELOPMENT			
28	Centre for Electronics Design and Technology	61.38	
29	National Centre for Software Technology	25.00	
30	Manpower Development Employment Generation	30.00	
31	Special Manpower for ASIC Design	12.00	

Contd. Table : 13

MISCELLANEOUS		
32	Headquarter (Secretariat & Bldg)	42.00
33	El. For Rural/Social/Agri/Water Sector	91.68
34	Tech. Information and Forecasting	3.00
35	Electronics Industry Information Programme	1.00
36	e-Commerce & Info-Security (Incl. Smart Cards)	35.00
37	Policy Formulation & Eco. Analysis in IT Sector	4.00
38	Semiconductor Complex Ltd.	5.00
39	VI. National Informatics Centre (NIC)	975.00
40	VII. ESC & Export Market Development Programme	30.50
Total of the Department		5492.00
		0

Table : 14
SCHEME-WISE BREAK-UP OF TENTH PLAN OUTLAY OF DEPARTMENT OF POST (2002-07)

(Rs in Crore)

Sl No.	Schemes	Tenth Plan Outlay	
		Central Schemes	Centrally Sponsored Schemes
1	Expansion of Postal Network	37.27	
2	Computerisation of Post Offices, Accounts & Admn. Offices and Software Development	836.27	
3	Computerisation and Networking of Head Record Offices and Transit Mail Offices	25.37	
4	Upgradation of customer care centres	11.57	
5	Modernisation & Upgradation of VSAT system	3.00	
6	Modernisation & operative / working systems (improving ergonomics)	48.50	
7	Automatic Integrated Mail Processing Systems	71.05	
8	Modernisation/Upgradation of mail movement	21.00	
9	Modernisation / Upgradation of premium products	41.09	
10	Upgradation and promotion philately	7.31	
11	Training	61.30	
12	Construction of Buildings	115.40	
13	Modernisation of Circle Stamp depots	2.52	
14	Computerisation of International Mail Processing	3.33	
15	National Data Centre	10.00	
16	Research & Development/studies/surveys	4.00	
17	Establishment of Express parcel post centre	7.02	
18	e-post	5.00	
19	e-BillPost	5.00	
20	New Products and Services including Development of Financial Products and Services	34.00	
Total of the Department		1350.00	0.00

Table : 15
ORGANISATION-WISE BREAK-UP OF TENTH PLAN OUTLAY OF DEPARTMENT OF
TELECOMMUNICATIONS (2002-07)

(Rs in Crore)

Sl No.	Schemes	Tenth Plan Outlay	
		Central Schemes	Centrally Sponsored Schemes
1	Bharat Sanchar Nigam Ltd. (BSNL)	66412.00	
2	Mahanagar Telephone Nigam Ltd. (MTNL)	11955.44	
3	Wireless Monitoring Organisation (WMO)	1495.00	
4	Wireless Planning & Coordination Cell (WPC)		
5	Telecom Regulatory Authority of India (TRAI)		
6	Telecom Dispute Settlement and Appellate Tribunal (TDSAT)		
7	Telecom Engineering Centre (TEC)		
8	Centre for Development of Telematics(C-DoT)		
9	Indian Telephone Industries (ITI)	790.00	
10	Others	6331.56	
	Total of the Department	86984.00	0.00

Table : 16
SCHEME-WISE BREAK-UP OF TENTH PLAN OUTLAY OF DEPARTMENT OF
FOOD AND PUBLIC DISTRIBUTION (2002-07)

(Rs in Crore)

Sl No.	Schemes	Tenth Plan Outlay	
		Central Schemes	Centrally Sponsored Schemes
1	Construction of godowns by Food Corporation of India	224.32	
2	Training Research and Monitoring	1.15	
3	Research and Development and Modernization of the Labs of the Directorate of Vanaspati, Vegetable Oils & Fats	1.25	
4	National Sugar Institute, Kanpur and Technical studies and consultancies	8.95	
5	Smart Card	13.20	
6	Post Harvest operations	1.13	
7	Construction of Warehouses / Godowns by Central Warehousing Corporation	473.50	
8	Contribution to share capital of the State Warehousing Corporations	11.50	
	Total of the Department	735.00	0.00

Table : 17
SCHEME-WISE BREAK-UP OF TENTH PLAN OUTLAY OF DEPARTMENT OF
CONSUMER AFFAIRS (2002-07)

(Rs in Crore)

Sl No.	Schemes	Tenth Plan Outlay	
		Central Schemes	Centrally Sponsored Schemes
1	Consumer Protection	15.50	
2	National Consumer Disputes Redressal Commission	4.00	
3	Internal Trade	0.75	
4	Weights and Measures	7.70	
5	National Test House	25.00	
6	Bureau of Indian Standards	1.05	
7	Information Technology	1.00	
Total of the Department		55.00	0.00

Table : 18
SCHEME-WISE BREAK-UP OF TENTH PLAN OUTLAY OF DEPARTMENT OF
DEVELOPMENT OF NORTH EASTEN REGION (2002-07)

(Rs in Crore)

Sl No.	Schemes	Tenth Plan Outlay	
		Central Schemes	Centrally Sponsored Schemes
1	Advertising and Publicity	10.00	
2	Technical Assistance and Capacity Building	10.00	
3	Others *	130.00	
Total of the Department		150.00	0

* includes Grants to North East Development Finance Institution (NEDFI) and investments in Public Enterprises

Table : 19
SCHEME-WISE BREAK-UP OF TENTH PLAN OUTLAY OF MINISTRY OF
ENVIRONMENT AND FORESTS (2002-07)

(Rs in Crore)

Sl No.	Schemes	Tenth Plan Outlay	
		Central Schemes	Centrally Sponsored Schemes
Environment.			
1	Central Pollution Control Board	100.00	
2	Industrial Pollution Abatement through Preventive Strategies	5.00	
3	Establishment of Env.Authorities and Commission & Tribunal	15.00	
4	Assistance for Abatement of Pollution and Policy and Law	19.67	
5	Clean Technologies	25.00	
6	Environment Impact Assessment	13.00	
7	Botanical Survey of India	85.00	
8	Zoological Survey of India	45.00	
9	G.B.Pant Inst. Of Himalayan Environment & Development	35.00	
10	Assistance to Botanical Gardens	15.00	
11	Biodiversity Conservation	12.00	
12	Texonomy Capacity Building Project	10.00	
13	Institute of Biodiversity	16.00	
14	Research and Development	24.00	
15	Environment Education, Training and Awareness	125.00	
16	National Museum of Natural History	40.00	
17	Centres of Excellence	45.00	
18	Environmental Information (ENVIS)	14.00	
19	National Natural Resource Management System	7.00	
20	Indo Canada Environment Facility (ICEF) (EAP)	35.00	
21	GOI-UNDP-CCF Programme (EAP)	3.00	
22	Information Technology (IT)	25.00	
23	Civil Construction Unit (CCU)	12.00	
24	Environmental Health	10.00	
25	Hazardous Substances Management	70.00	
26	Environment Management Capacity Building Project (EAP)	48.98	
27	Global Environment Facility (EAP)	0.05	
28	International Cooperation Activities	8.00	
29	Centre for Environmental Science and Technology (EAP)	1.00	
30	Indo-German Technical Cooperation Project (EAP)	6.00	
31	State of Environment Project	6.00	
32	Climate Change	30.00	
33	Strengthening of Plan Coordination	0.30	

34	Common Effluent Treatment Plant	25.00	
35	Taj Protection Mission and Other Centres	170.00	
36	Industrial Pollution Prevention Project (EAP)	10.00	
37	Biosphere Reserves	35.00	
38	Management of Mangroves, Coral Reefs and Wetlands	54.00	
Forestry			
39	Indian Council of Forestry Research and Education	210.00	
40	Indian Plywood Industries Research & Training Institute	10.00	
41	Indian Institute of Forest Management	20.00	
42	Directorate of Forestry Education	10.00	
43	Training of IFS Officers	6.00	
44	Indira Gandhi National Forest Academy	30.00	
45	Forest Survey of India	35.00	
46	Strengthening of Forestry Division	34.00	
47	Integrated Forest Protection Scheme	445.00	
National Afforestation & Eco-Development Board			
48	National Action Plan to Combat Desertification	100.00	
49	National Afforestation & Eco-Development Board	55.00	
50	National Afforestation Scheme	1025.00	
51	Greening India	45.00	
52	Eco-Development Forces	75.00	
Wildlife			
53	Central Zoo Authority	75.00	
54	Wildlife Institute of India	50.00	
55	Strengthening of Wildlife Divisions	10.00	
56	National Parks and Sanctuaries	350.00	
57	Project Tiger	150.00	
58	Project Elephant	60.00	
59	Eco-Development around Protected Areas	45.00	
60	Protection of Wildlife outside Protected Areas	60.00	
National River Conservation Directorates			
61	National River Conservation Directorate	33.00	
62	National River Conservation Plan	1342.00	
63	National River Conservation Plan (EAP)	75.00	
64	National Lake Conservation Plan	220.00	
65	Animal Welfare	175.00	
Total		1671.00	4274.00
Total of the Ministry			5945.00

Table : 20
SCHEME-WISE BREAK-UP OF TENTH PLAN OUTLAY OF MINISTRY OF
EXTERNAL AFFAIRS (2002-07)

(Rs in Crore)

Sl No.	Schemes	Tenth Plan Outlay	
		Central Schemes	Centrally Sponsored Schemes
1	Tala H.E. Project	2328.80	
2	Kurichu H.E. Project	32.00	
3	Dungsum Cement Plant	343.49	
4	Punat Sangchu H.E. Project	106.71	
Total of the Ministry		2811.00	0.00

Table : 21
SCHEME-WISE BREAK-UP OF TENTH PLAN OUTLAY OF DEPARTMENT OF
ECONOMIC AFFAIRS (2002-07)

(Rs in Crore)

Sl No.	Schemes	Tenth Plan Outlay	
		Central Schemes	Centrally Sponsored Schemes
1	Industrial Development Bank of India (IDBI)	4.25	
2	Industrial Credit and Investment Corporation of India (ICICI)	52.23	
3	Industrial Finance Corporation of India (IFCI)	20.77	
4	Small Industries Development Bank of India (SIDBI)	175.75	
5	National Bank for Agriculture and Rural Development (NABARD)	28.35	
6	UNDP Project	4.65	
7	Modernization of Mints	14.00	
Total of the Department		300.00	0.00

Table : 22
SCHEME-WISE BREAK-UP OF TENTH PLAN OUTLAY OF DEPARTMENT OF
EXPENDITURE (2002-07)

(Rs in Crore)

Sl No.	Schemes	Tenth Plan Outlay	
		Central Schemes	Centrally Sponsored Schemes
1	National Institute of Financial Management (NIFM)	1.71	
Total of the Department		1.71	0.00

Table : 23
SCHEME-WISE BREAK-UP OF TENTH PLAN OUTLAY OF DEPARTMENT OF
REVENUE (2002-07)

(Rs in Crore)

Sl No.	Schemes	Tenth Plan Outlay	
		Central Schemes	Centrally Sponsored Schemes
1	Courts for Narcotics and Drugs Prevention Scheme	1.00	
Total of the Department		1.00	0

Table : 24
SCHEME-WISE BREAK-UP OF TENTH PLAN OUTLAY OF MINISTRY OF
FOOD PROCESSING INDUSTRIES (2002-07)

(Rs in Crore)

Sl No.	Schemes	Tenth Plan Outlay	
		Central Schemes	Centrally Sponsored Schemes
1	Scheme for Infrastructure Development	250.00	
2	Scheme for Technology Upgradation, Establishment & Modernization of Food Processing Industries	98.00	
3	Scheme for Backward & Forward Integration and other promotional Activities	85.00	
4	Scheme for Quality Assurance, Codex Standards and Research & Development	90.00	
5	Scheme for Human Resource Development	65.00	
6	Scheme for Strengthening of Institutions	62.00	
Total of the Ministry		650.00	0.00

Table : 25
SCHEME-WISE BREAK-UP OF TENTH PLAN OUTLAY OF DEPARTMENT OF
HEALTH (2002-07)

(Rs in Crore)

Sl No.	Schemes	Tenth Plan Outlay	
		Central Schemes	Centrally Sponsored Schemes
Control of Communicable Diseases:			
1	National Vector Borne Diseases Control Programme (Malaria, Kala-Azar, Filaria, Dengue and J.E.)		1370.00
2	National Leprosy Eradication Programme.		255.00
3	National Tuberculosis Control Programme.		680.00
4	National AIDS Control Programme including Blood Safety Measures and National S.T.D. Control Programme		1270.00
5	Disease Surveillance Programme		190.00
6	Hospital Waste Management		10.00
7	Assistance to States for capacity building (drug quality)		60.00
8	Capacity building for drug & prevention of food adulteration		97.00
9	National Programme for control of blindness		445.00
10	National Cancer Control Programme and Anti-Tobacco initiative		285.00
11	National Iodine Deficiency Disorders Control Programme and pilot project on micronutrients		35.00
12	National Mental Health Programme		190.00
13	Drug De-addiction Programme including assistance to States		33.00
14	UNDP Pilot Initiatives for Community Health		4.80
15	National Institute of Communicable Diseases, Delhi (ongoing activities including Strengthening of Institute Guinea worm & Yaws Eradication)	65.00	
16	National Institute of Tuberculosis, Bangalore	10.30	
17	Lala Ram Sarup Institute of T.B. and allied diseases, Mehrauli, Delhi	54.50	
18	Central Leprosy Training & Research Institute Chengalpattu (Tamil Nadu) Regional Institute of Training, Research & Treatment under Leprosy Control Programme:	5.50	
19	(a) Regional Leprosy Training and Research Institute (R.L.T.R.I.), Aska (Orissa)	2.00	
20	(b) Regional Leprosy Training and Research Institute (R.L.T.R.I.), Raipur (M.P.)	1.00	
21	(c) Regional Leprosy Training and Research Institute (R.L.T.R.I.), Gauripur (W.B.)	7.00	
22	B.C.G. Vaccine Laboratory, Guindy, Chennai	19.50	
23	Pasteur Institute of India, Coonoor	35.00	
24	Central Research Institute, Kasauli	50.00	

Hospitals and Dispensaries:		
25	Central Government Health Scheme	80.00
26	Central Institute of Psychiatry, Ranchi	50.00
27	All India Institute of Speech & Hearing, Mysore and pilot project	30.00
28	All India Institute of Physical Medicine & Rehabilitation, Mumbai and pilot project	20.00
29	Health Sector Disaster preparedness and Management	30.00
30	Safdarjung Hospital, New Delhi	230.00
31	Dr. Ram Manohar Lohia Hospital, New Delhi	150.00
32	Institute for Human Behaviour & Allied Sciences, Shahdara, Delhi	7.00
Medical Education, Training and Research		
33	All India Institute of Medical Sciences & Its Allied Departments, New Delhi and 3 pilot projects	675.00
34	Post Graduate Institute of Medical Education and Research, (PGIMER) Chandigarh	200.00
35	Jawaharlal Institute of Post Graduate Medical Education & Research, Pondicherry	150.00
36	Lady Harding Medical College & Smt. S.K. Hospital, New Delhi	200.00
37	Kalawati Saran Childrens Hospital, New Delhi	140.00
38	Indira Gandhi Institute of Health & Medical Sciences for North East Region at Shilong.	380.00
39	Kasturba Health Society, Wardha	50.00
40	Vallabhbhai Patel Chest Institute, Delhi	23.00
41	All India Institute of Hygiene & Public Health, Calcutta and pilot project	20.00
42	Serologist & Chemical Examiner to the Government of India, Calcutta	2.50
43	National Medical Library, New Delhi	35.00
44	National Academy of Medical Sciences, New Delhi	2.50
45	National Board of Examinations, New Delhi	1.00
46	Medical Council of India, New Delhi	5.00
47	Education Commission of Health Sciences	10.00
48	National Institute of Mental Health and Neuro Sciences (N.I.M.H.A.N.S), Bangalore	120.00
49	Indian Nursing Councils	2.10
50	Strengthening/adding seats to existing schools of Nursing	100.00
51	Rajkumari Amrit Kaur College of Nursing, New Delhi	11.00
52	Lady Reading Health School, New Delhi	2.00
53	Indian Council of Medical Research, New Delhi and 5 pilot projects	870.00
Other Programmes:		
54	National Institute of Biological, NOIDA (U.P.)	170.90
55	Health Education	12.60

Contd. Table : 25

56	Health Intelligence (& Health Accounts)	8.80	
57	Port Health Authority (Including setting up of offices at 8 newly created international airports)	9.00	
58	Strengthening of D.G.H.S.	8.00	
59	Strengthening of (Department under) Ministry	12.00	
60	Prevention of Food Adulteration	83.00	
61	Central Drug Standard & Control Orgn. and Medical store organisation	57.00	
62	New Initiatives during the Tenth Plan	11.00	110.00
	Total	4218.20	5034.80
	Total of the Department		9253.00

Table : 26
SCHEME-WISE BREAK-UP OF TENTH PLAN OUTLAY OF DEPARTMENT OF
FAMILY WELFARE (2002-07)

(Rs in Crore)

Sl No.	Schemes	Tenth Plan Outlay	
		Central Schemes	Centrally Sponsored Schemes
INFRASTRUCTURE MAINTENANCE			
1	Sub-Centres		9663.00
2	Urban FW Services		580.00
3	Direction & Administration		1100.00
4	Logistics Improvement		90.00
5	Contractual Services/ Consultancies ANM (Part of Sub-Centres) Additional ANMs/PHNs/Lab. Technicians Subject Matter Consultant Aneasthetist Other Exp. (State/National level Consultants/Contingency)		1212.64
INFRASTRUCTURE DEVELOPMENT			
6	Area Projects (IPP Projects)		987.00
7	Social Marketing Area Projects		25.00
8	USAID Assisted Area Project		400.00
9	EC Assisted SIP Project		1000.00
10	Other externally aided infrastructure development projects		
TRANSPORT			
11	Maintainence of vehicle already available		303.00
12	Supply of Mopeds to ANMs		75.00
TRAINING			
13	Basic Training for ANM/LHVs		350.00
14	Maintenance & Strengthening of HFWTCS		70.00
15	Basic Training for MPWs Worker (Male)		50.00
16	Strenthening of Basic Training schools		10.00
17	F.W. Training and Res. Centre, Bombay		10.00
18	National Institute of Health and Family Welfare (NIHFW), New Delhi		20.00
19	International Institute of Population Sciences (IIPS), Mumbai		10.00
20	Assistance to Indian Medical Association (I.M.A)		1.00
RESEARCH			
21	Population Research Centres		45.00
22	Central Drug Research Institute (CDRI), Lucknow		12.00
23	Indian Council of Medical Research (ICMR) and IRR		100.00
24	Other Research Projects		2.50

Contd. Table : 26

CONTRACEPTION		
25	Free distribution of contraceptives	
	Conventional Contraceptives	800.00
	Oral Contraceptives	130.00
	IUD	115.00
26	Social marketing of contraceptives	
	Conventional Contraceptives	550.00
	Oral Contraceptives	110.00
27	Sterilization	
	Sterilization Beds	12.00
	Sterilisation and IUD insertion	900.00
	Supply /Procurement of Laparoscopes	90.00
28	Testing Facilities	2.50
29	Role of Men in Planned Parenthood	
	No Scalpel Vasectomy	8.00
	Other Innovative Schemes (Male Participation)	10.00
REPRODUCTIVE & CHILD HEALTH		
30	Immunisation	
	Procurement of Vaccines for Routine Immunisation	850.00
	Cold Chain	
	(a) Cold Chain Maintenance	35.00
	(b) Cold Chain Equipment	200.00
	Other Vaccines (Hepatitis B)	325.00
31	Routine Immunisation Strengthening	17.86
32	Pulse Polio	
	(a) Oral Polio Vaccine (OPV)	870.00
	(b) Operating cost	580.00
33	Child Health	
	Essential New Born care (Home based neonatal care)	20.00
34	Nutrition	
	Vitamin-A Programme	
35	Adolescent Health	50.00
36	Maternal Health	
	Ante-natal care	
	Nutritional Anaemia (Anaemia Control & De-worming)	30.00
	Home Delivery Care	
	(a) Community based midwives	30.00
	(b) Dais Training	40.00
	Dais Kits (Drugs, Kits & Equipments)	
	(a) Drug Kits/FRU Drugs/PHC Drugs/RTI Drugs	704.00
	(b) MTP/RTI/STI Equipment/Kit/IUD Kit	350.00

	(c) Equipment for Blood Storage & Lab. Equipment	10.00
	(d) Needles & Syringes	125.00
	(e) Neo-Natal Equipment	20.00
	Promoting Institutional Deliveries	
	(a) 24 Hour Delivery	25.00
	(b) Operationalising FRUs for Emergency Obs. & NN Care	50.00
37	MTP Services (Manual Vac. Aspirator for safe abortion)	4.00
38	RTI/ STI prevention and management	35.00
39	Other RCH Interventions and services	
	Referral Transport	15.00
	Out reach Services	130.00
	RCH Camps	95.00
	Civil Works	350.00
	Research (In RCH Activities)	40.00
	MIS	90.00
	Expdt. At Headquarters	10.00
40	NGOs and SCOVA	130.00
41	Training	
	RCH Training	265.00
	Training of ISM&H Practitioners	15.00
	Training of AWW	48.00
42	Tribal Projects	
43	Urban Slums Projects	700.00
44	District Projects	75.00
45	Other Projects under RCH	
	OTHER FAMILY WELFARE PROGRAMMES	
46	Maternity Benefit Scheme	500.00
47	Information, Education and Communication	489.50
	<i>Non-RCH</i>	
	<i>RCH</i>	
48	Travel of Experts/Conferences /Meetings etc.	7.00
49	International Contribution	9.00
50	Empowered Action Group	250.00
51	Community Incentive Scheme	300.00
52	Family Welfare Link Health Insurance Plan	250.00
53	Policy Seminars	20.00
54	Other Initiatives	75.00
55	Additional RCH activities in the Tenth Plan	25.00
56	Other New Initiatives	22.00
	Total of the Department	27125.00

Table : 27
SCHEME-WISE BREAK-UP OF TENTH PLAN OUTLAY OF DEPARTMENT OF
INDIAN SYSTEMS OF MEDICINE AND HOMEOPATHY (2002-07)

(Rs in Crore)

Sl No.	Schemes	Tenth Plan Outlay	
		Central Schemes	Centrally Sponsored Schemes
1	Strengthening of Department of ISM&H	22.50	
2	Educational Institutions	116.50	
3	Statutory Institutions	2.65	
4	Research Councils	136.00	
5 & 6	Hospitals and Dispensaries	22.44	49.00
7	Medicinal Plants	107.00	
8 & 9	Information , Education and Communication (IEC)	17.00	12.00
10	Strengthening of Pharma. Labs	26.50	
11	Other Programmes and Schemes	85.50	
12	Development of Institutions		117.50
13	Drugs Quality Control		45.40
14	New Initiatives	15.01	
	Total	551.10	223.90
	Total of the Department		775.00

Table : 28**SCHEME-WISE BREAK-UP OF TENTH PLAN OUTLAY OF DEPARTMENT OF HEAVY INDUSTRIES (2002-07)**

(Rs in Crore)

Sl No.	Schemes	Tenth Plan Outlay	
		Central Schemes	Centrally Sponsored Schemes
1	Support to existing Public Sector Undertakings on Project Basis	269.25	
2	Lump Sum Provision for Addition, Modification & Replacements	1507.09	
3	North East and Sikkim	70.00	
4	Secretariat Modernisation	16.25	
5	Testing Facilities for Automobile Sector	150.00	
6	Coal Gasification	50.00	
Total of the Department		2062.59	0.00

Table : 29**SCHEME-WISE BREAK-UP OF TENTH PLAN OUTLAY OF DEPARTMENT OF PUBLIC ENTERPRISES (2002-07)**

(Rs in Crore)

Sl No.	Schemes	Tenth Plan Outlay	
		Central Schemes	Centrally Sponsored Schemes
1	Counseling, Retraining and Redeployment (CRR)	50.00	
Total of the Department		50.00	0

Table : 30**SCHEME-WISE BREAK-UP OF TENTH PLAN OUTLAY OF MINISTRY OF HOME AFFAIRS (2002-07)**

(Rs in Crore)

Sl No.	Schemes	Tenth Plan Outlay	
		Central Schemes	Centrally Sponsored Schemes
1	Police Housing	1037.50	
2	Police Education & Trg.	20.00	
3	Schemes of Delhi Police	800.00	
4	Schemes of Forensic Science & Police Wireless	30.00	
5	Schemes of Deptt. of Official Language	16.00	
6	Schemes of Registrar General of India	85.00	
7	Scheme of NE Newsletter	2.50	
8	Scheme of NHRC (Construction of Manav Adhikar Bhawan)	8.00	
9	Scheme of National Crime Record Bureau (portrait building system and face search system)	1.00	
Total of the Ministry		2000.00	0.00

Table : 31
SCHEME-WISE BREAK-UP OF TENTH PLAN OUTLAY OF DEPARTMENT OF ELEMENTARY EDUCATION AND LITERACY (2002-07)

(Rs in Crore)

Sl No.	Schemes	Tenth Plan Outlay	
		Central Schemes	Centrally Sponsored Schemes
Elementary Education			
1	National Council of Technical Education (NCTE)	20.00	
2	Bal Bhawan Society	20.00	
3	Operation Black Board		65.00
4	Teacher Education		950.00
5	Non Formal Education /Education Guarantee Scheme & Alternative and Innovative Education		2.00
6	Mid-day Meal Scheme		5900.00
7	Sarv Shiksha Abhiyan		16400.00
8	Kasturba Gandhi Swatantrata Vidyalaya.		489.00
9	Siksha Karmi		47.00
10	Lok Jumbish		137.00
11	Mahila Samakhya		100.00
12	District Primary Education Programme (DPEP)		4000.00
13	SSA-ExternallyAided Component		600.00
14	Joint GOI-UN Programme for Primary Education		20.00
Adult Education			
15	National Literacy Mission Authority	10.00	
16	Directorate of Adult Education	70.00	
17	National Institute of Adult Education	1.00	
18	Literacy Campaign & Operation Restoration		95.00
19	Continuing Education		826.00
20	Jan Siksha Sansthan		130.00
21	Population Education in Adult Education		8.00
22	Support to NGOs		110.00
Total		121.00	29879.00
Total of the Department			30000.00

Table : 32
SCHEME-WISE BREAK-UP OF TENTH PLAN OUTLAY OF DEPARTMENT OF SECONDARY EDUCATION
AND HIGHER EDUCATION (2002-07)

(Rs in Crore)

Sl No.	Schemes	Tenth Plan Outlay	
		Central Schemes	Centrally Sponsored Schemes
1	Access and Equity		305.00
2	Quality Improvement in Schools		110.00
3	I C T in Schools		800.00
4	Integrated Education for Disabled Children (IEDC)		200.00
5	Vocationalisation of Education		350.00
6	Free Education for Girls		254.50
7	Appointment of Language Teachers		47.50
8	Area Intensive and Madrasa Modernisation Programme		83.92
9	Development of Sanskrit Edn.		65.00
10	National Scholarship Scheme		36.00
11	Scholarship for Talented Children from Rural Areas		16.00
12	Educational Libraries		5.00
13	Book Promotional Activities & Vol. Agencies		5.00
14	Scheme for Intellectual Property Education, Research and Public Outreach		30.00
15	Scheme for Financial Asstt. On WTO Studies		5.00
16	Strengthening of Statistical Machinery at State level		33.50
17	National Council for Education Research and Training (NCERT)	60.00	
18	National Open School	65.00	
19	Navodaya Vidyalaya	2000.00	
20	Kendriya Vidyalaya	420.00	
21	Central Tibetan School Admn (CTSA)	15.00	
22	Association of Indian Universities	2.00	
23	Institutions of Higher Learning	5.00	
24	PHISPC	10.00	
25	Dr. Zakir Hussain Memorial College Trust	2.00	
26	Indian Council of Historical Research (I.C.H.R)	20.00	
27	Indian Institute of Advanced Studies (I.I.A.S)	20.00	
28	Indian Council of Philosophical Research (I.C.P.R)	19.00	
29	Indian Council of Social Science Research (I.C.S.S.R)	115.00	
30	University Grants Commission (U.G.C)	3294.00	
31	Indira Gandhi National Open University (I.G.N.O.U)	430.00	
32	National Council of Rural Institutes	5.00	
33	Education in Human Values	30.00	
34	Central Hindi Directorate (Including Dakshin Bharat Hindi Prachar Sabha	21.50	

Contd. Table : 32

35	Commission for Scientific and Tech. Terminology (incl. Univ. level books	9.30
36	Kendriya Hindi Sansthan (including Propagation of Hindi Abroad)	21.75
37	Central Institute of Indian Languages (including scheme of NGOs/ Regional Language Centres & Indian Language Promotion council	24.28
38	National Council for Promotion of Urdu Language	41.75
39	National Council for Promotion of Sindhi Language	1.60
40	Central Institute of English and Foreign Languages (CIEFL)	2.40
41	Rashtriya Sanskrit Sansthan (incl. Ency. Of Sanskrit Dictionary)	74.00
42	Maharshi Sandikpani Rashtriya Ved Vidya Pratisthan, Ujjain	11.00
43	Grant to National Book Trust	22.00
44	Scheme of Studies, Seminars, Evaluation for Impl. of Edn. Policy	3.00
45	Strengthening of Activities of INC	0.40
46	Construction of UNESCO House	3.00
47	Strengthening of External Academic Relations	1.10
48	National Institute Educational Planning & Administration (NIEPA)	14.50
49	Grant in Aid to Auroville Management	15.00
50	Payment for Professional & Spl. Services	15.00
51	Technology Development Mission	40.00
52	Research & Development	150.00
53	MODROB	75.00
54	Thrust Areas of Tech. Education	75.00
55	Research & Information Services	5.00
56	National Prog. For HRD in IT	100.00
57	Community Polytechnics	475.00
58	Polytechnic for Disabled	40.00
59	Apprenticeship Training (including under BOATS)	
60	All India Council of Technical Education (AICTE)	600.00
61	Sant Longowal Instt. Of Engineering & Technolgy	20.00
62	Indian Institute of Science (IISc), Bangalore	150.00
63	Indian Institute of Technology (IITs)	612.00
64	Regional Engineering College (RECs)	300.00
65	Indian Institute of Management (IIMs)	150.00
66	Investment in Ed CIL	0.50
67	North Eastern Regional Instt. Of Science & Technology	20.00
68	Indian Institute of Information Technology (IIIT), Allahabad	30.00
69	Indian Institute of Information Technology and Management, Gwalior	30.00
70	Technical Teachers Training Institutes (TTTIs)	100.00
71	National Institute of Industrial Engineering (N.I.I.E), Bombay	30.00
72	National Institute of Forge and Foundary, Ranchi	20.00

73	School of Planning and Architecture (S.P.A), New Delhi	24.00	
74	Indian School of Mines (ISM), Dhanbad	30.00	
75	Boards of Apprenticeship Training (BOATS)	75.00	
76	Support to New and Emerging Technology Areas	150.00	
77	Informal Sector Dev.	5.00	
78	Support to Distance Education and Web-based Learning	15.00	
79	Support for Networking of Instt. For Optimisation of Resources	50.00	
80	Support for Natnl. Level Entrance Exam and Competency Based Assessment Services	5.00	
81	Support for Dev. Of Ednl. Admn.	2.00	
82	National Mission for Tech. Edu.	1.50	
83	International Techl. Cooperation	5.00	
84	Tech. Edu. Quality Improvement Programme	900.00	
85	National Programme for HRD in IT	400.00	
	Total	11478.58	2346.42
	Total of The Department		13825.00

Table : 33
SCHEME-WISE BREAK-UP OF TENTH PLAN OUTLAY OF DEPARTMENT OF WOMEN AND CHILD DEVELOPMENT (2002-07)

(Rs. in crore)

Sl No.	Schemes	Tenth Plan Outlay	
		Central Schemes	Centrally Sponsored Schemes
1.	Creches / Day Care Centres for Children of working /Ailing Mothers	60.00	
2	National Institute of Public Co-operation and Child Development	40.00	
3	National Commission for Children	7.00	
4	Hostels for Working Women	85.00	
5	Setting up of Training cum Production Centres for Women	150.00	
6	Support to Training cum Employment Programme	150.00	
7	National Commission for Women	32.00	
8	Rashtriya Mahila Kosh	148.00	
9	Grant-in-aid to Central Social Welfare Board	280.00	
10	Distance Education	1.10	
11	Scheme for Women in Difficult Circumstances (Swadhar)	100.00	
12	Grant-In-Aid to Research, Publications & Monitoring	32.61	
13	Information and Mass Media	35.00	
14	Information Technology	2.50	
15	Implementation of National Nutrition Policy and Nutrition Education	10.00	
16	CRÈME (New Scheme)	0.01	
17	National Resource Centre for Women (New Scheme)	25.00	
18	Integrated Child Development Services		10391.75
19	World Bank Assisted ICDS Projects		1292.75
20	Training of ICDS Functionaries		462.26
21	Balika Samridhi Yojana		100.00
22	Integrated Women's Empowerment Programme (Swayamsiddha)		200.00
23	Rural Women's Development and Empowerment Project (Swashakti Project)		75.00
24	National Nutrition Mission (New Scheme)		100.00
25	CIDA Asstt. Programme for Himachal Pradesh (New Scheme)		0.01
26	ICDS IV (New Scheme)		0.01
	Total	1158.22	12621.78
	Total of the Department		13780.00

Table : 34
SCHEME-WISE BREAK-UP OF TENTH PLAN OUTLAY OF MINISTRY OF
INFORMATION AND BROADCASTING (2002-07)

(Rs in Crore)

Sl No.	Schemes	Tenth Plan Outlay	
		Central Schemes	Centrally Sponsored Schemes
INFORMATION SECTOR			
Press Information Bureau			
1	Setting up of the National Press Centre at New Delhi.	35.00	
2	Modernisation & Computerisation activities of PIB		
	i) Digital storage and high speed communication	3.55	
	ii) Setting up of Soochna Kendras and providing connectivity	4.10	
Publications Division			
3	Modernisation of Publications Division including HRD (Training) and CD's on paintings etc.	3.00	
Directorate of Advertising and Visual Publicity			
4	Developmental Publicity Programme : Conception and Dissemination	14.35	
Indian Institute of Mass Communication			
5	Building and Housing Project	5.65	
6	Research & Evaluation Studies	0.35	
7	Modernisation and Expansion of facilities for electronic / Print / Radio & TV Journalism	3.00	
Photo Division			
8	Modernisation of Photo Division	2.50	
Directorate of Field Publicity			
9	Purchase of films/cassettes	2.50	
Song & Drama Division			
10	Information, Communication, Technology (ICT) activities in Hilly / Tribal / Desert / sensitive & border areas	7.00	
11	Presentation of Sound & Light shows on National Themes (Outlay for AP 2002-03 only)	0.10	
Main Secretariat schemes			
12	Construction of Soochna Bhavan (Phase IV) (Continuing Scheme)	4.71	
New Schemes			
13	Opening of branch offices of PIB in state capitals where they don't exist	3.50	
14	Construction of building for PIB offices in the North East and where land has been allotted by the Government	1.25	
15	Press tours for NE, J&K and Tribal Areas	0.10	

Contd. Table : 34

Directorate of Advertising and Visual Publicity		
16	Incentive to newspapers for ABC Membership/circulation verification	0.55
17	Setting up of Museum on Print Media	0.10
Indian Institute of Mass Communication		
18	Collaboration with regional centres of learning	3.80
19	Centre for New Media Policy	1.25
20	Creation of Content & Study Material for Training in Mass Communication for vernacular Language Courses	0.50
Directorate of Field Publicity		
21	Modernisation and updation of Capital Stock	8.50
Song & Drama Division		
22	Modernisation of S & DD	0.20
23	Formation of Zonal, Regional & Sub-centres	
	i) Creation of two regional Centres (at Dehradun & Raipur) in the newly created states	1.25
	ii) Creation of sub-centres at Agartala and Aizwal	0.55
24	Hiring of Vehicle each for Hqrs/Regional Offices	0.50
25	Presentation of Theatrical Shows on National/Social Themes	3.60
Research, Reference and Training Division		
26	In-service training for IIS officers	0.50
Registrar of Newspapers for India		
27	Computerisation in R.N.I.	1.37
28	Modernisation of RNI Head-Qrs.	1.35
Press Council of India		
29	Construction of PCI building (Grant-in -aid)	3.00
30	Training for Human Resource Development (New Scheme)	2.00
FILMS SECTOR		
Films Division		
31	production and distribution of short fiction flims	1.45
32	International Documentary, Short & Animation Film Festival	2.00
33	Modernisation and Replacement of obsolete equipment of Films Division.	10.70
34	Setting up of Museum of Moving Images	34.00
National Film Archives of India		
35	Acquisition and exhibition of archive films	3.60
Film & Television Institute of India, Pune		
36	Machinery & Equipments	4.30
37	Civil Construction Works	4.30
Satyajit Ray Film & Television Institute, Kolkata		
38	Construction Work (Civil & Electrical)	0.35

Directorate of Film Festivals		
39	Film Festival Complex - Alteration & Additions - Major Works	15.00
Children's Film Society, India		
40	Film Production	
	a) Production of feature films, short films and TV serials	14.50
	b) Dubbing of films	1.00
	c) Subtitling of films	0.10
	d) Purchase of films	1.50
	e) Print Cost	0.50
41	Film Festivals	
	a) International Film Festivals (held by CFSI)	2.10
	b) Participation in International Film Festival	0.50
42	Modernisation and Augmentation	0.85
43	Animation and Script writing workshops	0.22
44	Audience Research and Market Survey & marketing of CFSI films	1.50
Central Board of Film Certification		
45	Establishment of computerised management system in CBFC	2.50
46	Opening of regional offices of the Board at Hyderabad, New Delhi, Cuttack, and Guwahati	2.75
47	Augmentation of infrastructural facilities in the regional offices of CBFC	1.50
48	Organisation of training courses and studies	6.75
49	Strengthening of infrastructure in Hqrs. of CBFC	0.50
50	Grant-in-aid to FFSI (Continuing scheme)	0.20
New Schemes		
Films Division		
51	Webcasting of Films Division films	0.55
52	Digitalisation of Films Division films	3.75
National Film Archives of India		
53	Construction of Phase-II building for NFAI complex	10.00
Film & Television Institute of India, Pune		
54	Computerisation & Modernisation	2.00
55	Setting up of Community Radio	0.50
56	Setting up of Captive TV Channel	0.50
57	HRD aspects including scholarship and exchange programmes with foreign Universities for students, etc.	0.50
Satyajit Ray Film & Television Institute, Kolkata		
58	Setting up of Community Radio Stations	0.25
59	Setting up of Captive TV Channel	0.25
60	HRD aspects including scholarship and exchange programmes with foreign Universities for students, etc.	0.50

Contd. Table : 34

Directorate of Film Festivals		
61	Export promotion through Film Festivals in India and abroad	10.00
Children's Film Society, India		
62	Digitalisation of CFSI films	0.60
63	Webcasting of CFSI library	0.55
64	Exhibition of Children's films in Municipal schools	5.00
65	Grant-in-aid to NGOs engaged in anti-piracy work/Festivals (New Scheme)	0.80
66	Participation in Film Market in India & Abroad (New Scheme)	5.00
BROADCASTING SECTOR (Prasar Bharati)		
All India Radio		
67	Expansion of MW services	27.00
68	Expansion of FM services	17.00
69	Staff Quarters & Office accommodation	5.30
70	Expansion of SW services	10.70
71	Archives	10.00
72	Misc. Charges	95.00
73	J&K special package	32.00
74	Establishment Charges	50.00
75	Expansion of MW services	34.00
76	Expansion of FM services	328.00
77	Digitalisation of Production Facilities	67.00
78	Automation of Studio Facilities	144.00
79	Automation of Transmission Facilities	11.00
80	Replacement of existing equipment	119.00
81	Miscellaneous Charges	11.00
New Schemes		
82	North East Special Package	170.55
83	New Technologies like Internet Radio Broadcasting, Digital Broadcasting etc	61.00
84	Accomodation for staff	40.00
85	Establishment Charges	75.00
86	Miscellaneous Charges	64.00
87	Software	92.00
Doordarshan		
88	Terrestrial Transmitters	122.00
89	Production facilites (Studio/OB)	61.00
90	Satellite Broadcast equipment	47.00
91	Establishment Charges	25.00
92	J&K Special Plan	90.20

93	Expansion of terrestrial coverage by upgradation of existing transmitters as well as establishment of new transmitters in respect of DD-1	154.00	
94	Expansion of terrestrial coverage by upgradation of existing transmitters as well as establishment of new transmitters in respect of DD-2	90.00	
95	Coverage of uncovered areas through multi-channel digital satellite distribution in Ku-band	500.00	
96	Digitalisation & Modernisation of production facilities (Studio/OB)	319.00	
97	Digitalisation & Modernisation of Satellite Broadcast Equipment	194.00	
98	Augmentation of existing studio facilities	100.00	
99	Automation of Transmitters (LPTs & VLPTs)	180.00	
100	Replacement of existing transmitters due to fault / aging / obsolescence etc	95.00	
101	Replacement of existing production equipment (Studio/OB) due to fault / aging/obsolescence etc	100.00	
102	Replacement of existing satellite broadcast equipment due to fault / aging /obsolescence etc	55.00	
New Schemes			
103	North East Special Package	380.55	
104	New production facilities	62.00	
105	New Satellite Broadcast equipment	30.00	
106	DTT	60.00	
107	DTH	5.00	
108	HDTV	15.00	
109	IT enabled multimedia	10.00	
110	Research & Development /Marketing	3.00	
111	Accommodation for staff, augmentation of infrastructure & Security	120.00	
112	Augmentation of Training facilities	15.00	
113	Establishment of service centres/workshops for digital equipment	8.00	
114	Establishment (CCW & Zonal offices) & Arbitration	50.00	
115	Software acquisition/production (Normal & Misc)	500.00	
116	Others	2.60	
Total of the Ministry		5130.00	0.00

Table : 35
SCHEME-WISE BREAK-UP OF TENTH PLAN OUTLAY OF MINISTRY OF
LABOUR (2002-07)

(Rs in Crore)

Sl No.	Schemes	Tenth Plan Outlay	
		Central Schemes	Centrally Sponsored Schemes
A. Ongoing 9th Plan Schemes—Central Sector			
Employment Services			
1	Construction of office building staff Quarters & Skill Trg. Institutes	25.00	
2	Continuation and setting up of new Vocational Rehabilitation Centre for handicaped persons including Skill Training Workshops and Rural Rehabilitation Extension Centres (1)	1.40	
3	Revision of National classification of Occupation - 1968 (1)	0.04	
4	Computerisation of Central Employment Exchanges (1)	0.02	
Vocational Training Services			
5	Setting up of FTI, Jamshedpur	4.00	
6	Setting up of 4 Model Indl. Training Institutes (MITI's)	11.00	
7	Modernisation and Expansion of Instructor Training Programme at 5 ATI's & CTI, Chennai.	2.25	
8	Provision of foreign assistance for the expansion & Development of Supervisory Training at FTI, Bangalore	0.07	
9	Introduction of population education as an integral part of social studies curriculum in vocational training programme with ILO assistance	5.00	
10	Strengthening of NVTs & Formation of AICVT	1.30	
11	Strengthening of NVTI/RVTIs for Women	10.00	
12	Estt. of placement cell at NVTI/RVTI	0.50	
13	Technical Assistance Programme	2.00	
14	Introduction of High Tech .Training	12.00	
15	Management Information System	2.00	
16	Setting up of ATI-EPI,Dehradun (1)	0.85	
17	Construction of building for CSTARI and Staff for new Building (1)	0.37	
18	Advanced Vocational Training (1)	0.61	
19	Development of App.Trg under APP. Act 1961 Qualitative & Quantitative (Estt. Of RDAT at Hyderabad) (1)	0.43	
20	Expansion & Development of supervisory training at FTI, Bangalore (1)	0.36	
21	Enhancement of Related Instruction charges for Apprentices from Rs. 10 to Rs. 20 (1)	0.19	
22	Enhancement of Related Instruction charges for Apprentices from Rs. 20 to Rs. 30 (1)	0.19	
23	Development of App. Trg. Under App. Act 1961 Qualitative & Quantitative (Establishmentof RDAT at Faridabad & Strengthening of 4RDATS) (1)	0.53	
24	Instructional Media Institute, Chennai (1)	2.12	

25	Vocational Training Programme for women (1)	0.02
26	Diversification & Expansion of vocational Training programme for women (Estt. Of RVTI, Trivandrum) (1)	0.31
27	Setting up of Regional Maintenance service centres (in six ATI's) (1)	0.16
28	Media Resource Centres (1)	0.25
29	Setting up of Basic training centres at Kanpur (1)	0.07
30	Expansion of CSTARI (1)	0.07
31	Trade Testing & Certification (at DGET Hqrs) (1)	0.13
Industrial Relations		
32	Strengthening of Adjudication Machinery	14.55
33	Machinery for better conciliation and preventive mediation and more effective enforcement of labour laws (1)	1.82
Central Board for Workers' Education		
34	Central Board for Workers' Education	35.00
Child Labour		
35	Strengthening of Child Labour Cell	0.50
36	National Child Labour Projects including Grants-in-aid to Voluntary Agencies	602.00
Labour Statistics		
37	Consumer Price Index for Industrial Workers 1982 series	3.41
38	Consumer Price Index number for Industrial Workers - new series	4.82
39	Rural Labour Enquiry (1)	2.00
40	Socio-Economic Surveys of different segments of Labour (1)	0.75
41	Collection of Labour Statistics under the Annual Survey of Industries (extension to sample Sector) (1)	0.24
42	Modernisation of machine tabulation unit (1)	1.00
43	Occupational Wage Survey Fifth Round (1)	0.28
Mines Safety (DGMS)		
44	Study of Mine Accidents & Development of Information System (SOMA)	5.25
45	Augmentation of Science & Technology Capabilities, Mine Rescue Services and Human Resource Development (S&T)	11.50
46	Improving Efficiency by providing infrastructural facilities in DGMS (PIF)	17.70
Factory Advisory Services (DGFASLI)		
47	Devt. of Safety and Health Information & Data Bank	3.80
48	Estt.of a new Regional Labour Institute	26.61
49	Improvement & Strengthening of enforcement & implementation system for safety & Health of Dock Workers in Major Ports	3.00
Labour Research		
50	V.V.Giri National Labour Institute	12.00

Contd. Table : 35

Other Schemes		
51	Grants in aid to Research/Academic Institutions & Non-Governmental Voluntary Organisations for undertaking research in approved labour related subjects	3.00
52	Scheme on Information Technology	8.00
53	Welfare Scheme for Agricultural Workers (2)	3.00
B. New Central Schemes for 10th Plan		
Employment Services		
54	Welfare of SC/ST job seekers through coaching, guidance and Vocational Training	3.50
55	Upgradation of Training infrastructure in DGE&T Institutes (civil works and equipment only)	7.70
56	Building, Equipment and Estt. for RVTIs (Calcutta, Hissar, Allahabad, Indore, Vadodara, Jaipur, Bhubaneshwar & Tura)	29.30
57	Setting up of Production-cum-Trg Centres in women training institutes at NVTI / RVTI's	0.08
Industrial Relation		
58	Scheme of education and training of workers and monitoring / Implementation of the workers participation in management	0.20
Women Labour		
59	Strengthening of women cell (Women Labour)	0.05
60	Grant-in-Aid to Voluntary Agencies (Women Labour)	2.45
Child Labour		
61	Indo American Child Labour Project with matching U.S. Grant	65.00
DGMS		
62	Strengthening of Machinery for Conduct of Statutory Examination (SSEX)	6.35
Labour Ministry Head Quarters		
63	Training to the Personnel of Ministry	2.00
64	Modernisation of Sections	4.00
65	Awareness Generation on Labour Welfare and Development	10.00
66	Other Schemes under Overall Direction and Administration	18.53
C. New Initiatives in X Plan (Central Sector)		
Employment		
67	Introduction of new courses in existing CGCs & establishment of new CGCs in States not covered so far (included in SI. No. 54)	
68	Conduct of Live Register Survey	0.20
69	Modernisation of Select Employment Exchanges on Pilot Basis	5.00
Training		
70	Building & Equipment for Apex Hitech Institute, Bangalore	4.95
71	Modernisation of Trade Testing Cell at DGET Hq., New Delhi	0.83
72	Setting up of Skill Development Fund	0.10

DGMS		
73	Modernisation of Survey capabilities in DGMS through Digitization of mines plan and automated survey system (MSC)	5.00
74	Modernisation of Information database relating to Mines Management	9.20
DGFASLI		
75	Setting up of a National Board on Occupational Safety & Health	1.00
76	Competence enhancement of officers of DGFASLI and Inspectors of Factories (CIFs) for improving occupational safety and health	5.00
77	Strengthening of Occupational Safety & Health Strategies in Priority Hazardous Chemical Processes	5.50
78	Competence Building in Enforcement Agency and Development of Enforcement Strategies and Guidelines (Small Establishments in Unorganised Sector)	2.00
79	Design and execution of National Level Occupational Safety & Health awareness campaign in the identified seven segments of unorganised sector	5.49
Industrial Relation		
80	Improvement and strengthening of Training Wing for Central Labour Service Officers	5.00
87	Holding of Lok-Adalat in the CGIT-cum-Labour Courts as an Alternative Grievance Redressal Mechanism	1.10
LABOUR WELFARE		
82	Other new Initiatives on Social Security of Workers	52.40
LABOUR STATISTICS		
83	Improvement in the Labour & Employment Statistical System	49.50
A. Ongoing 9th Plan Schemes (CSS)		
84	Rehabilitation of Bonded Labour	44.00
85	Establishment of new ITIs in North Eastern states (100% assistance)	92.00
B. New Schemes for 10th Plan (CSS)		
86	Strengthening/Modernisation of it is in the States of J&K (100% assistance)	30.60
C. New Initiatives in 10th Plan (CSS)		
Employment Services		
87	Strengthening of Employment Market Information Programme	1.50
Vocational Training Services		
88	Upgrading Trainig Infrastructure in 100 state Govt. Industrial Training Institute	110.00
89	Establishment of Instructor Training Institutes in States	25.00
90	Certification of skills for workers in the Informal sector	2.00
Labour Statistics		
91	Improvement in Labour & Employment Statistical System in States & U.T.'s	50.00
Total		1144.90
Total of the Ministry (ie. CS + CSS)		1500.00

(1) Scheme ends in 2002-2003

(2) Scheme awaits approval

Table : 36
SCHEME-WISE BREAK-UP OF TENTH PLAN OUTLAY OF DEPARTMENT OF
COMPANY AFFAIRS (2002-07)

(Rs in Crore)

Sl No.	Schemes	Tenth Plan Outlay	
		Central Schemes	Centrally Sponsored Schemes
1	Modernisation, Computerisation and Networking	50.00	
Total of the Department		50.00	0.00

Table : 37
SCHEME-WISE BREAK-UP OF TENTH PLAN OUTLAY OF DEPARTMENT OF
JUSTICE (2002-07)

(Rs in Crore)

Sl No.	Schemes	Tenth Plan Outlay	
		Central Schemes	Centrally Sponsored Schemes
1	Computerisation of City Courts	64.40	
2	National Judicial Academy	5.60	
3	Development of Infrastructural Facilities for the Judiciary including construction of High Courts and Family Courts		630.00
Total		70.00	630.00
Total of the Department			700.00

Table : 38
SCHEME-WISE BREAK-UP OF TENTH PLAN OUTLAY OF MINISTRY OF
NON-CONVENTIONAL ENERGY SOURCES (2002-07)

(Rs in Crore)

Sl No.	Schemes	Tenth Plan Outlay	
		Central Schemes	Centrally Sponsored Schemes
1	Wind Power	110.00	
2	Small Hydro Power		300.00
3	Biomass Power/Cogeneration	125.00	
4	Biomass Gasification	30.00	
5	Solar Power		
	Solar Thermal Power	50.00	
	Solar Photovoltaic Power	75.00	
6	Village Electrification Programme		
	Solar Photo Voltaic (SPV)	500.00	
	Biomass Gasifier	35.00	
	Small Hydro Power (SHP)	25.00	
	Survey, Investigation etc.	25.00	
7	Biogas plants (NBMMP) and		350.00
8	National Project on Clean Energy Services for rural areas	27.00	
Research Design Development & Demonstration			
9	SPV Demonstration & Utilisation Programme		210.00
10	SPV Water Pumps	177.00	
11	SPV support to industry, interest subsidy on manf. Loan	30.00	
12	SPV R&D	30.00	
13	Small Wind Energy Systems	16.00	
14	Solar Thermal Programme	100.00	
15	Energy from U&I Wastes	125.00	
16	New Technology	150.00	
Infrastructure Development & Capacity Building Programmes			
17	Rural Energy Entrepreneurship / Institutional Development	10.00	
18	International cooperation	8.00	
19	Technological Information and Forecasting Assessment Cell	15.00	
20	Market Development & Export Promotion	12.00	
21	Human Resource Development & Training	15.00	
22	Regional Office	9.00	
23	State Nodal Agencies	4.00	
24	Technology Commercial Funds	10.00	
25	Women and Renewable energy Development	6.00	
26	North East Programmes	400.00	

Contd. Table : 38

Awareness & Extension Programmes		
27	Integrated Rural energy programme	125.00
28	Information & Publicity	30.00
29	Special Area Demonstration Programme	50.00
30	Seminars/Symposium	5.00
MNES Institutions		
31	Solar Energy Centre	40.00
32	National Institute of Renewable Energy (NIRE)	25.00
33	Centre for Wind Energy Technology	15.00
34	Indian Renewable Energy Development Agency (IREDA)	3417.00
Spillover liabilities for Schemes transferred to States		
35	Improved Chulha	10.00
36	Community Bio-Gas Plant / Institutional Bio-Gas Plant	5.00
Externally Aided Projects (EAP)		
37	IDA-II	260.00
38	UNDP-Rural Energy Group	6.00
39	Global Environment Facility (GEF) Grant for Mathania Project	200.00
Total		6167.00
Total of the Ministry		7167.00

Table : 39
SCHEME-WISE BREAK-UP OF TENTH PLAN OUTLAY OF DEPARTMENT OF
OCEAN DEVELOPMENT (2002-07)

(Rs in Crore)

Sl No.	Schemes	Tenth Plan Outlay	
		Central Schemes	Centrally Sponsored Schemes
1	Polar Science	160.00	
2	Polymetalic Nodules Programme	100.00	
3	Ocean Observation and Information System	182.00	
4	Marine Research & Technology Development	179.00	
5	National Institute of Ocean Technology	156.00	
6	Coastal Research Vessel	25.00	
7	Delineation of Outer limits of Continental Shelf	18.00	
8	Comprehensive Swath Bathymetric	40.00	
9	Gas-hydrate Exploration & Technology	100.00	
10	Acquisition of new Research Vessels	155.00	
11	Geo-physical Study of Laxmi Basin	10.00	
Total of the Department		1125.00	0.00

Table : 40
SCHEME-WISE BREAK-UP OF TENTH PLAN OUTLAY OF MINISTRY OF
PERSONNEL, PUBLIC GRIEVANCES & PENSIONS (2002-07)

(Rs in Crore)

Sl No.	Schemes	Tenth Plan Outlay	
		Central Schemes	Centrally Sponsored Schemes
1	Training for all - support for Training Activities	35.00	
2	Centre for Public Policy at IIM-B	4.00	
3	Domestic funding of Foreign Training	77.00	
4	Augmentation of Training Facilities at ISTM	4.50	
5	Lal Bahadur Shastri National Academy of Administration	15.43	
6	Improvement of Training Facilities in CBI	5.00	
7	Plan Scheme on Administrative reforms	89.07	
Externally Aided Projects			
8	Strengthening of State ATI's	8.20	
9	Centre for Public Policy at IIM-B	10.30	
10	Citizen's Access to Information	1.50	
Toatal of the Ministry		250.00	0.00

Table : 41
SCHEME-WISE BREAK-UP OF TENTH PLAN OUTLAY OF MINISTRY OF
PETROLEUM AND NATURAL GAS (2002-07)

(Rs in Crore)

Sl No.	Schemes	Tenth Plan Outlay	
		Central Schemes	Centrally Sponsored Schemes
OIL & NATURAL GAS CORPORATION LTD (ONGC)			
1	Commercialisation ISC Santhal Ph-II		18.66
2	Foodgrade hexane		36.59
3	GS-15/23 development Ph-I		17.99
4	Addl. Gas Compressor Heera		37.78
5	Addl. developmentHeera Ph-I		70.00
6	Neelam IOR		76.27
7	Lakwa-Lakhmani-IOR		53.34
8	Kalol IOR		20.95
9	Geleki IOR		22.01
10	Rudrasagar IOR		47.21
11	LPGR Mumbai Offshore		25.00
12	LPGR Uran		20.00
13	Lift Gas circulation - Assam		24.09
14	GCS Expansion Tatipaka		60.80
15	MH-North - Re-development		1811.59
16	MH-South Redevelopment		2803.73
17	Gandhar IOR		298.13
18	Small field development		106.28
19	IOR Heera Part II		401.00
20	MH-L-III+PH2+L2		450.00
21	MH S-1 Dev. Phase II		214.73
22	EOR Pilot and Commercialisation		454.92
23	Small and Marginal field development		1828.36
24	Development new finds		1124.95
25	Upgradation computer Geopic		150.00
26	Upgradation installation - KG		100.00
27	Upgradation rigs and equipments		627.00
28	Telemetry system (3)		100.00
29	Seismic API upgradation		140.71
30	Logging units and accessories		272.09
31	IT projects and upgradation		100.10
32	R&D including institutes		1323.85
33	EOR pilots (IRS)		1498.75

34	R&D wells	300.00
35	Coal Bed Methane	209.47
36	Survey - Firm	1605.85
37	Survey Indicative	113.29
38	Exploratory Drilling - firm	6695.98
39	Exploratory Drilling - indicative	235.26
40	Development Drilling - firm	4827.89
41	Development Drilling - Upside	1673.11
42	Development Drilling indicative	1644.56
43	JV projects Domestic	668.29
44	Others	1108.37
45	ONGC Videsh Ltd.	13550.00
	Total (ONGC)	46968.95
	OIL INDIA LIMITED (OIL)	
46	Backup equipment and facilities - Assam	856.63
47	Drilling and Surveys - Assam and AP	3211.79
48	Rajasthan Drilling	92.70
49	Saurashtra (Survey) - Offshore	81.53
50	Saurashtra (Expl. Drilling) - Offshore	146.63
51	Ganga Valley (Expl. Drilling) - Feasibility Study - UP	53.18
52	Overseas/Joint venture/NELP	245.56
53	Brahmaputra Expl. Project - Assam	152.61
54	Others	159.37
	Total (OIL)	5000.00
	Gas Authority of India Ltd.	
55	LPG P/L (Kandla -Loni)	115.71
56	Additional Lines in KG Basins	250.90
57	LPG P/L project (Visakh Secunderabad)	461.24
58	LNG Petronet (equity participation)	158.44
59	LPG P/L project (Mangalore -Coimbatore)	562.84
60	HBJ expansion project Ph-I	2600.73
61	HBJ expansion project Ph-II & III	300.00
62	North south Gujarat gas distribution P/L	390.00
63	Participation in upstream Oil & Gas exploration	182.91
64	Dahej - Hazira- Uran P/L network	430.00
65	Kochi LNG P/L network	756.47
66	Upgradation of telecom links	262.12

Contd. Table : 41

67	Koyali Linkage toJLPL P/L	150.00
68	Loni Lallur extension JLPL P/L	170.00
69	Bang Chittor- Vijaywada- Tirupati-Chennai LPG P/L	50.00
70	Business development activities	257.75
71	Others	400.89
	Sub Total (GAIL)	7500.00
	Indian Oil Corporation(IOC)	
72	Grassroot refinery in Eastern India (Paradeep)	2680.61
73	Expansion debottlenecking of Aug. from 14 to 16 MMTPA	95.23
74	Low Cost Expansion Barauni Ref.to 6 MMTPA	626.70
75	Expansion of Panipat Refinery by 6 MMTPA	3486.54
76	Provision of OHCU at Haldia	1497.24
77	Residue Upgradation facility at Gujarat	310.41
78	Insatallation of FCCU in Haldia	81.45
79	Hydrotreatment of Coker streams at Guwahati	98.06
80	Improvement of Lube Oil Quality by Catalytic Hydrodewaxing at Haldia	211.68
81	MS Quality Improvement at Mathura Refinery	551.63
82	MS Quality Improvement at Panipat Refinery	464.65
83	MS Quality Improvement at Haldia Refinery	309.28
84	MS Quality Improvement at Barauni Refinery	176.21
85	MS Quality Improvement at Gujarat Refinery	672.23
86	HSD hydrodesulphurisation projects	908.97
87	Augmentation of SM P/L system	1174.00
88	Viramgam Koyali P/L for crude oil	221.05
89	Kurukshetra Najibabad P/L	64.56
90	Koyali- Viramgam-Sidhpur Product P/L	93.96
91	LPG bottling Plants (33 locations)	307.45
92	Marketing terminal for eastern sector refinery(Orissa)	206.20
93	New Marketing Terminal at Mandir- Hasud	38.18
94	Hydrotreater at Digboi	100.35
95	Solvent Dewaxing/deoiling	158.39
96	R & D	510.00
97	Installation of additional curde oil handling facility in West coast and laying crude oil P/L	203
98	Koyali Dahej Hazira P/L	85.60
99	FSO & submarine P/L to Haldia	100.00
100	Branch Line from BKPL to Gorakhpur	199.90
101	9th Plan LPG bottling Plants (9 locations)	147.86

102	LPG Import facilities -Enron/ South Coast	50.00
103	Marketing Terminal at Dahej	60.00
104	New Depot at Chittorgarh	38.92
105	9th Plan (Grassroot terminal / depots/TOPs)	317.47
106	HRs at Chennai (aviation facilities)	44.80
107	Setting up of Power Plant at Panipat	183.00
108	LNG project at Dahej	166.75
109	LNG project at Kakinada	150.00
110	Exploration Blocks under NELP -I&II	320.00
111	Development of Oil field in Iran /kuwait with ONGC-OVL	100.00
112	Others	789.11
	Total (IOC)	18001.44
	Chennai Petrochemicals Corporation Ltd. (CPCL)	
113	3 MMTPA Refinery expansion Project	2002.08
114	DHDS Project	226.27
115	Others	171.65
	Total (CPCL)	2400.00
	Bongaingaon Refinery & Petrochemicals Ltd (BRPL)	
116	Diesel Hydrotreatment project	94.00
117	Others	6.00
	Total (BRPL)	100.00
	Hindustan Petroleum Corporation Limited (HPCL)	
118	Mumbai Refinery Modernisation Project	1500.00
119	Visakh Refinery Modernisation project	1000.00
120	Communication & Computer Network	117.00
121	LPG Bottling Plants - Plan Locations	284.00
122	Bhatinda - Udhampur P/L terminals	250.00
123	Strategic Product tankage	260.00
124	Mangalore Refinery & Petrochemicals project	913.00
125	Punjab Refinery Project	2251.00
126	Others	925.00
	Total (HPCL)	7500.00
	Bharat Petroleum Corporation Limited (BPCL)	
127	Refinery Modernisation project	1462.90
128	UP Refinery Projects	100.00

Contd. Table : 41

129	Product terminal at Bina	150.25	
130	Extn. Of Mumbai-Manmad P/L to Manglia PH-I	267.15	
131	New LPG Bottling Plants under IXth Plan	219.20	
132	Investment in JVC- BORL	1215.50	
133	Investment in JVC- Petronet LNG Ltd.	120.00	
134	Provision for equity payments in probable JV projects	200.00	
135	Others	263.80	
	Total (BPCL)	3998.80	
	Kochi Refinery Ltd. (KRL)		
136	Refinery Modernisation Project with Capacity expansion	1654.00	
137	Crude receipt facilities	749.50	
138	others	96.50	
	Total (KRL)	2500.00	
	Numaligarh Refinery Limited (NRL)		
139	MS Project	240.00	
140	Revamp of Euro-III	50.00	
141	others	20.00	
	Total (NRL)	310.00	
	Indo - Burma Petroleum Limited (IBP Ltd.)		
142	APT / New Depot	226.05	
143	Minor Projects(Each costing less than Rs.25 crores)	1493.15	
144	Others	42.80	
	Total (IBP)	1762.00	
	Petrochemical Sector		
145	GAIL	913.52	
146	IOC	6398.09	
147	BPCL	1.20	
148	BRPL	131.00	
	Engineering Units		
149	Balmer Lawrie	120.00	
150	IBP	21.00	
151	Beicco Lawrie	30.00	
	Total of the Ministry	103656.00	0.00

Table : 42
SCHEME-WISE BREAK-UP OF TENTH PLAN OUTLAY OF MINISTRY OF
PLANNING (2002-07)

(Rs in Crore)

Sl No.	Schemes	Tenth Plan Outlay	
		Central Schemes	Centrally Sponsored Schemes
1	WHO Assistance-Country Level Assessment of Water Supply & Sanitation	0.06	
2	Modernisation of Office Systems	15.00	
3	National Commission on Population		
	i) Establishment	11.45	
	ii) Grant-in-aid (New Service)	24.50	
4	Grants-in-aid to IAMR for taking up studies on topics of current interest to Planning Commission	0.25	
5	Grants-in-aid to Universities and Research Institution Training, Research and Institution Development etc.	7.57	
6	Payment of Professional and Special Services	2.00	
7	Assistance from UNDP for Preparation of State Human Development Reports	7.57	
8	50th Year Initiative for Planning	30.00	
9	Grants-in-aid to Institute of Applied Manpower Research.	41.60	
10	Resource mapping at block level	200.00	
	Total of the Ministry	340.00	

Table : 43
SCHEME-WISE BREAK-UP OF TENTH PLAN OUTLAY OF MINISTRY OF
POWER (2002-07)

(Rs in Crore)

Sl No.	Schemes	Tenth Plan Outlay	
		Central Schemes	Centrally Sponsored Schemes
National Thermal Power Corporation			
1	Vindhyachal II	280.00	
2	Unchahar II	74.00	
3	Kayamkulam	84.00	
4	Faridabad	165.00	
5	Simhadri	1156.00	
6	Talcher II	4526.00	
7	Rihand II	4150.00	
8	Ramagundam III	2215.00	
9	Sipat I	7255.00	
10	Anta-II	637.00	
11	Vindhyachal III	3663.00	
12	Barh	6779.00	
13	North Karanpura	7365.00	
14	Sipat-II	2758.00	
15	Unchahar-III	1089.00	
16	NCTPP-II	2179.00	
17	Auraiya-II	611.00	
18	Kawas-II	1920.00	
19	Gandhar-II	2067.00	
20	Kahalgaon II	5247.00	
21	South Chennai	0.00	
22	Kayamkulam-II	27.00	
23	Capex For Kol Dam Project	4543.00	
24	Capex for JVC and Renovation & Modernisation	2890.00	
National Hydro-electric Power Corporation			
25	Tanakpur (120 MW)	9.00	
26	Chamera - I (540 MW)	28.00	
27	Uri (480 MW)	124.00	
28	Ranjit (60 MW)	12.00	
29	Salal-II (345 MW)	43.00	
30	Dulhasti (390 MW)	1001.33	
31	Dhauliganga-I (280 MW)	926.19	
32	Chamera-II (300 MW)	631.71	

33	Teesta-V (510 MW)	1856.59
34	Indira Sagar (1000 MW), NHDC	0.00
35	Omkareshwar (520 MW), NHDC	604.89
36	Puralia PSS (900 MW)	395.50
37	Teesta Low Dam Stage-IV (168 MW)	894.70
38	Sewa-II (120 MW)	596.27
39	Teesta Low Dam Stage-III (132 MW)	854.19
40	Bav Stage-I	100.00
41	Bav Stage-II	198.85
42	Loktak D/S (90 MW)	150.00
43	Parbati - II (800 MW)	2685.12
44	Parbati - III (520 MW)	1372.75
45	Pakal Dul (1000 MW)	1402.79
46	Bursar (1020 MW)	1771.98
47	Chamera-III (231 MW)	893.26
48	Subansiri (Lower) - (2000 MW)	4825.00
49	Uri-II (280 MW)	1175.06
50	Farakka Barage (125 MW)	1108.31
51	Upper Krishna Projects (810 MW)	4048.50
52	Siang (Lower) - (1700 MW)	606.73
53	Siang (Middle) - (700 MW)	525.49
54	Subansiri (Middle) - (2000 MW)	967.26
55	Siang (Upper)	50.24
56	Subansiri (Upper) - (2500 MW)	50.00
57	Cauvery Projects (1150 MW)	905.00
58	Nimobazoo (30MW)	345.07
59	Chutak (18 MW)	73.00
60	Koel Karo (710 MW)	471.16
61	Kishanganga (330 MW)	376.00
62	Other Schemes	100.00
63	Mini Hydro Schemes	27.00
64	R & M Power Houses	20.00
Power Grid Corporation of India Limited		
65	Jalandhar-Harmirpur	0.52
66	Nathpa-Jhakri TL	7.47
67	Ranga-Nadi TL	0.82
68	Tehri TL	254.69
69	ULDC Southern Region	109.47
70	ULDC Northern Region	154.44

Contd. Table : 43

71	ULDC North Eastern Region	196.14
72	Sasaram-HVDC-B/B	198.07
73	ULDC Eastern Region	333.93
74	Allahabad S/S & LILO Sigr-Kanpur	5.06
75	Bhiwadi & LILO Ballabgarh-Jaipur	44.61
76	LILO of Bongaigon-Malda at Purnea	19.95
77	Talcher-II	1227.52
78	Energy Meters for NR-I, WR,ER,NER &SR	2.73
79	Kaiga-Narendra	30.51
80	LILO of Nongaigon-Malda at Siliguri	35.49
81	LILO of Purnea-Dalkhola	3.37
82	ICT-Malda	0.39
83	ICT-Ballabgarh	7.55
84	Kolhapur-Mapusa	122.67
85	Jamshedpur-Rourkela	47.47
86	Talcher-Meramundli	27.16
87	Series Capacitors for Kanpur-Ballabgarh	6.84
88	ICT Jeypore	1.98
89	Feroz Gandhi Unchahar TL-II	1.73
90	System Strengthening in SR(VIJ-NEL-Chennai)	240.93
91	Dhauliganga TL	157.17
92	East-West Inter Regional Link	160.06
93	Agra-Agra Inter Connector	27.01
94	ULDC Western Region	264.99
95	Madurai-Complex	166.97
96	Gurgaon Complex	83.49
97	Meramundali-Jeypore	146.27
98	Bihar Grid Strengthening	166.36
99	Ranganadi-Zero	28.03
100	Ramagundam-III	404.62
101	Series Capacitors for Kanpur-Ballabgarh	1.19
102	Series Capacitors at Panki-Muradnagar	25.31
103	Kahargaon-Biharsariff	143.86
104	LILO of Kolaghat-Rengali at Baripada	65.67
105	System Strengthening II-Hiriyur S/S Bay at Kolar	81.17
106	WR System Strengthening (Khandwa)	140.57
107	Gazuwaka HVDC Augmentation	854.95
108	System Strengthening III-(LILO of Hyderabad-Gooty, Nelamangala-Sommanhally)	303.31

109	SR System Strengthening IV-Nelamangala-Maysore	224.74
110	LILO of Rangit-Siliguri at Gangtok	50.84
111	AP Grid Strengthening	28.99
112	Series Capacitors at Raipur-Rourkela	112.71
113	Tarapur 3&4	357.36
114	Dulhasti Combined TR. System (Phase-I&II)	402.05
115	Raipur-Chandrapur	289.26
116	Sipat I&II	2037.19
117	Faridabad Complex	0.0
118	TR. System for Tala HEP (1020 MW)(S/S Portion)	1358.98
119	TR. System for Tala HEP (1020 MW)(T/LD Portion-JV)	203.86
120	Chamera-II	58.83
121	Rihand-II	1117.32
122	Parbati-II	47.70
123	Sasaram HVDC-II	101.19
124	Hirma-I	6.23
125	Supplementary TL for TALA HEP	441.11
126	Power Supply Improvement Scheme in Gurgaon (S/S at Chakkarpur)	34.60
127	220 KV System Improvement Scheme in UP (UPPCL)	20.73
128	Mau-Baliya Transmission System	12.25
129	System Improvement Schemes of BSEB	347.34
130	Composite Trans. System for Kahalgaon-North Karanpura & Barh	2451.20
131	Transmission System for Tehri PSP (1000MW) & Koteshwar (400 MW)	677.65
132	National Load Despatch Centre	48.75
133	Vinchyachal-III (1000MW)	258.66
134	Transmission System for Seepat-II (660MW)	124.59
135	Transmission System for Kaiga 3&4 (440 MW)	39.55
136	Transmission System for RAPP-5&6 (1000 MW)	127.63
137	Transmission System for Kaiga 5&6 (400 MW)	39.82
138	Transmission System for Neyveli TPS -III (1000 MW)	336.21
139	Neyveli-II Exp.(500MW)	671.65
140	Pooling Station NER-DE Pooling Station NR/WR HVDC Bipole-I	638.70
141	Pooling Station NER-DE Pooling Station NR/WR HVDC Bipole-II	132.75
142	Kathalguri TL	16.93
143	Vindhayachal TL-II	0.25
144	Augmentation of NER System	6.06
145	Kishenpur-Moga TL	3.41
146	Telecom Sector	2240.28
Damodar Valley Corporation		

Contd. Table : 43

147	Refurbishment of Maithon Hydel	87.82
148	Mejia TPS Extn. Unit-4 (1x210 MW)	727.34
149	Mejia TPS Extn. Unit-5&6 (2x250 MW)	2214.00
150	Chandrapura TPS Unit-7&8 (2x250 MW)	2213.98
151	BSP TPS St.I Unit.1 (1x500 MW)	844.44
152	DSP TPS St.I Unit.1 (1x500 MW)+B42	844.44
153	Ramgarh TPS St.I Unit.1&2 (2x250 MW)	952.78
154	Kodarma TPS St.I Unit.1&2 (2x250 MW)	952.78
155	Maithon LB TPS St.I Unit.1&2 (2x500 MW)	952.78
156	Inv./feas.studies/DPR etc. for New projects	4.78
157	Equity contribution to MPL for Maithon RB TPS (4x250 MW)	570.87
158	R&M Schemes	1476.45
159	T&D Schemes	1618.88
160	Communication Schemes	58.16
Tehri Hydro Development Corporation		
161	Tehri St.I (4x250 MW)	1275.66
162	Koteshwar HEP (400 MW)	1120.22
163	Tehri Pump Storage Plant (4x250 MW)	1250.62
Nathpa Jhakri Power Corporation		
164	Nathpa Jhakri HEP (6x250 MW)	2331.00
165	Rampur HEP	923.00
North Eastern Electric Power Corporation		
166	Tuirial HE Project (60 MW) , Mizoram	255.00
167	Kopill - 2nd Stag Extn. (25 MW), Assam	33.49
168	Tuivai HE Project (210 MW), Mizoram	790.20
169	Kamang HE Project (600 MW), Ar. Pradesh	1000.00
170	Tripura Gas Based P.P. (500 MW), Tripura	1695.49
171	Tipaimukh HE Project (1500 MW), Manipur	250.00
172	LowerKopill HEP Project (150 MW) , Assam	50.00
173	Ranganadi HEP St.II(180 MW), Ar. Pradesh	100.00
174	Dikrong HEP(100 MW), Ar. Pradesh	30.00
175	Survey & Investigation	20.00
Ministry of Power (Misc.)		
176	Central Electricity Authority	130.00
177	National Power Training Institute	75.00
178	Central Power Research Institute	90.00
179	Energy Conservation & BEE	50.00
180	Kutir Jyoti Programme	627.00
181	Power Finance Corporation Subsidy	1500.00

Contd. Table : 43

182	Computerisation and office equipment	5.00
183	Joint Electricity Regulatory Commission	1.00
184	Badarpur Thermal Power Project	1.00
185	Sardar Sarovar Project	0.00
186	Recommendations of GOM for Rural Electrification	850.00
187	Powergrid subsidy for North Eastern region	150.00
Total of the Ministry		143399.00

Table : 44
SCHEME-WISE BREAK-UP OF TENTH PLAN OUTLAY OF MINISTRY OF
RAILWAYS (2002-07)

(Rs in Crore)

Sl No.	Schemes	Tenth Plan Outlay	
		Central Schemes	Centrally Sponsored Schemes
1	National Highways Authority of India (NHAI) (Externally Aided)	10790.50	
1	New Lines	2500.00	
2	Gauge Conversion	2500.00	
3	Doubling	4000.00	
4	Other Traffic Facilities	1500.00	
5	Computerisation	500.00	
6	Railway Research	100.00	
7	Rolling Stock	16175.00	
8	Road Safety -L/C	750.00	
9	Road Safety - ROB/RUB	1400.00	
10	Track Renewals	7420.00	
11	Bridge Works	425.00	
12	Signalling & Telecom Works	610.00	
13	Electrification Projects	1500.00	
14	Other Electrical Works	1000.00	
15	Machinery & Plant	555.00	
16	Workshop Incdg. PUS	1000.00	
17	Staff Quarters	250.00	
18	Amenities for Staff	250.00	
19	User's Amenities	650.00	
20	Investment in PSUs	50.00	
21	Other Specified Works	365.00	
22	Inventories	3100.00	
23	Metropolitan Transport Projects	2500.00	
24	Unallocated	11500.00	
	Total of the Ministry	60600.00	0.00

Table : 45
SCHEME-WISE BREAK-UP OF TENTH PLAN OUTLAY OF MINISTRY OF
ROAD TRANSPORT & HIGHWAYS (2002-07)

(Rs in Crore)

Sl No.	Schemes	Tenth Plan Outlay	
		Central Schemes	Centrally Sponsored Schemes
1	National Highways Authority of India (NHAI) (Externally Aided)	10790.50	
2	Roads Wing (Externally Aided)	3200.00	
3	National Highways (O)	8664.00	
4	Border Road Development Board	950.00	
5	Other Charges (Domestic Travel & Publicity etc.)	20.00	
6	Development of IT	20.00	
7	Strategic Roads under RW/ BRDB	50.00	
9	R & D and Planning studies	20.00	
10	Training under World Bank & other Training	10.50	
11	Machinery	15.00	
12	Charged Expenditure	50.00	
13	NHAI Investment from Central Road Fund (CRF)	10500.00	
14	NHAI (IEBR)	24700.00	
15	Roads of Inter-State & economic importance for States / UT's from CRF		500.00
Road Transport			
16	National Data Network and Computer System	12.00	
17	Road Safety	164.00	
18	Pollution Control	10.00	
19	Model Driving Training Institute		24.00
Total		59176.00	524.00
Total of the Department			59700.00

Table : 46
SCHEME-WISE BREAK-UP OF TENTH PLAN OUTLAY OF DEPARTMENT OF
DRINKING WATER SUPPLY (2002-07)

(Rs in Crore)

Sl No.	Schemes	Tenth Plan Outlay	
		Central Schemes	Centrally Sponsored Schemes
1	Accelerated Rural Water Supply Programme		13245.00
2	Rural Sanitation Programme		955.00
Total of the Department			14200.00

Table : 47
SCHEME-WISE BREAK-UP OF TENTH PLAN OUTLAY OF DEPARTMENT OF
LAND RESOURCES (2002-07)

(Rs in Crore)

Sl No.	Schemes	Tenth Plan Outlay	
		Central Schemes	Centrally Sponsored Schemes
1	Technology Development, Extension and Training (TDET)	90.00	
2	Others (Investment Promotional Scheme, Communication, Monitoring & Evaluation)	71.00	
3	DFID Projects (EAP)	365.00	
4	New Initiatives	1000.00	
5	Drought Prone Areas Programme (DPAP)		1500.00
6	Desert Development Programme (DDP)		1100.00
7	Integrated Wastelands Development Programme (IWDP)		1800.00
8	Modernisation of Revenue and Land Administration - (a) Computerisation of Land Records (b) Strengthening of Revenue Administration and Updating of Land Records		600.00
	Total	1526.00	5000.00
	Total of the Department		6526.00

Table : 48
SCHEME-WISE BREAK-UP OF TENTH PLAN OUTLAY OF DEPARTMENT OF
RURAL DEVELOPMENT (2002-07)

(Rs in Crore)

Sl No.	Schemes	Tenth Plan Outlay	
		Central Schemes	Centrally Sponsored Schemes
1	Grants to National Institute of Rural Development	40.00	
2	Information, Education & Communication (IE&C)	100.00	
3	Assistance to CAPART	200.00	
4	Monitoring and Evaluation	100.00	
5	Sampoorna Grameen Rozgar Yojana (SGRY)		30000.00
6	Pradhan Mantri Gram Sadak Yojana (PMGSY)		12500.00
7	Rural Housing (Indira Awaas Yojana)		8603.00
8	Swarnjayanti Gram Swarozgar Yojana (SGSY)		3955.00
9	DRDA Administration		1100.00
10	Training		150.00
	Total	440.00	56308.00
	Grand Total of the Department		56748.00

Table : 49
SCHEME-WISE BREAK-UP OF TENTH PLAN OUTLAY OF DEPARTMENT OF
BIO-TECHNOLOGY (2002-07)

(Rs in Crore)

Sl No.	Schemes	Tenth Plan Outlay	
		Central Schemes	Centrally Sponsored Schemes
SCIENCE AND TECHNOLOGY SECTOR			
1	Human Resource Development	90.00	
2	Biotech Facilities, Centres for Excellence and Programme Support	100.00	
3	Research & Development	620.00	
4	Biotechnology for Societal Development	25.00	
5	Bio-Process & Product Development	50.00	
6	Bioinformatics	70.00	
7	International Cooperation	40.00	
8	National Instt. of Immunology	150.00	
9	National Centre for Cell Science, Pune	60.00	
10	Centre for DNA Fingerprinting & Diagnostics	75.00	
11	National Brain Research Centre	75.00	
12	National Centre for Plant Genome Research	50.00	
13	Instt.of Bio Resources & Sustainable Dev.	15.00	
INDUSTRY & MINERAL SECTOR			
14	Technology Incubators & Pilot Level facilities, Parks and Biotech Development fund	30.00	
Total of the Department		1450.00	0.00

Table : 50
SCHEME-WISE BREAK-UP OF TENTH PLAN OUTLAY OF DEPARTMENT OF
SCIENCE AND TECHNOLOGY (2002-07)

(Rs in Crore)

Sl No.	Schemes	Tenth Plan Outlay	
		Central Schemes	Centrally Sponsored Schemes
1	R & D Programme	1150.00	
2	Technology Development **	225.00	
S&T PROGRAMMES FOR SOCIO-ECONOMIC DEVELOPMENT			
3	Science and Society Programmes	45.00	
4	SCP for the Development of SC	15.00	
5	Tribal Sub Plan	15.00	
6	S&T Entrepreneurship Development & Employment generation (including Technology Business Incubators)	90.00	
7	S&T Communication & Popularisation	25.00	
8	International Cooperation Programmes	100.00	
9	State Science and Technology Programmes	50.00	
10	Survey of India	110.00	
11	NATMO	5.00	
12	Indian Meteorological Department (IMD) *	309.00	
13	NCMRWF	55.00	
AUTONOMOUS INSTITUTIONS			
14	Indian Association for Cultivation of Science (IACS) Kolkatta	60.00	
15	Bose Institute (BI) Kolkatta	50.00	
16	Raman Research Institute (RRI) Bangalore	40.00	
17	Indian Institute of Astrophysics (IIA) Bangalore	100.00	
18	Indian Institute of Geomagnetism (IIG) Mumbai	60.00	
19	Indian Institute of Tropical Meteorology (IITM) Pune	25.00	
20	Shree Chitra Tirunal Medical Institute of S&T, Thiruvananthapuram	105.00	
21	Birbal Sahani Institute of Paleobotany (BSIP) Lucknow	28.00	
22	S.N.Bose National Centre for Basic Sciences, Kolkatta	30.00	
23	Agarkar Research Institute, Pune	28.00	
24	Wadia Institute of Himalayan Geology, Dehradun	30.00	
25	Jawahar Lal Nehru Centre for Advanced Scientific Studies, Bangalore	39.00	
26	Technology Information Forecasting & Assessment Council, (TIFAC), New Delhi	325.00	
27	Vigayan Prasar, New Delhi	12.00	
28	Advanced Research Centre for Powder Metallurgy and New Materials, Hyderabad	40.00	

Contd. Table : 50

29	National Accreditation Board for Laboratories (NABL), New Delhi	20.00	
PROFESSIONAL BODIES			
30	Indian National Science Academy (INSA), New Delhi	18.00	
31	Indian Academy of Sciences (IAS), Bangalore	6.00	
32	Indian Science Congress Association, Kolkatta	5.00	
33	Indian National Academy of Engineering, New Delhi	5.00	
34	National Academy of Sciences (India) Allahabad	10.00	
35	Other Professional Bodies, seminar, symposia	10.00	
36	Externally Aided Projects (UNDP)	10.00	
NEW SCHEMES (TECHNOLOGY PROJECTS IN MISSION MODE)			
37	Seismology	50.00	
38	Technology for Bamboo Products	100.00	
Total of the Department		3400.00	0.00

* - Includes Rs. 150 Crore for Pharmaceutical Research & Development Support Fund

** - Includes Rs. 25 Crore for IMD and SOI for Ministry of Urban Development

Table : 51
SCHEME-WISE BREAK-UP OF TENTH PLAN OUTLAY OF DEPARTMENT OF SCIENTIFIC AND INDUSTRIAL RESEARCH INCLUDING CSIR (2002-07)

(Rs in Crore)

Sl No.	Schemes	Tenth Plan Outlay	
		Central Schemes	Centrally Sponsored Schemes
DSIR			
1	Technology Promotion, Development & Utilization Programmes	100.00	
2	National Research Development Corporation	20.00	
3	Central Electronics Ltd.	25.00	
CSIR			
1	National Laboratories	1800.00	
2	National S&T Human Resource Management.	45.00	
3	Intellectual Property & Technology Management	100.00	
4	R&D Management Support	80.00	
5	New Millennium Indian Technology	205.00	
6	Infrastructure Renovation& Refurbishing	200.00	
Total of the Department		2575.00	

Table : 52
SCHEME-WISE BREAK-UP OF TENTH PLAN OUTLAY OF MINISTRY OF SHIPPING (2002-07)

(Rs in Crore)

Sl No.	Schemes	Tenth Plan Outlay	
		Central Schemes	Centrally Sponsored Schemes
1	PORTS	5418.29	
Shipping			
2	Shipping Corporation of India (SCI)	5800.00	
3	DG (Shipping)	288.84	
4	DG (Light House and Light Ships)	185.00	
Inland Water Transport			
5	Inland Water Authority of India (NW - I & III)	609.73	20.00
6	National Waterways - II (NE Pool)	235.00	
7	Central Inland Water Transport Corporation	38.27	
8	Others	577.01	
9	Ship Building & Ship Repairs	1047.86	
Total		14200.00	20.00
Total of the Ministry			14220.00

Table : 53
SCHEME-WISE BREAK-UP OF TENTH PLAN OUTLAY OF MINISTRY OF SMALL
SCALE INDUSTRIES (2002-07)

(Rs in Crore)

Sl No.	Schemes	Tenth Plan Outlay	
		Central Schemes	Centrally Sponsored Schemes
Small Industries Development Organisation (SIDO)			
1	Promotion of Small Industries	65.00	
2	Science, Technology, Research & Development	35.00	
3	Training and Manpower Development	35.00	
4	Ancillary Development & Others	10.00	
5	Tool Rooms	70.00	
6	Marketing Assistance & Export Promotion Schemes	10.00	
7	Regional Testing Centres & Field Testing Stations	25.00	
8	Technology Upgradation	95.00	
9	Computer Aided Design & Computer Aided Machining Centre	15.00	
10	Integrated Infrastructural Development	75.00	
11	Collection of Statistics / Census	45.00	
12	Credit Guarantee Fund	900.00	
13	Credit Linked Capital. Subsidy	595.00	
National Small Industries Corporation (NSIC)			
14	Equity and Grants	86.10	
15	Marketing Assistance Scheme	67.00	
16	Reimbursement of Expenditure of NTSC's and govt. purchase	26.90	
17	IEBR of NSIC	384.00	
Other Schemes			
18	International Cooperation	12.00	
19	Surveys & Studies & Policy Research	6.00	
20	National Entrepreneurship Development Board (NEDB)	10.00	
21	Trade related entrepreneurship assistance & development	10.00	
22	Micro finance programme	7.00	
Total of the Ministry		2584.00	0.00

Table : 54
SCHEME-WISE BREAK-UP OF TENTH PLAN OUTLAY OF MINISTRY OF SOCIAL JUSTICE & EMPOWERMENT (2002-07)

(Rs in Crore)

Sl No.	Schemes	Tenth Plan Outlay	
		Central Schemes	Centrally Sponsored Schemes
Socially Disadvantaged Groups (SCs, DBCs & Minorities)			
1	Special Central Assistance (SCA) to Special Component Plan (SCP)	2313.40	
2	National Finance Development Corporations for Weaker Sections	478.20	
3	GIA to NGOs for SCs, OBCs & Research & Training	193.85	
4	Dr. B.R.Ambedkar Foundation	5.00	
	Grant-in-Aid to Maulana Azad Education Foundation *	30.00	
5	Post-Matric Scholarships & Book Banks for SC Students		1558.00
6	Pre-Matric Scholarships for Children of those families engaged in Unclean Occupations		87.00
7	Hostels for SC, OBC and Minority Boys & Girls		347.00
8	Scheduled Caste Development Corporations (SCDCs)		150.00
9	Coaching for SCs, OBCs & Other Weaker Sections for Competitive Exams.		97.55
10	Up-gradation of Merit of SC Students		346.50
11	Implementation of PCR Act, 1955 & SC/ST (POA) Act, 1989		170.00
12	National Scheme of Liberation & Rehabilitation of Scavengers & their Dependents		460.00
13	Scholarships for OBC and Minority Students		289.50
	i. Pre and Post Matric Scholarships for OBC and Minority Students		
	ii. Merit based Scholarships for OBC and Minority Students		
Other Special Groups (Disabled, Social Deviants & Other Disadvantaged Groups)			
14	Scheme for Funding to National Institutes	210.80	
15	Artificial Limbs Manufacturing Corporation, Kanpur	20.50	
16	Scheme of Assistance to Disabled Persons for Purchasing /Fitting of Aids & Appliances	354.50	
17	Scheme to Promote Voluntary Action for Persons with Disabilities	503.00	
18	Indian Spinal Injury Centre	25.00	
19	Rehabilitation Council of India	22.00	
20	National Trust for Persons with Mental Retardation **	21.00	
21	National Handicapped Finance and Development Corporation	97.50	
22	Implementation of the Persons with Disabilities (PWD) Act, 1995.	154.00	
	Office of the Chief Commissioner for Persons with Disabilities (Spill-over only for 2002-03)	1.00	
23	Support to children with Disabilities (An UNDP funded Scheme)	2.37	
24	College of Rehabilitation Sciences (New Scheme)	53.73	

25	Assistance to Vol. Orgns. For providing Social Def. Services including Prevention of Alcoholism & Drug Abuse	158.50	
	Central Adoption Resource Agency (Spill-over only for 2002-03)	2.00	
26	Grant-in-aid for Welfare of Children in Difficult Circumstances	85.90	
27	Assistance to Vol. Orgns. for Programmes related to Aged.	104.00	
28	Grant in Aid for Research, Information and Other Miscellaneous	34.60	
29	Scheme for Welfare of Working Children & Children in Need of Care and Protection (New Scheme)	45.00	
	Employment of the Handicapped (Awaiting NDC's approval for transfer to States)		3.60
30	Scheme for Prevention and Control of Juvenile Social Maladjustment		105.00
	Total	4915.85	3614.15
	Total of the Ministry		8530.00

- * Spill-over of the total Corpus of Rs.100 crore to be paid to the Foundation and the scheme to be weeded-out during 2002-03.
- ** An amount of Rs. 21 crore (of which Rs. 1 crore as the spill over of the Ninth Plan Corpus of Rs. 100 crore) to be paid to the Trust and the scheme to be weeded out during the year 2002-03.

Table : 55
SCHEME-WISE BREAK-UP OF TENTH PLAN OUTLAY OF DEPARTMENT OF
SPACE (2002-07)

(Rs in Crore)

Sl No.	Schemes	Tenth Plan Outlay	
		Central Schemes	Centrally Sponsored Schemes
INSAT SYSTEM			
1	INSAT-3A, 3D & 3E Satellites	350.00	
2	INSAT-3D Launch Services (GSLV)	150.00	
3	Insurance 3A/3E	85.00	
4	Insurance 3D (Provisional)	5.00	
5	Leasing of Transponders	50.00	
6	INSAT-4A, B Spacecraft (3T Bus)	500.00	
7	INSAT-4A, B Launch Services (Procured)	720.00	
8	Insurance of INSAT-4A, B	210.00	
9	INSAT-4 C, D Spacecraft (2T Bus)	400.00	
10	INSAT-4 C, D Launch Services (GSLV)	300.00	
11	Insurance for INSAT-4 C, D	130.00	
12	INSAT-4 Follow on Space Craft (Advance Investment)	100.00	
13	INSAT-5 Start-up	25.00	
METSAT SYSTEM			
14	METSAT-1	50.00	
15	METSAT-2 Spacecraft	120.00	
16	METSAT-2 Launch Services	85.00	
17	Insurance for METSAT-2 (Provisional)	5.00	
18	METSAT-3 Spacecraft-startup	20.00	
TECHNOLOGY/EXPERIMENTAL MISSIONS			
19	GSAT-2	15.00	
20	GSAT-3	90.00	
21	GSAT-4 Spacecraft	110.00	
22	GSAT-4 Launch Services (GSLV)	150.00	
23	Advanced Communication Technology Spacecraft (ACTS) – Advance Investment	175.00	
SATCOM APPLICATIONS			
24	GRAMSAT programme, Satellite Navigation, Tele-health, Tele-education etc.	235.00	
EOS MISSIONS			
25	RESOURCESAT-1 (IRS-P6)	40.00	
26	CARTOSAT-1 (IRS-P5)	40.00	
27	CARTOSAT-2	175.00	
28	RESOURCESAT-2	135.00	

29	RI-SAT-1 (Radar Imaging Satellite)	375.00
30	OCEANSAT-2	200.00
31	Launch cost – 6 Missions (PSLV)	510.00
32	Followon Missions (Advance Investment) Resourcesat-3, WiF SAT-1, Cartosat-3, RISAT-2 and TES-2	120.00
33	Technology Management Programme	100.00
34	Ground Segment	30.00
EO APPLICATIONS		
35	Remote Sensing Application Mission (RSAM), Oceanography and Meteorology, Earth System science, International Protocols, Satellite data reception/processing/applications – NRSA & RRSSC	185.00
NNRMS & SNRMS		
36	NNRMS & SNRMS (Natural Resource Census, Natural Spatial Data Infrastructure (NSDI), National (Natural) Resource Information System (NRIS), Large scale mapping, Support to states, Ariel survey/utilisation, etc.)	290.00
37	Disaster Management Support	70.00
SPACE SCIENCE & ENVIRONMENT		
38	ASTROSAT MISSION	
	a) Satellite and Payload Development	138.00
	b) Launch Services (PSLV)	85.00
39	Piggy Back Payloads	7.00
40	Space Science Promotions	15.00
41	Multi Agency Projects	5.00
42	Sounding Rockets	15.00
43	Planetary Science	25.00
44	Micro Gravity Experiments	30.00
45	Geosphere-Biosphere Programme	15.00
46	MEGHA-TROPIQUES	
	a) Sensor development & Science plan	30.00
	b) Launch Services (PSLV)	85.00
47	Satellite Data Utilisation Programme	5.00
48	Ground Based Facilities Augmentation	20.00
49	PRL, SPL, NMRF Research Programme	120.00
50	Origin and Evolution of Life	2.00
51	Planetary Missions	240.00
LAUNCH VEHICLE DEVELOPMENT		
52	GSLV MK I	200.00
53	GSLV MK III Development	1685.00
54	Cryogenic Upper Stage Project (CUSP)	80.00
55	Second Launch Pad	150.00
56	Space Capsule Recovery Expt. (SRE)	100.00

Contd. Table : 55

57	GSLV continuation	300.00
58	Reusable Launch Vehicle (RLV) Technology Demonstrator	50.00
59	PSLV/GSLV Core Vehicle Studies	25.00
60	Small Satellite Programme	30.00
61	Technology Development Programme	220.00
62	Advanced R & D Programme	120.00
63	Facility Replacement/Augmentation	900.00
64	Development of Space Materials & Components	80.00
65	Industry Interface/productionisation	158.00
66	Advance Action/Parallel ordering	80.00
67	International Programme	25.00
68	Sponsored Research	80.00
69	Commercialization Efforts	10.00
70	Technical & Auxiliary Facility Operations Support	1295.00
71	General Civil Works & Housing	475.00
Total of the Department		13250.00

Table : 56
SCHEME-WISE BREAK-UP OF TENTH PLAN OUTLAY OF MINISTRY OF
STATISTICS AND PROGRAMME IMPLEMENTATION (2002-07)

(Rs in Crore)

Sl No.	Schemes	Tenth Plan Outlay	
		Central Schemes	Centrally Sponsored Schemes
1	Modernisation of Stastical System in India	452.35	
2	Addition / Alteration and Modernisation of Office Building	5.60	
3	Institutional Development & Capacity Building (Statistics Wing)	34.00	
4	Improvement of National Account Statistics	6.50	
5	Development of Social, Environment & Price Statistics	26.00	
6	Improvement of Informal Sector Statistics and Publication	14.76	
7	Strengthening of Field Survey Capabilities of NSSO	49.60	
8	Strengthening of Data Processing Capabilities of NSSO	28.50	
9	Strengthening of Survey Design & Research Capabilities of NSSO	14.90	
10	Grants in aid to States for carrying out NSS Survey work in NER	14.65	
11	Strengthening of Data Processing, Storage and Dissemination of Data by Computer Centre	6.00	
12	Grants in aid to Indian Statistical Institute	60.00	
13	Institutional Development & Capacity Building (Programme Implementation Wing)	12.14	
Total of the Ministry		725.00	

Table : 57
SCHEME-WISE BREAK-UP OF TENTH PLAN OUTLAY OF MINISTRY OF
STEEL (2002-07)

(Rs in Crore)

Sl No.	Schemes	Tenth Plan Outlay	
		Central Schemes	Centrally Sponsored Schemes
1	Kudremukh Iron Ore Company	495.00	
2	Ferro Scrap Nigam Ltd.	56.00	
3	Manganese Ore (India) Ltd.	149.00	
4	National Mineral Development Corporation Ltd. (NMDC)	3545.00	
5	Bird Group of Companies	12.00	
6	Sponge Iron India Ltd.	25.00	
7	Steel Authority of India Ltd	5000.00	
8	Bharat Refractories Ltd.	69.00	
9	Rasshtriya Ispat Nigam Ltd.	860.00	
10	Metal Scrap Trading Corporation Ltd.	30.00	
11	Hindustan Steel Works Construction Ltd.	47.00	
12	Metallurgical Consultants Ltd. (MECON)	5.00	
13	Research & Technology Mission	750.00	
Total of the Ministry		11043.00	0.00

Table : 58
SCHEME-WISE BREAK-UP OF TENTH PLAN OUTLAY OF MINISTRY OF
TEXTILES (2002-07)

(Rs in Crore)

Sl No.	Schemes	Tenth Plan Outlay	
		Central Schemes	Centrally Sponsored Schemes
1	Handloom	157.00	468.00
2	Powerloom	60.00	0.00
3	Sericulture	266.52	183.48
4	Handicrafts	425.00	
5	Wool & Woollens	40.00	
6	National Institute of Fashion Technology (NIFT)	110.00	
7	National Textile Corporation (NTC)	1.00	
8	British India Corporation (BIC)	1.00	
9	National Jute Manufactureres Corporation (NJMC)	1.00	
10	National Centre for Jute Diversification (N.C.J.D)	30.00	
11	Jute Manufacturers Development Council (J.M.D.C)	5.00	
12	R & D including TRAs	50.00	
13	Export Promotion Studies	5.00	
14	Sectt. Economic Services	5.00	
15	Voluntary Retirement Scheme (VRS)	150.00	
16	Technical Textiles	3.00	
17	Special Jute Development Fund (S.J.D.F) (Including Jute Technology Mission)	40.00	
18	Technology Upgradation Fund Scheme (TUFS)	1270.00	
19	Export Market Support Scheme	9.00	
20	Cotton Technology Mission		150.00
21	Apparel Parks		75.00
22	Textile Centres Infrastructural Development Scheme		75.00
	Total	2628.52	951.48
	Total of the Ministry		3580.00

Table : 59
SCHEME-WISE BREAK-UP OF TENTH PLAN OUTLAY OF DEPARTMENT
OF TOURISM (2002-07)

(Rs in Crore)

Sl No.	Schemes	Tenth Plan Outlay	
		Central Schemes	Centrally Sponsored Schemes
1	Buddhist Centres (Externally Aided Projects)	50.00	
2	Institute of Hotel Management (IHM)	8.50	
3	Food Craft Institutes (FCI)	0.40	
4	Indian Institute of Tourism & Travel Management (IITTM)	1.00	
5	National Institute of Water Sports	0.10	
6	Hospitality Progamme	1.00	
7	Overseas campaign	17.00	
8	Marketing Development Assistance	1.00	
9	Subsidies & Incentives	9.00	
10	Integrated Development of Tourist Circuits	885.00	
11	Assistance to IHM / FCIs / IITTM/ NIWS / National Institute of Adventure Sports (NIAS) / National Council for Hotel Management & Catering Technology (NCHMCT)	110.00	
12	Capacity building for Service providers	24.00	
13	Restructured Scheme of Overseas Production and Publicity	500.00	
14	Domestic Promotion and Publicity, including Hospitality	230.00	
15	Incentive to Accommodation infrastructure	45.00	
16	Adventure & Sports Tourism		2.00
17	Son et lumiere (SEL) shows (Flood lighting)		2.00
18	Development of Tourist Centres / Areas including Village and Heritage Tourism		8.00
19	Refurbishment of Monuments / Heritage Buildings		1.00
20	Wayside Amenities		5.50
21	Budget Accommodation		6.50
22	Equity Scheme		1.00
23	Production of literature and publicity materials		3.50
24	Domestic campaigns including fairs and fesitvals		4.00
25	Computerisation and Information Technology		100.00
26	Market Research including 20 years perspective plan		20.00
27	Product Infrastruture / Destination Development / Projects		476.50
28	Assistance for large revenue generating projects		98.00
29	Lump sum provision for NE states including Sikkim		290.00
	Total	1882.00	1018.00
	Total of the Department		2900.00

Table : 60
SCHEME-WISE BREAK-UP OF TENTH PLAN OUTLAY OF DEPARTMENT OF
ART AND CULTURE (2002-07)

(Rs in Crore)

Sl No.	Schemes	Tenth Plan Outlay	
		Central Schemes	Centrally Sponsored Schemes
1	Modernisation & Computerisation	4.39	
2	Promotion & Dissemination	362.43	
3	Archaeology	284.83	
4	Archives & Records	74.11	
5	Museum	304.13	
6	Anthropology & Ethnology	40.02	
7	Public Library	131.05	
8	Indira Gandhi National Centre for the Arts (IGNCA)	90.00	
9	Institutions of Buddhist & Tibetan Studies	45.70	
10	Other Expenditure	49.35	
11	Activities for North East Region	154.00	
12	Capital Component	180.00	
	Total of the Department	1720.00	

Table : 61
SCHEME-WISE BREAK-UP OF TENTH PLAN OUTLAY OF MINISTRY OF
TRIBAL AFFAIRS (2002-07)

(Rs in Crore)

Sl No.	Schemes	Tenth Plan Outlay	
		Central Schemes	Centrally Sponsored Schemes
1	Grant-in-Aid to NGOs for Coaching for ST students for Competitive Exams	178.98	
2	Vocational Training Centres in Tribal Areas	67.12	
3	Educational Complexes in low Literacy Pockets	44.74	
4	Investment and Price support to TRIFED	33.63	
5	Grants-in-Aid to STDCs for MFPs	78.31	
6	Village Grain Banks	231.00	
7	Development of Primitive Tribal Groups (PTGs)	111.87	
8	National ST Finance & Devl. Corporation and GIA to STs Development & Finance Corporations	178.99	
9	Scheme of PMS, Book Banks and Upgradation of Merit of ST Students		383.09
10	Scheme of Hostels for ST Students		134.24
11	Ashram Schools in TSP areas		78.30
12	Research & Mass Education, Tribal Festivals and Others		58.73
	Lumpsum provision for North East		175.00
	Total	924.64	829.36
	Total of the Ministry *		1754.00

* Excludes SCA to TSP and GIA under Article 275(1) of the constitution.

Table : 62
SCHEME-WISE BREAK-UP OF TENTH PLAN OUTLAY OF DEPARTMENT OF
URBAN DEVELOPMENT (2002-07)

(Rs in Crore)

Sl No.	Schemes	Tenth Plan Outlay	
		Central Schemes	Centrally Sponsored Schemes
1	National Capital Region Planning Board	4122.00	
2	Urban Mapping	20.00	
3	Research in Urban and Regional Planning	15.00	
4	Urban Transport		
	Delhi Metro Rail Corporation (DMRC)	1816.00	
	Others	200.00	
	Pass Through assistance from JBIC	0.00	
5	Equity to HUDCO for Urban Infrastructure	100.00	
6	Computerisation	16.00	
7	Training in Public Health Engineering	10.00	
8	Equity to HUDCO for Water Supply	100.00	
9	General Pool Residential Accommodation	400.00	
10	CPWD Training Institute and North Eastern Zone	15.00	
11	General Pool Office Accommodation	150.00	
12	Modernisation of CPWD/Computerisation	30.00	
13	National Urban Information System		20.00
14	Pool Finance Development Facility		400.00
15	City Challenge Fund		500.00
16	North East - Lump sum Provision	700.00	
17	Integrated Development of Small and Medium Towns		1304.65
18	Mega City		1050.00
19	Low Cost Sanitation		200.00
20	Extension of Accelerated Water Supply Programme to Small Towns		900.00
21	Solid Waste Management		99.35
	Total	7694.00	4474.00
	Total of the Department		12168.00

Table : 63
SCHEME-WISE BREAK-UP OF TENTH PLAN OUTLAY OF DEPARTMENT OF URBAN
EMPLOYMENT & POVERTY ALLEVIATION (2002-07)

(Rs in Crore)

Sl No.	Schemes	Tenth Plan Outlay	
		Central Schemes	Centrally Sponsored Schemes
1	Building Material Technology Promotion Council	20.00	
2	Development of Urban Indicators Programme	1.00	
3	HUDCO	14501.00	
4	National Cooperative Housing Federation	1.00	
6	Lump sum provision for NE Region including Sikkim	405.00	
7	Valmiki Ambedkar Awas Yojana (VAMBAY)		2043.00
8	Swaran Jayanti Shehri Rojgar Yojana (SJSRY)		541.00
9	Night Shelter Scheme		30.97
10	Infrastructure Facilities in the Displaced Persons Urban Colonies in West Bengal		8.03
	Total	14928.00	2623.00
	Total of the Department		17551.00

Table : 64
SCHEME-WISE BREAK-UP OF TENTH PLAN OUTLAY OF MINISTRY OF WATER
RESOURCES (2002-07)

(Rs in Crore)

Sl No.	Schemes	Tenth Plan Outlay	
		Central Schemes	Centrally Sponsored Schemes
Secretariat & Economic Services			
1	Hydrology Project	0.97	
2	IT Development	3.00	
3	Water Quality Assessment Authority	5.00	
Major & Medium Irrigation			
CWC			
4	National Water Academy	10.00	
5	Snow Hydrology	2.00	
6	Cell for monitoring Externally Assisted Projects	3.00	
7	Monitoring of Water Quality of Rivers in India	10.50	
8	Hydrology observation of rivers originating from Bhutan	1.50	
9	Strengthening of monitoring organization	19.00	
10	Kirthai and other multipurpose projects in Indus basin	7.00	
11	Data Collection from key hydrological stations	40.00	
12	Studies on Reservoir Sedimentation, River morphology and other Remote Sensing Applications	14.00	
13	R & D, Research, Evaluation Studies & Mass Awareness activities.	32.00	
14	Upgradation & modernization of computerization/ information system	12.00	
15	Investigation of W. R Development in North Easter States	4.00	
16	Setting up of specialized unit in HE designs, Pumped Storage and Instrumentation	3.00	
CSMRS			
17	Geo-Technical Investigations for River Valley Projects	22.00	
18	Applied/ Basic Research in Structures	6.00	
19	Advance Research and Consultancy	4.00	
20	Upgradation of Laboratory and Field Testing Facilities	6.00	
CWPRS			
21	Sediment Disposal Research	0.05	
22	Augmentation of Water & Power Supply	0.05	
23	Hydrology Project	1.00	
24	Staff Colony-Phase III	0.30	
25	Schemes for RS Techniques, Offshore data, Earth Science laboratory, etc.	4.00	
26	IT Development at CWPRS	1.48	
27	Modernization & Upgradation of Research facilities at CWPRS	20.00	

28	Improvement Canal control through modern techniques and technology	1.00
NIH		
29	Continuation & Strengthening of NIH & INCOH	15.00
30	Continuation & Strengthening of NIH Regional Centers for FM.DPS	10.00
31	Hydrology Project	0.55
NWDA		
32	Feasibility study of inter-basin transfer of water	85.00
Minor Irrigation		
CGWB		
33	GW Survey, Exploration & Investigation	277.00
34	CGWA	5.00
35	Acquisition of Land & Building	20.00
36	Artificial recharge of Ground Water	150.00
37	Rajiv Gandhi NGWT & RI	10.00
38	Conjunctive use of G.W & S.W	2.00
39	Hydrology Project	7.80
40	R&D Schemes of CGWB	2.00
41	Development of Ground Water Resources & rain harvesting in major cities	20.00
CAD WING		
42	R&D Schemes under CAD	5.00
Flood Control		
ER WING		
43	Grant in aid to Brahmaputra Board	102.00
44	GFCC	15.00
45	Pagladiya Dam Project	250.00
46	Joint observation on rivers common to Bangladesh and neighbouring countries	13.00
47	Survey & Invest. Of Kosi High Dam	30.00
48	Maintenance of Flood protection works of Kosi & Gandak Project	35.00
49	Pancheshwar Project	15.00
50	Harrange Drainage Scheme	20.00
51	Ext. of embankments of Lalbakeya, Kamla, Bagmati & Khando river	60.00
52	Improvement of Drainage in Country including Mokama Tal area	50.00
53	New Scheme for Majuli Island in Assam, Dihang Project etc.	42.00
CWC-FC		
54	Strengthening & Medernization of FF & HO Network in Brahmaputra and Barak Basin	14.00
55	Flood Forecasting in rivers common to India & Nepal	3.00
56	Investigation for Teesta Hydel Project, Rangit HE Project II & IV & Manas - Teesta Link	9.00

Contd. Table : 64

57	Hydrology Project	11.00	
58	Establishment & Modernisation of flood forecasting network in India including inflow forecasts	72.00	
59	Scheme for construction of non-residential/residential/office bldgs. of CWC	25.00	
Transport Sector			
Farakka Barrage Project			
60	FB Project including works for flood protection, anti-erosion, river training and special repairs	150.00	
Major & Medium, CWC			
61	Dam Safety & Rehabilitation in India		8.00
Minor Irrigation M.I.Wing			
62	Rationalization of Minor Irrigation Statistics		40.00
CAD Wing			
63	Command Area Development & Water Management		1401.80
Flood Control, ER Wing			
64	Flood Proofing Programme		20.00
65	Critical anti-erosion works in Ganga States.		192.00
66	Flood Control in Brahmaputra Valley		150.00
67	Critical anti-erosion works in coastal and other than Ganga Basin States.		30.00
Total		1758.20	1841.80
Total of the Ministry			3600.00

Table : 65
SCHEME-WISE BREAK-UP OF TENTH PLAN OUTLAY OF MINISTRY OF YOUTH AFFAIRS
& SPORTS (2002-07)

(Rs in Crore)

Sl No.	Schemes	Tenth Plan Outlay	
		Central Schemes	Centrally Sponsored Schemes
1	Nehru Yuva Kendra Sanghathan	191.49	
2	National Service Scheme		172.00
3	Promotion of National Integration	23.00	
4	Promotion of Scouting and Guiding	5.25	
5	National Service Volunteer Scheme	34.00	
6	National Reconstruction Corps*	18.00	
7	Assistance to Rural Youth & Sports Clubs including Research, Evaluation and Publication	17.60	
8	Promotion of Adventure	17.50	
9	Financial Assistance for Promotion of Youth Activities and Training	35.00	
10	Youth Hostel	16.00	
11	Rajiv Gandhi National Institute of Youth Development	16.00	
12	Commonwealth Youth Programme & Exchange of Delegation of Youth at International Level	6.80	
13	Scheme for Adolescents	112.00	
14	Establishment of National and State Youth Centres	26.00	
15	Sports Authority of India	507.28	
16	Laxmibai National Institute of Physical Education	13.99	
17	All India Council of Physical Education (AICPE)	0.93	
18	Rajiv Gandhi Khel Ratna Award	0.35	
19	Special Awards to Winner in International Sports events and their Coaches	12.50	
20	Pension of Meritorious sportspersons	0.50	
21	Promotion of Sports & Games in Schools	11.65	
22	Sports Scholarship Scheme	18.82	
23	Rural Sports Programme	6.99	
24	National Sports Development Fund	4.66	
25	National Physical Fitness Programme **	2.33	
26	Scheme of Assisting promising sports persons and supporting personnel	11.79	
27	Assistance to National Sports Federation	116.55	
28	Exchange of Sports and Physical Education Teams/Experts	0.93	
29	Promotion of Sports among Disabled	0.93	

Contd. Table : 65

30	Grants for Creation of Sports Infrastructure		
31	Grants to Rural Schools for development of playfield and purchase of sports equipments		312.61
32	Grants for Promotion of Sports in Universities and Colleges		
33	Grant for Installation of Synthetic Playing Surfaces		
34	Afro-Asian Games	9.32	
35	Scheme for Dope Test	6.99	
36	State Sports Academy	93.24	
37	Modernisation and Computerisation of Office (Administration)	2.00	
	Total	1340.39	484.61
	Total of the Ministry		1825.00

* Outlays have been proposed only for the first 2 years i.e. 2002-03 and 2003-04, since a decision on the continuation of the scheme beyond the pilot stage is to be taken after valuation.

** Schemes weeded out in the Tenth Plan Period.