

# **COMMENT ON THE CONCEPT NOTE ON AGRICULTURE: CHALLENGES AND WAY FORWARD JHARKHAND**

## **1. INTRODUCTION**

Agriculture sector contributed 16.2 per cent to Nation's GDP in 2014-15 (based on 2011-12 prices) against 15.2 per cent in the 11<sup>th</sup> Plan. The country's population is expected to stabilize at 1.6 billion by 2050. Hence, per capita availability of land, water and other finite natural resources will continue to decline. On the other hand biotic (insect – pests and diseases) and abiotic stresses like flood, drought, etc are on the rise. Hence, meeting the future projected demand for food grains of 277 million tons by 2020 would require concerted efforts by states and Centre. This is more important in view of the crisis of weather aberrations and natural calamities occurring frequently. The issues related to risk management; food and fertilizer subsidies, land policies, diversification, investments, price and procurement of farm produce require prime attention. Along with these strengthening of supply chains, improving non farm income and infrastructure and support services and improvement in agri-research & extension, etc are also important. To address these, a task Force on Agricultural Development under the chairmanship of Vice – Chairman, NITI Aayog has been constituted. The first meeting of the task force was held on 6<sup>th</sup> April, 2015 which discussed these issues at length. A concept note based on discussions has been prepared to involve with the States for further deliberations.

### **Comment:**

Jharkhand state falls under the agro-climatic zone VII (Eastern Plateau and Hilly region), which has been further divided into three subzones. The state receives annual rainfall of 1200 – 1600 mm and the climate ranges from dry semi humid to humid semi arid types.

Undulating toposequences of the State and rainfed agriculture have led to massive degradation of soil, diverse agricultural practices and low productivity. About 82% of annual rainfall occurs within the monsoon season, which lasts from mid June to September. Available moisture over the entire monsoon period determines the opportunity for the various cropping system practiced by the farmers. In general, the soils of Jharkhand are low to very low in available phosphorus and sulphur, medium in available nitrogen and potassium status and deficient in available boron. About 1.6 million ha (19% of total geographical area) is acidic. The region has a major problem of slight to moderate soil erosion as 74% of the areas are located on very gentle to gentle slopes.

Despite good rainfall, the cropped area and cropping intensity are low. The level of technology adaptation is also poor leading to lower productivity. The cultivable area is estimated around 3.8 million ha but the net sown area is 2.56 million ha and only 12% of cropped area is under irrigation. The total cultivable land in the State is 52% as compared with 55% of the country, but only 43% area of this is under net sown area compared to national average of 76%. The State as a whole suffers from several critical gaps in agriculture and allied sectors though a number of opportunities exists to make the state self-sufficient in agricultural production.

## **2. AREAS REQUIRING NEW INITIATIVES:**

During Green Revolution the growth in Agriculture productivity was achieved largely under assured irrigation, improved infrastructure associated with assured and remunerative marketing. Similar situation do not exists in rainfed areas. Therefore, a paradigm shift is required in Agriculture planning if farming has to be made profitable and sustainable. The knowledge driven interventions need to be used in crops and allied. The area-focussed approach incorporating location- specific technological should be adopted rather than commodity based approach. The concerted efforts are required for:

- Integrated approach in resource allocation on crops, horticulture and livestock depending upon the resource endowments and proportionate contribution of these sub sectors in States Agri – GSDP;
- Promotion of knowledge – based Agriculture to find technological solutions with active involvement in the process of technological innovations and adoption;
- Development of an appropriate, farmer- centric institutional framework such as farmer producer Organizations (EPOs) to support production systems and forward linkages;
- and Promotion of Agriculture- industry linkages.

### **Comment:**

#### **The concerted efforts are required for**

##### **1. Rain water harvesting, Conservation and Enhancing water use efficiency:**

The State receives average annual rainfall of 1300 mm which gives opportunity for efficient water use through water conservation and water use efficiency technologies like

- (a ) construction of small to medium check dams, tanks, ponds and small ditches with farmers participation to develop additional irrigation facilities in 50000 ha annually
- (b ) Soil conditioning to increase soil water holding capacity
- ( c ) Adopting water conserving irrigation methods i.e. Drip , sprinkler etc.

##### **2. Bringing 1.0 million ha of additional land under net sown area**

There is scope to increase net sown area from current 2.56 million ha to 3.56 million ha by adopting soil conservation and land scaping measures in current Fallow and other Fallow areas in the next 3 years.

##### **3. Amelioration of acidic soils**

About 1.6 million ha ( 19% of total geographical area) are acidic. Acidic soil needs amelioration with adoption of proven technologies developed by the soil scientists i.e. Furrow application of lime annually, application of dolomite ,basic/LD slag after separation of iron and heavy metals. Annual target of acid soil amelioration should be fixed in such a manner to cover entire acid soil area in three years to accelerate agricultural production and productivity in the State.

##### **4. Screening, Selection and Development of Acidic soil tolerant varieties**

There is a need for concerted efforts by the National Agricultural Research System ( NARS) to come up with technologies including suitable varieties of crops of upland area having acidity problem with

the support of the state government to create State of Art research facilities in the State Agricultural University.

#### **5. Crop Diversification in upland**

( a ) Unbunded uplands constitute about 0.2 million ha in the State where rice was being grown. With better productivity of rice in the medium and low land with availability of comparatively more water there paving way for diversification of upland rice system . Intensification of high yielding varieties of millet, pigeonpea, blackgram, cowpea, bajra, sorghum, groundnut and maize as sole crops or intercrops and diversification to vegetables or other horticultural crops would be the best alternative replacing upland rice system.

( b ) Popularization of intercropping of rice with pulses and other crops to maintain soil health would improve overall productivity of this subsystem.

( c ) The upland soils are highly depleted of organic matter and nutrient , hence recycling of crop residues application of bio-fertilizer and micro-nutrients on the basis of soil test need to be popularized.

#### **6. Rice Fallow Management**

( a ) Approximately 70% of the area during kharif is covered by rice in the State. Most of this area remains fallow during the rabi season , leading to cropping intensity level to 116% only as the irrigation potentials created so far is only 12% of the cropped area.

( b ) The utilization of vast area under rice fallow is possible to a great extent by a shift to DSR ( Direct Seeded Rice ) with shorter duration varieties in drought prone shallow lowland and replacement of long duration high yielding/ hybrids with shorter duration in medium lands will open opportunities to grow other crops like short duration oilseeds ( Toria, Mustard, linseed ) , pulses ( gram, lentil, pea) and vegetables with residual moistures or with minimal supplemental irrigation with in-situ or ex-situ conserved rain water by bunding of plots and by constructing runoff management structures, minor irrigation tanks, ditches , which can be used to provide life saving irrigation.

( c ) There are about 1.0 million ha of rice fallow area, which needs diversification particularly through pulse production.

( d ) At least 0.1 million ha additional area of rice fallow should be brought under pulse production every year .

( e ) Similarly 0.1 million ha additional area of rice fallow should be brought under oilseeds production every year to increase the cropping intensity to 150% in rainfed area and 175-200% in irrigated area in next three years.

#### **7. Horticulture**

The state has unique advantage for cultivation of a wide range of horticultural crops. Nearly 29% increase in total area under horticultural crops in the state during last five years as compared to 15% at national level reveals the importance and potential of horticultural crops in Jharkhand. To promote horticulture in the state, the following areas need to be focused:

( a ) High density orcharding and fruit based multitier cropping system

( b ) Scaling up of technologies for rejuvenation of old and senile orchards

( c ) To bring 0.02 million ha additional land under fruit crops in the next three years to double the production by adopting improved practices.

( d ) Improved packaging and quick transport system with cold chain should be developed for post-harvest handling of vegetables and value addition of produce.

## **Secondary Agriculture, Post-harvest and Value addition**

At present the secondary agriculture is virtually unexplored. Solar energy is a viable option to support secondary agriculture in rural areas in place of electricity. Solar driers can be popularized to prepare dried products of vegetables. Grading and packaging of fruits and vegetables at farmers' fields. Extraction of lycopene from tomato is one example where high value products can be derived from agricultural produce. Value addition of horticultural crops and targeting export markets offer immense opportunities for Jharkhand.

### **3. Water development:**

The need for enhancing water use efficiency and productivity has been increasingly emphasized. This can be achieved by efficient use of available water, rain water harvesting, micro-irrigation and integrated watershed systems management. The water positive investments have to be complemented with farming systems investments should be scaled up in rainfed areas on support system. The subsidies on irrigation should be linked with sustainability and social equity concern. This will help to avoid further depletion of groundwater resources. The rainwater use efficiency needs to be increased to harness most of the potential. The States should work out a comprehensive programme on participatory groundwater management and drought- proofing. Such investments need to be made in a framework of extensive supportive irrigation with conjunctive use of groundwater and surface water bodies.

Estimates indicate average investment rate of Rs. 2 lakh/ha ( of which Rs. 1.5 lakh was by the Centre and Rs. 0.5 lakh by the States) in the irrigated command development by the Z in rainfed areas was only Rs. 12,000 per hectare in plains to Rs. 15,000 per hectare in the hilly areas through Integrated water Management programme (IWMP). Estimates suggest that the total investment requirement for unlocking the Potential of rainfed Agriculture could be Rs. 50,000/Ha or more. This underlines that the investment rate in the rainfed areas needs to be enhanced substantially both by Centre and the States to harness the vast potential of these areas.

### **Comment:**

Enhancement of Water use efficiency regarding water development

The lands of Jharkhand state is undulating and in irregular slope in nature. Rainfall precipitation is approximately 1400mm inside the state, out of which 70 percent rainfall of total rainfall flowing intensively through stippy slopes useless with arresting valuable and fertile soil (Silt) particles and finally accumulates in Broad Rivers.

The above percentage of Rain water may be efficiently used by some technical management with soil & water treatment programmes, which ensure water use efficiency and cause achievements of satisfactorily & sustainable result in Agriculture production and productivity in future.

The Rain water use efficiency may be enhanced through some management Parameters and certain programmes as follows:-

- Construction of Small Pucca Check Dam upon perennial drainage basis to arrest surface flowing rain water which would be used as extra irrigation facility and enhance the underground water through leaching down.

- Construction of Small Dova, Pond and Silt Detention Dam in between middle to low reaches land which will arrest the soil particles (Silt) flowing through rain water and leached down to underground. In time of above phenomena excess accumulated rain water in structure would be used as extra irrigation facility.
- Renovation of Big Tank enhance the rain water reservoir. The accumulated water may be used in irrigation and maintain the underground water through leaching which caused water development process.
- Implementation of watershed management programme with efficient managerial efforts with work plan in throughout the state by implementing the treatment of Soil and Conservation with eco-system aspects.
- Rain water may be harvested largely in artificial manner which would be used as to generate power and to promote the irrigation potential regarding sustainable Agriculture production & productivity.
- Water use efficiency may be enhanced through increasingly emphasized. Which would be achieved by efficient use of available water, rain water, harvesting, Micro-irrigation and Integrated watershed management.
- Subsequent & managerial use of rain water would avoid further depletion of groundwater resources.
- The rain water use efficiency needs to be increased to harness most of the potential.
- The concerning department should work out a comprehensive programme on participatory groundwater management and drought proofing. Such efforts would be a framework of extensive supportive irrigation with conjunctive use of groundwater and surface water bodies.

### **3.1 Bringing green revolution to eastern states:**

Even with all public support and R&D investment, the benefits of the Green Revolution has largely confined to a few crops and a few areas, relatively well-endowed in terms of water. The significant rainfed Agriculture and eastern states remained neglected. The rainfed Agriculture account 70-85% of oilseeds, pulses and coarse cereals, 65% of cotton and 45% of rice areas and contribute about 44% total food production. This area also supports 78% of cattle, 64% of sheep and 75% of goats. Even at the best scenario of irrigation development, about 40% of the foodgrain output in 2020 will have to be produced in rainfed areas. Productivity and farm income in the irrigated regions has almost reached a plateau. The factor productivity is declining and cost of cultivation is increasing. The increasing demand for land and water for non-Agriculture purposes is likely limit these and thus enhancing productivity is the only option left. The rainfed areas should be the focus in which productivity of crops has increased from about 500 kg/ha in 1960s to recent level of about 1000 kg/ha. However, compared to irrigated areas this increase is very low which calls for concerted efforts by the National Agriculture Research System (NARS) to come up with innovative technologies and States to invest more in rainfed Agriculture.

#### **Comment:**

The Scheme is being implemented in State since 2010-11 and has very good impact in popularising hybrid paddy seed. In BGREI, besides demonstration of paddy in cluster approach, irrigation facilities

like lift irrigation, Dova are promoted. Some assets like seed drills, conoweeders, Drumseeder, Manual sprayers, Threshers are distributed among farmers.

This year, Threshing floors, mini rice mills, weighing machines, moisture meters, and portable bagging machines are also introduction to be given to individual lamps/pacs for facilitating procurement at centres. Demonstrations are focussed on line transplanting, SRI technique, Stress tolerant variety and on cropping system based approach. Wheat has also been introduced in demonstration activity this year.

## 2.3 Sustainable Diversification:

Overexploitation of groundwater and soil degradation is the major concern for Panjab, Haryana and Western U P and in some localised part of eastern, central and peninsular India. The predominance of rice-wheat and sugarcane cultivation has caused this depletion. An option is to shift part of rice area in these states to eastern part where surface and groundwater availability is adequate. However, judicious use of groundwater is essential even in eastern states due to problem of heavy metals. Higher investment in surface water development in eastern region will be needed to offset any eventuality of failure of rains/prolonged dry spell (more than 70% area of the cultivated areas in these in these states except Bihar is rainfed). The marketing infrastructure and price support for alternate crops is also essential. Apart from this, the more remunerative alternate farming systems, adequate to a scale, should be evolved by the NARS. Diversified cropping pattern and its help to cope with risk and uncertainty of crop failure. Support needs to be extended to input- optimising and cost-minimising options in rainfed areas. In a high risk situation, low paid out costs in cultivation is a risk minimization strategy.

### Comment:

#### Sustainable Crop diversification

Jharkhand is known for monocropped rice cultivation under rainfed condition. Occurrence of frequent drought at intervals, low rainfall, long dry spell during crop season leads the farmers to shift towards low water requiring crops like Pulses, oilseed and cereals like Ragi and Jowar. With the increase in irrigation potential farmers used to grow 2-3 crop depending upon the situation. If we go through the coverage of different crop for the last three years it shows increase in area of pulses & oil seed and decrease the area of rice.

Area – '000 ha				
Sl. No.	Crop	2011-12	2013-14	2012-13
1	Rice	1693.796	1255.873	1414.462
2	Total pulses	538.784	566.841	586..995
3	Total Oilseed	263.470	275.816	250.586

Source: Directorate of Agriculture, Jharkhand, Ranchi

The above table indicates that the area under rice is gradually declining and the area of Pulses and oilseed is in increasing order.

The rice grown on upland and part of medium land is substituted by pulses and oilseed crops. It shows the adjustment of cropping pattern depending upon change in rainfall pattern as well as Benefit: Cost ratio of the crop grown by the farmers. Pulses and oilseeds are low input and low water requiring crops on one hand and it needs less care and management on the other hand in comparison to rice, which leads the farmers to adopt the oilseeds & pulses crop where ever feasible.

Majority of the pulses and oilseed crops are grown in the agro – climatic condition of the Jharkhand state. With development of high yielding / hybrid crop varieties of pulses & oilseeds crop and adoption of package of practices by most of the growers the cultivation of these diversified crop almost become sustainable due to least risk with minimum investment.

## **2.4 Seed:**

The growth in Agriculture production during XI plan was catalysed due to higher investment in seed. Adequate availability of certified seeds is a major challenge in the eastern and north eastern region due to poor seed infrastructure and institutional presence. Private seed Companies have started making an impact in the seed scenario but their focus remains on hybrid varieties where profit margin is high. Consequently, the price of seeds available to the marginal and poor farmers is very high. The fact that the public sector Seed production is not commensurate with the requirements of the farmers further adds to their misery. Maintaining a strong local-seed system that is well linked to the R&D system is a necessity. Many of the locally adapted seeds do not find a place in the formal seed markets as they are not profitable.

Rainfed areas are vulnerable to high climatic risks and the seed systems have to response towards meeting shortage on account of the risk. The wastage of see due to prolonged dry monsoon spells immediately after sowing is very common. The States have to ensure the availability of a second batch of seeds for repeat sowing, if the first sowing fails. Fodder seeds are always a scarce resource for which the special plan needs to be developed. RKVY funds need to be utilized for creating seed infrastructure like storage, processing, etc. The seed rolling plan need to put in place by the States. The NARS need to evolve good hybrids for high volume crops to regulate the price of hybrid seeds.

### **Comment:**

Quality seed is most critical for enhancing agriculture production. The State is dependent on outside agencies for seed as there is no strong organized system of seed production. Maintaining a strong local seed system with linkage to R&D system in the university or other institutes is necessary. Drawing up of a well planned strategy would be the key to success.

1. Setting up of State Seed Corporation in the Primary need.
2. Inviting private and public sectors in seed Production programme.
3. To establish seed reserve at State / District level.
4. Strong support system in Lifting & Production of breeder and foundation seeds in order to ensure rolling Plan.

5. SAU should produce required quantity of Breeder and Foundation Seeds of all promising varieties
6. State Government should develop a mechanism for production of certified seed of promising varieties through creation of adequate number of seed villages/ seed producer societies.
7. State Government should ensure procurement of entire quantity of Foundation seed produced by the SAU and of certified seed produced by the seed villages/ seed producer societies.
8. The strategy should be to double the present seed replacement rate (SRR) estimated as 10% for field crops and 20% of vegetable crops.
9. Ensure timely distribution of seed among farmers.

## **2.5 Livestock and Fishery:**

The livestock management has to be reoriented away from the almost exclusive focus on induction of high yielding breeds. Extensive livestock systems, depending wholly or partly on resources of commons and Agriculture residues, needs to be strengthened. This will require improvements in animal healthcare, feed, fodder, drinking water, shelter, institutions etc. The economic value of this sector to disadvantaged area is immense. However, very limited public support is available for these extensive livestock systems. Developing a strong fodder base requires intensive effort and innovations in institutional aspects related to protection, management and sharing of usufructs. The seasonal surpluses of milk production need to be economically utilized by creating enabling infrastructure for product diversification. Inland fisheries hold a large untapped potential in rainfed areas. Small reservoirs, tanks, water harvesting ponds created as a part of watershed development of MGNREGS and wetlands in Bihar, Uttar Pradesh and West Bengal etc. have potential for fisheries development. There is a large gap in the potential and actual yields in these rainfed water bodies. The fish production can be increased by about 3 to 5 times considering the present low productivity levels.

Seasonal scarcity and access to fodder, quality drinking water and animal health care services are the major problems in livestock sector. Mortality of animals and small ruminants is significant in the economy of extensive systems. Higher investment for animal health care and nutrition as well as product diversification is required by the states. Fisheries productivity needs to be improved with quality seed and feed availability along with mobilization of fisheries cooperatives to achieve Blue Revolution.

### **Comment:**

#### **Under Animal Husbandry**

Jharkhand state has a total livestock and poultry population of 18.10 and 11.23 million, respectively; cattle (8.78 M) and goat (6.59M) contribute maximum to the livestock population. The productivity of existing livestock and poultry in Jharkhand is very poor and there is also a wide gap in production and requirement of livestock products like milk productivity of cow is 1.59 kg per day against the national average of 3.0 kg per day. Annual per capita availability of milk, meat and eggs is 47.45 kg, 1.42 kg and 13 eggs, respectively in Jharkhand against the national average of 96.0 kg, 3.32 kg and 51 eggs, respectively.

Likewise, demand and supply of feeds and fodder in Jharkhand, the availability of dry fodder, green fodder and concentrate are 3.84 MT, 3.70 MT and 0.21 MT respectively whereas, requirement

of dry fodder, green fodder and concentrate is much more i.e. 14.53 MT, 17.0 MT and 3.83 MT, respectively.

In spite of many reasons in present scenario in this sector like, poor genetic potential, huge shortage of feeds and fodder and lack of institutional support for improvement, health control etc. livestock development will be an integral part of the tribal agriculture in our state esp. during the non-cropping seasons. Therefore, suggestions for the livestock development should be incorporated on the main issues of NITI Ayog (Agriculture-challenges and way forward).

Feedback/suggestions on the issues highlighted by the NITI Ayog on above component especially on "Livestock development" are as follows:-

**A. Breed improvement:-**

1. Establishment of nucleus herds/flocks of improved breeds to ensure availability of quality germplasm for livestock and poultry improvement.
2. Artificial Insemination center should also be increased from existing 815 to 1500 in the state.

**B. Poultry Development:-**

1. Registration of state, district level poultry farms.
2. Strengthening the state departmental poultry farms to encourage "Backyard Poultry Farming" among the unorganized sector of marginal farmers, landless labourers, women and socially backward population of the state by providing inputs to them. In remote areas the poultry farming is still trailing behind in the form of very small scale enterprise.
3. Backyard poultry farming:- Government farm will be provided to the mother unit run by any suitable NGO/SHG who will rear there birds up to 28 days. There 28 day's chicks will handed over to the beneficiary to ensure their involvement in backyard poultry farming. The farmer will rear about 50 birds till their maturity i.e. 72 weeks. Eggs produced or culled poultry in beneficiaries house will be collected by the NGO/SHG, responsible for running the mother unit in that district, thus in this way forward as well as backward linkage will be ensured in this scheme.
4. Establishment of new poultry hatcheries in each division of the state.

**C. Goat Development:-**

Jharkhand state has 6.5 million of goat population and so intensive goat development as well as Cluster based goat production programme may be launched in the state.

1. Implementation of cross breeding and selective breeding between elite and indigenous breeds of goats.
2. Prevention of goats from different deadly diseases such as PPR. Anthrax, Enterotoxaemia etc.
3. Implementation of artificial insemination programme for goat development.

**D. Piggery Development:-**

Jharkhand state has very rich potential in piggery development because of the tribal population. Piggery development in the state is good practices for enhancing the socio-economic status of the rural people of the state.

1. Distribution of T&D pig breeds to the farmers because of the suitability in the environment of Jharkhand.
2. Establishment of "Integrated Livestock Farming" with pig, poultry, duck and fish farming.

**E. Animal Health:-**

1. Disease surveillance and monitoring, establishment of advanced Disease diagnostic laboratories in each district.
2. To increase State veterinary hospitals numbers from 424 to 700.
3. To increase Mobile veterinary hospitals numbers from 4 to 24 (one in each district of Jharkhand).
4. Strengthening of Veterinary sciences and Animal husbandry institutes in Jharkhand.

**F. Feeds and fodder development:**

1. Green fodder production with improvement of its nutrient status to boost dairy sector.
2. Formulation of low cost concentrate from locally available feed resources.
3. Livestock and poultry feed plants should be established in different zones to ensure availability of quality feed for them.
4. Establishment/Modernization of feed testing laboratory:

**G. Farm/livestock organization development:**

5. Strengthening of state livestock and poultry farm to provide cost effective inputs to the beneficiary of the state.
6. Establishment and proper operation of milk and meat processing units in the state.
7. Skill development particularly of youths is must to run Animal Husbandry programmes effectively and make it more remunerative.

**H. Implementation and regulation of Cattle Hatts/Animals Fair:** Usually unregulated Cattle Hatts/Animal fairs play a great role in promoting cattle smuggling. To stop this activity a proper regulation will be framed for regularization of such Hatts and hence preservation of indigenous cattle or cows will be done. Farmer can sale or purchase economic and healthy, high producing milch cows as per his choice through cattle hats and animal fair. Now a new trend is emerging in which even healthy and milking cow is being slaughter as a special delicacy for the meat eaters. Thus cross border smuggling of all the cattle must be addressed from to ensure better communal harmony and deal with threat to national security as such smuggling is being reported to contribute for terror funding and hence rule will be framed to regulate cattle hatts and animal fair.

**Under Dairy**

In order to increase the economic value of livestock sector and bridge the gap between requirement and availability of milk in the state, the improvement in animal healthcare, feed, fodder, drinking water, shelter, institutions etc can be addressed with the following interventions :-

- Heifer Rearing Centre at district level should be established especially for female calves born under Breed Improvement Programme to develop a productive herd of high yielding milch cattle in order to meet the total requirement of milk in the State.
- Sustainable use of land, water, pastures and rangelands based on agro-climatic conditions, existing infrastructures and opportunities as well as cultural traditions.
- Public/Private sector investments and financing for improvement of livestock value chain productivity and efficiency (production, marketing and processing) with regard to improvement of financial services and incentives favorable for private sector participation in production, processing and marketing of milk.

- Control of livestock diseases and public health to monitor and conduct surveillance of the health and productivity of the animal populations.
- Adequate extension services, training, research and women empowerment interventions are necessary to bring about the technological innovations that are required to transform the milk production sector to become commercialized and environmentally sustainable.
- Proper milk marketing arrangement for remunerative price to rural milk producers with institutional arrangement of farmers owned Organization.

**Under Fisheries:**

The state of Jharkhand has already moved in this direction and has made a good beginning in implementation of the proposed strategy. In Jharkhand reservoirs (115000 Ha.) are the major source of aquaculture resources. Tanks are regarded as major focus resources (85% of tanks with 72% share in the TSA in private sector) for development. The Department of Fisheries has also started focusing its attention on the use of abandoned coal pits and stone quarries. But there are certain limitations in this area.

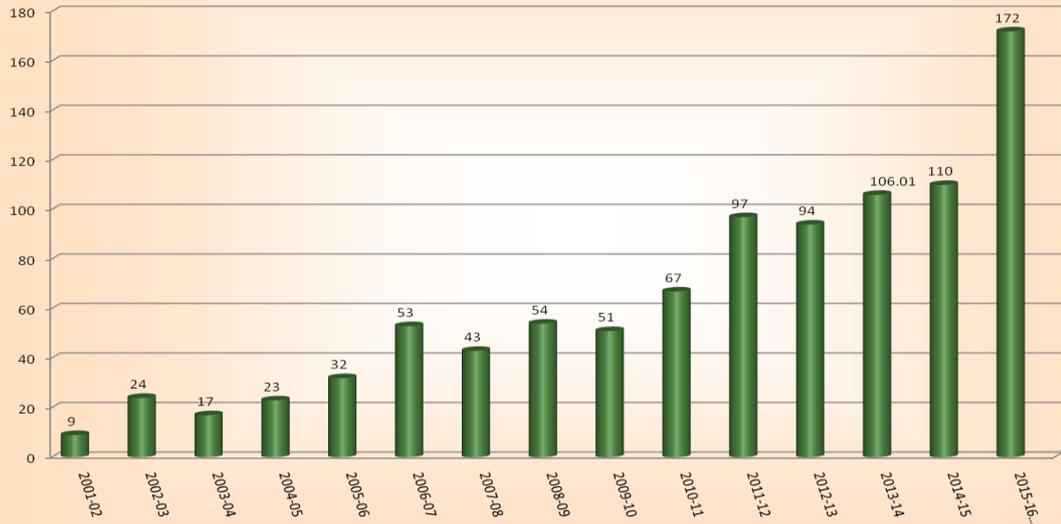
**(A) Seeds :**

- (I) Fisheries sector growth largely hinges on effective seed supply system in position. The State has realized the importance of private sector participation in fish seed production in order to enhance seed availability within the catchment of fish production sites spread out across the State.
- (II) Fish seed growers get them registered in the training programmes and pay their own to get a tailor made training for fish seed production.
- (III) Training and technical support are also provided in this direction to fish seed growers. In the current financial year 2015-16 the department is going to train and register 4500 fish seed growers from different districts of the State. Till date training has been imparted to 3255 fish seed growers. It has been planned to register and train 5000 seed growers across the state.
- (IV) There are 14 fish seed hatcheries in government sector. The State has achieved almost self sufficiency in fry and fingerlings production but it is trying its level best to be self sufficient in spawn production.



Govt. of Jharkhand

## Fish Seed Production (No. in Crores)



*Department of Fisheries*

- (V) Presently the seed production has gone up to 172 crore annually. The Department has also drawn a road map for private participation to internalize seed rearing and supply keeping in view demand of seed estimated at 275-300 crores annually by 2020 A.D.
- (VI) Development of fish seed villages or the “Seed Hub” is the future vision of the department by maximum participation of the private sector to ensure round the year availability of quality seeds.
- (VII) These trained fish seed growers are also supported with spawn feed and nets on subsidy.
- (VIII) Fish seed farms in government sector are being supported with tube-wells and adequate manpower.

Since majority of ponds in Jharkhand are seasonal in nature farmers in private sector have taken this opportunity for producing more and more seeds in a big way. It rewards their income in just 3 months and the residual seeds in their ponds are sold on high price before onset of the next summer. Considering the ongoing growth trends in fish seed production department is ready to hold the hands of fish seed growers by facilitating the sale of 3-4 months old fingerlings to farmers having perennial water bodies or stocking of reservoirs through the Cooperative Societies and purchase of locally available fish seeds.

### Constraints:

- Most of the ponds are rainfed.
- Underground water table is very deep.
- Most of the districts have hilly terrain.
- Farmers are economically weak.
- Diesel pump operated hatcheries and farms put extra production cost.
- Adjoining districts of Bengal push their early seeds on credit.

Efforts made have been mentioned above and is being reflected as a competitive environment created among fishers in getting access to government ponds and fish farming rights leading to substantial revenue to the state exchequer.

**(B) Feed :**

The state is experiencing wider variations in species performance along with fish productivity in different areas and ultimately profits of farmers. Aquaculture diversification and cage culture has opened up a new area of feed based farming. Fishes like Pungassius, Monosex Tilapia, Paku are being cultured completely based upon factory formulated feed. Even the seed growers are demanding shops of fish feed at least in district headquarters. Intensive monoculture in cages floated in reservoirs is gaining importance. The state has distinction of large scale promotion of reservoir cage farming on a participatory mode by actively involving members of Fisheries Cooperative Societies. It has shown a production over 3 MT. per cage of 96 m<sup>3</sup>. The state has floated nearly 1500 cages in different reservoirs and another 2000 cages are in progress. This will create a demand of nearly 18000 MT. of factory formulated fish feed per annum. Nearly 8000 MT. factory formulated fish feed is being utilized in the state.

- (I) Technical training to fish seed growers and demonstration of seed production based upon factory formulated fish feed has created a new market in the state for mash feed. Nearly 900 MT. of spawn feed is expected to be used in next 2-3 years.
- (II) Traditional fish farmers are also utilizing factory formulated fish feed as they are getting better results.



**Departments Initiatives:**

The department has taken initial steps and has sanctioned establishment of 7 fish feed mills in different districts. Two of them have been established and production has been started. The average production is nearly 2.5-3 tonnes per day. Another five mills will be coming very shortly.



Govt. of Jharkhand

# Fish Feed Factory



*Department of Fisheries*

## **Constraints and Efforts:**

- Most important ingredient in fish feed is *soya beans*. Farmers in Jharkhand are not doing soya bean cultivation.
- Motivation of farmers for use of factory formulated fish feed is an another issue which can be tackled by subsidizing from government support.
- KVKs have been requested to prepare special training programmes for farmers interested in *soya* cultivation.

## **Other Issues:**

- Since Jharkhand is state having majority of area having hilly terrain there should be special subsidy programmes to renovate the old silted tanks in private sector.

## **4. CONTINUING ISSUES REQUIRING GREATER ATTENTION**

### **3.1 Fertilizer subsidy, soil fertility and fertilizer use:**

Low external application of organic matter has caused low fertilizer use efficiency. This was because soil health so far has been interpreted in terms of deficiencies of soil nutrients. The Hydrological and Biological soil properties which are critical to good soil health were ignored. For this reason, soil organic matter has been greatly discounted as the key element for maintaining soil health. Soil Testing and Soil Health Campaigns can reduce use of chemical fertilizer and thus the cost of farm inputs. Soil health cards showing availability of macro and micro nutrients and cropping pattern suitable for individual farm holding need to be provided. This information can be utilized to define the spatial boundary for optimum use of fertilizers and thereby regulating the fertilizer supply under a given cropping pattern and season. Centre and States have to work proactively for this.

Mobile testing labs and soil certification centres need to be set up both in the Private and Public Sectors. The highly distorted use of fertilizers in the States like Punjab and Haryana (ranging from 61:19:1 NPK as against recommended of 4:2:1) is heavy drain of the resources as only 25-30% of applied nitrogen is utilized by the crops. Contrary to this, several states have very low use of fertilizer which should be enhanced to increase the productivity. Urea is out of NBS regime and heavily subsidized hence its usage is much higher. Awareness campaign should be carried out by the States amongst farmers about ill effect of indiscriminate use of urea. Details deliberations are required with the States to implement the direct transfer of fertilizer subsidy to the farmers and bringing urea under NBS to rationalise the fertilizer subsidy.

### **Comment:**

1. By default, State is low in fertilizer use. Hence organic fertilizer use can be promoted through different programmes.
2. Organic & bio fertilizer production can be promoted.
3. Seeing the use of chemical fertilizer, can be promoted in a balanced way and for traditional crops where the use is very less.
4. Soil Health status is a major challenge for the State. It can be improved with the use of Soil amendments & micronutrients.
5. Imbalance in fertilizer use can be minimized with soil testing and issuing soil health card and awareness programme among the farmers.
6. Losses in urea application can be minimized with neem coated urea/pelleted urea application.
7. DBT in fertilizer subsidy can be analysed with the effectiveness of m-fms output.

### **3.2 Investment in Electricity:**

Use of power inputs to Agriculture are now at a low level of 1.3 kw per hectare. This needs to be raised to at least 3.9 kw per hectare by 2025. Huge investments are required to ensure availability, efficiency and reach of electric power to the farmers. Non-conventional energy sources like solar power is an important option in areas where conventional electrification has not taken place or its implementation is very expensive. At the same time, the strong policy decisions need to be taken to increase power use efficiency and avoid exploitation of scarce ground water. The rural electrification would be an effective instrument in the Eastern states, for agricultural growth and poverty reduction. Studies have shown that the agriculture here has suffered an “energy squeeze”, which could be overcome through increasing availability of electricity in rural areas.

The investment by States on non-conventional energy sources especially photovoltaic, solar power need to be stepped up as an alternative to conventional electrification. Highly subsidised or fixed tariffs or free electricity supply lead to inefficient use of power and caused indiscriminate exploitation of scarce groundwater (as in the case of Punjab and some other States). This has serious implications on its availability and sustainability of agricultural operations. The States need to adopt appropriate management mechanisms for efficient use of power and to conserve groundwater resources. In the relatively water-surplus Eastern States, rural electrification/solar energy can be an

important instrument for rapid agricultural growth. However, even here, the farmers have to be sensitised and made aware of conserving scarce resources like energy and water.

### **Comment:**

- Solar powered Irrigation pumpsets offer a good solution to meet energy needs in the field of Agriculture.
- The State govt. is promoting the use of solar powered irrigation pumps in the State so as to meet the energy needs in the field of Agriculture.
- Ministry of new and Renewable Energy (MNRE), Govt. of India has sanctioned 1400 nos. of SPV power pumps under the Solar Pumping Programme for irrigation vide its letter dated 09.12.2014. A total of 3485 H.P. of 1 H.P., 2 H.P. and 5 H.P. capacities of solar pump sets are to be installed in the State under this scheme by March 2016.
- The State has made budget provision of Rs. 450.00 lakhs and Rs. 600.00 lakhs during financial year 2014-15 and financial year 2015-16 respectively for providing the State share of 30% towards the cost of these solar pumps.
- Based on the success of this scheme during financial year 2015-16, bigger targets shall be set for the State for financial year 2015-16.

### **3.3 Research & Extension:**

The technological fatigue is being experienced in agriculture. More and updated information and knowledge about technologies, practices, markets and institutions are required nowadays in agriculture as compared to past. The weakest link at present is the field extension staffs. They are neither in adequate numbers nor endowed with competency for transfer of technologies. Therefore, innovative methods of knowledge management and dissemination have to be put in place. SAUs and Krishi Vigyan Kendras (KVK) could play a crucial role in knowledge development, management and transmission. The SAUs are region specific and have made significant contribution in the past. However, inadequacy of sufficient funds and infrastructure has rendered them almost in survival mode. The ICAR institute have been able to fill the gaps but now ICAR is also witnessing heavy downsizing of public investment. The functions and mandates of NARS may be revisited with a view to give them more functional autonomy and better governance system. SAUs are mandated to produce seed in their farms. But most of their farms are operating under insufficient funding support by State Governments. A Comprehensive reviews need to be made at national level to assess the effectiveness of ICAR Institutions and the SAUs. Both Center and States needs to work for :

Step up the investment in agricultural R&D from present level of 0.7 percent of agri GDP to minimum of 1.0 per cent of agri GDP. The States need to allocate part of their RKVY funds in creating seed related infrastructure in SAUs and Strategic Research based on the Strategic Research & Extension Plan (SREP) and Comprehensive District Agriculture Plan (CDAP). The NARS should also

work towards reforms to create institutional mechanism for evaluation and accountability of public funding. States need to focus on bridging the gap between frontline extension and field extension:

### **Comment:**

#### **Research and Extension**

( a ) SAU and KVKs should be supported generously to emerge as key players in rural transformation and wealth creation. The agriculture sector remains among the fastest growing ones in Jharkhand. Generous support by the State Government/ ICAR can develop proper infrastructural facilities to contribute significantly in technology development, management ,HRD and dissemination of sustainable technologies to accelerate agricultural production .

( b ) SAU laboratories and farms should be modernized and upgraded by creating State of Art facilities with the financial support of State government / ICAR to support agricultural growth in the State/ region effectively. Zonal Research Stations should be converted into One Stop Technology Shops.

### **3.4 Agricultural Marketing & Trade:**

The infrastructure for primary marketing (principal and sub yards) is highly skewed across the states. The average area served by regulated market yards range from 118 sq km/market in Punjab to 11215 sqkm/market in Meghalya. The Agricultural Produce Market Committee (APMC) Act enacted by States regulates the agricultural markets at present. The Levies and other market charges imposed by APMC states vary widely. In case of rice the charges vary from 14.5 percent in Andhra Pradesh to 10 percent in Odisha and Punjab. A major challenge in marketing is the post-harvest losses. As per estimates of ICAR, such losses were approximately to the tune of Rs 44000 crores in 2008-09. These were mainly due to the absence of a well-structured rural market, lacunae in APMC Act, and inadequate agriculture infrastructure. A part from APMC Act, the Essential Commodity Act, (ECA) should also be revisited for some provisions and the export of some commodities need to be allowed. The tariff on edible oil should also be revisited to encourage domestic's production.

Reforms in agricultural marketing were initiated to reduce the intermediaries in supply chain and enhance the private sector investment. However, many of the States are yet to adopt the model APMC Act suggested by the Central Government in 2003. The creations of a Unified National Agricultural Market have been proposed in the Budget 2015-16 to benefit the farmers. The promotion of National Agricultural Market has already been initiated on a limited scale. The Department of Agriculture & Cooperation has allocated Rs. 200 Crore for 2015-16 and 2016-17 for the propose. It aims at implementation of agricultural marketing reforms by initiating appropriate e-market platforms in State with a view to move towards a National Market, Karnataka has already initiated the unified market in the State.

In Karnataka, 51 of the 155 main market yards and 354 sub-yards have been integrated into a single licensing system. Rashtriya e-market Services Ltd. (ReMS) a joint venture created by the State Government and NCDEX Spot Exchange, offers automated auction and post auction facilities (weighting, invoicing, market fee collection, accounting), assaying facilities in the markets, facilitate warehouse based sale of produce, facilitate commodity funding, price dissemination by leveraging

technology. The wider geographical scope afforded by breaking up fragmented markets has enabled private sector investment in marketing infrastructure. Similar initiatives need to be taken by the States. Appropriate modification in APMC Act to promote re-trading would be a prerequisite.

### **Comment : -**

1 (a) At the outset it is stated that JSAMB has already adopted many and most of the reforms suggested in the Model Act by central govt. in 2003. To remove the impediments in free flow of agricultural commodities and produce all internal market fee has been withdrawn, thus enabling for one unified agriculture market for the state and consequentially for the entire country.

(b) Provision for direct marketing i.e. direct purchase of agriculture produce from producers has been made.

(c) Provision for private market, special mandies exclusively for potatoes, onion, fruit and vegetables has been included by reforms in the act.

(d) Farmer –consumer market by a person other than market committees has been facilitated.

(e) Provision of single unified licence for trading in more than one market has been made.

(f) To ensure the farmers getting a reasonable return of their produce, restriction on involvement of commissioner agencies in sale –purchase of agricultural produce has been introduced.

(g) Provision of e-trading has been incorporated in the reforms.

(h) Provision for contract farming to invite private capital in farming and ensure reasonable return for the producers has also been incorporated. Hence it would be seen that essentials as laid down in concept notes for growth of healthy agricultural market has been adopted by the state.

2. To address to the problem of post-harvest losses and to facilitate procurement JSAMB has more than doubled its storage capacity from 100500 MT in 2010-11 to 232500 MT in 2013-14. In the FY 2015-16 scheme for 20 nos of 500 MT capacity storage godowns have been approved by SLSC of the RKVY. Other departments- deptt of co-operation, deptt of food and civil supplies are also engaged in this pursuit.

3. Jharkhand is a state of possibilities for vegetable production. It is estimated that the annual production of vegetables has achieved the 36 lac MT notch. A good proportion of these vegetables are being marketed in the neighbouring states of U.P, Bihar, West Bengal, Orissa and Chattisgarh by producer's societies. The 28 APMCs are dotted with 602 nos. of Gramin hats which are the centres of trade for these agricultural produce apart from minor forest products. The state after its creation in the year 2000 has inherited undeveloped rural marketing infrastructures which will require huge financial resources for its restructuring.

4.1 In recent years, the state has taken steps to meet this gap. 9 Apni Mandi Yojna in Gramin hats of Ranchi APMC, is under process which comprises cleaning, grading, sorting and packing platforms along with 16 nos of cold rooms of 5 MT capacity with e-kiosk. This rural hat has witnessed manifold

growth in vegetable production. It is being implemented with a view to link it to state and national markets to enable the farmers get a reasonable return at their produce.

**4.2** The growth of vegetable and fruit markets requires complete cold chain infrastructures. For the year 2015-16, one integrated cold chain infrastructure at a cost of 21.97 crores with IQG and ripening chamber facility and five adjoining rural hats with model hat infrastructure of 30 MT cold room, core facilities and support, service and maintenance infrastructures have been approved under RKVY for Ranchi and adjacent APMCs.

**4.3** Similar models of development of gramian hats need to be replicated for all the rural hats of the entire state. However it is initially capital intensive and the State will require central funding or soft loans from other windows on a big scale. It will be worthwhile to mention that capital from private sector are not easily flowing to this sector.

**5.** Keeping in view of requirement for a national market, JSAMB has entered into a first stage MOU with NCDEX- eML with a view to initiate appropriate measures for physical and electronic requirement of e-market. In the first stage infrastructures for 17 APMCs and 17 gramian hats will be decked up with e-market facilities. It will go a long way in linking the State with national market especially for the vegetable market where the produce is highly perishable and the price is highly volatile, e-trading will further ensure uniform and transparent prices for the agricultural commodities. It will also help in ensuring procurement at reasonable prices of agricultural commodities required for implementing many schemes of the food and civil supplies and the deptt. Of welfare, apart from providing a platform for sale of MFPs of the state at a competitive price. The State has requested DOA and C, GOI for a larger share of ATIF, keeping in view of its requirement.

**6.** For backward linkages and for the aggregation of F & V more than 360 vegetable co-operative societies and 8 FPOs are existing in the State apart from packs and lamps which are engaged in aggregation of MFPs under the umbrella of Jhamcofed. Further effort is being made for bringing all the farmers under the umbrella of producers societies. The gramian hats are being structured in hub and spoke manner for aggregation purpose and for the purpose of developing backward linkages. Thus supply linkages will ensure forward market linkages and help growth of food processing industries.

**7.** JSAMB has also sought the services of consultants for attaining zero wastage of vegetables which is estimated to be nearly 30% of the produce.

**8.** As enumerated above in para 2, provision of contract farming has been incorporated in the reforms of the APMC act of the State. It is the need of State in the light of the fact that huge quantity of certain vegetables, like tomato and peas are grown in specific concentrated geographical areas of APMCs. The producers have often resort to distress sale and even painful wastage. This phenomenon can be mitigated by providing good market linkages and by establishment of agro-industries at the 'pit-head'. Private entrepreneurs of food processing can look for a future in this field. The provisions of contract farming has been advertised and E.O.I. has been invited. However there has not been encouraging response. The purpose needs to be hammered and persued.

9. Hence in the light of the above enumeration it is evident that the State is well prepared for Unified National Agriculture Market and for that the State will require financial package in proportion to its need.

### **3.5 Link to Industry- Food Processing:**

The rationalization of policies to realize complementarities of different sector may enable the farmers to embark on the various cycle of productivity. However, any Agri-business model should honour land ownership sentiments of the farmers. There has been a major missing link between agriculture and industry due to poor development of secondary agriculture consisting of post-harvest activities, food value chain, forward linkages, supply chain etc. Creation of supply Chain Infrastructure should be encouraged and incentivised to be established as joint ventures between private sector and FPOs with proper representation of farmer producers in their management. Industry may be encouraged to invest in knowledge institutions which are engaged in agriculture research and facilitate developing appropriate new technologies combining farmers' wisdom and traditional knowledge. Such investment in agriculture research and development by industry may be suitably incentivised by the Government.

State to encourage the private sector to build up scenario and modern storage facilities. The private sector investment need to be promoted in developing terminal market, warehouse, cold chain etc by declaring them as infrastructure projects to enable them avail benefits offered to such projects in the form of conventional credit etc.

### **Comment:**

The State has great possibilities in Agriculture, Horticulture and Allied Sectors. Jharkhand is strategically located to tap the processed food demand of the country, particularly of eastern India and export demands of SAARC nations. The State has progressive farming community which is involved in Agriculture, Horticulture, Dairy & organic farming. The State also has 23.6 lakh ha of flourishing forest cover which offers niche minor forest products.

With abundant labour and other inputs and its proximity to industrial and urban centres of West Bengal and Odisha, Jharkhand is an ideal place for value addition through food processing activities.

### **Infrastructure and Support to Food Processing**

- 631 rural markets in addition to 28 APMC markets and 192 secondary APMCs in the State
- Food Processing Sector accorded priority in Jharkhand Industrial Policy, 2012
- Agro-Food Processing Industrial Units with only Rs. 500 million of investment covered under Mega Classification and enjoys the benefit of Preferential Land Allotment by IADA.
- 75% net VAT subsidy and upto 15% investment subsidy
- Successfully running the Central Govt. sponsored National Mission on Food Processing with streamlined application and approval process and under which grant in aid available to investors ranging from Rs. 5 million to Rs. 50 million under various schemes.

- Extensive opportunities exist in – Setting up Food Park, Rice and Wheat Flour Mills, Organic Farming of Oilseeds and Pulses, Vegetable Preservation and Processing, Milk and Milk Products, Feed Production Units for Cattle, Piggery, Fish and Poultry.
- Opportunities also in exploiting the commercialization of agro-forestry Products, cashew processing, medicinal plants processing and honey production.

#### Jharkhand Mega Food Park

Mega Food Park over 56 acres costing Rs. 106 cr being set up at Getalsud, Ranchi:-

- 6 Primary Processing Centers servicing the Central Processing Center at Ranchi
- Dry Warehouse (6490MT)
- Cold Storage (4500 MT at CPC and 500 MT at PPCs)
- Individual Quick Freezing (2 MT/day)
- Mobile Collection Vans
- Grading & Sorting Facility for Fruits at PPCs

Provision for Developer of Food Park to sublease Government/ RIADA land to other food processing industries.

#### Government Schemes to Upgrade Food Processing

There is a need to focus on food processing and preservation to create more off farm jobs, bring greater value addition and increase the income of rural workforce and farmers. Government is taking steps in developing the sectors and has also made schemes for it.

- Technological Upgradation, Establishment, Modernisation of Food Processing Industries Scheme.
- Scheme for Human Resource Development
- Scheme for Promotional Activities
- Scheme for Reefer Vehicles
- Scheme for Implementation of Partially Completed Projects of Old Food Parks
- Setting up of Primary Processing Centres & Collection Centres in Rural Areas.

Please visit [http:// www.jharkhandindustry.gov.in](http://www.jharkhandindustry.gov.in) for further details.

### **3.6 Land holding consolidation (Land leasing and land titles)**

India's countryside has experienced lot of changes and non-agriculture economy is now larger than agriculture economy in rural India. This has led to significant movement in workforce- from agriculture to non-agriculture occupations. Workforce in cultivator household is also migrating to urban areas due to pull as well's push factor. Absent landlordism is on the rise in many states like Andhra Pradesh and Tamilnadu, and their lands are not used productively. On the other hand, farm size is getting smaller as land owning families do not want to sell land even when they are not genuinely interested in farming. This has created an environment where some households own land but do not cultivate it, or do not find it profitable to cultivate it, but do not lease it out for fear of losing ownership to tenant. On the other hand, a very large number of households engaged in farming on smaller size holdings are looking for opportunities to raise their operational holdings by leasing in land. The net result is that some land is not used optimally and many smaller holding are suffering from scale disadvantages. This requires substantive reforms in the land policy to achieve economies of scale in agriculture and promote agriculture diversification. In this context, promotion of contract farming, legislation of land leasing and encouraging concept of land sharing company with some

adaptation may lead to the desired vertical integration leading to rural transformation. Land resources are limited and hence precious. While absent landlordism is on the rise in many states like Andhra Pradesh and Tamilnadu, the productive use of land for agriculture is important for sustaining the production. However, in absence of proper land leasing and tenancy policy, a sizeable land remains uncultivated or poorly cultivated for want of investment. The States need to enact land leasing laws to encourage land lease. The reform in the land policy and tenancy law needs to be suitably backed up with the modernization of land records. The modernization of land records alone may not serve the purpose unless it is made mandatory for registration and titling. The success in use of modern instruments in cadastral survey in Gujarat could be a best practice to be replicated by other States. At the same time the modernization of land records need to be put for registration and titling. The development of waste land and cultural waste land through public private mode need to be vigorously pursued by the States.

### **Comment:**

Consolidation of land holding was never operational in Jharkhand. Jharkhand is a state which falls under 5<sup>th</sup> Schedule which has its own area specific land Act and Rules like chotanagpur Tenancy Act and Santhal Pargana Tenancy Act. It's a hilly region where pure agricultural land at stretch is scarce and scattered and where irrigational facilities are lacking. The land laws speak of keeping the land intact with the Raiyat.

There is no policy operative in Jharkhand to lease out land temporarily for profit purpose; investing land for some productive activity and thereby earning profit out of it.

In Jharkhand State so far land is transferred on permanent basis either through land acquisition or on mutual agreement for public purpose.

Software is being developed to integrate registration with mutation. After it is complete, automatically the registration data shall be transmitted to mutation, portal for onward process by revenue officials.

Tribal Advisory Council has been reconstituted through notification no-1279 dated 5.5.2015, which look into the affairs of CNT and SPT Acts implementation etc.

Revenue Department has been providing land to various industries and in future also it will be done in coordination with Industry Department. Preliminary survey for land bank has been done (detail enclosed). Further verification and identification & preparation of chunk in progress. It will be completed by 30<sup>th</sup> June, 2015.

As per provisions of section 49 of C.N.T. Act, 1908 land is provided (use of the land) for industrial and mining purposes.

The proposal of amendment of in article 21 of CNT Act, 1908 and article 13 of SPT Act, 1949 for conversion of land for non agriculture purpose has been placed before Jharkhand Tribal Advisory Council (TAC) for consideration Report awaited from subcommittee of TAC.

The matter is under consideration in TAC. A policy will be formulated in the Department/ by the Govt. after getting final decision from TAC on the issue.

At present, there are two identity of software as one for online mutation software and another for registration. Synchronization of the two separate software will be materialized at the level of IT, JAP-IT and NIC. It will be done by 30<sup>th</sup> June, 2015.

At present, 38 circles are processed online mutation and by Sept, 2015 end, it is targeted to have processed online mutation in all circles in the State after completion of digitised RORs, Reg-II and Cadastral Maps. Synchronization of Land records data for online mutation, registration process, and Municipal records will be materialized by of IT, JAP-IT and NIC.

Work is under progress by NIC and Registration Dept. of Govt. of Jharkhand with co-ordination of Revenue and Land reforms department. The timeline for this work is 15<sup>th</sup> Nov, 2015 and Ranchi district is selected for the pilot project.

**3.7 Credit and Finance:** The key problem of farmers especially the poorer ones is access to capital at reasonable rate of interest. The present credit structure and policies tend to view small and marginal farmers as unviable clients to avail credit. Committee on Financial Inclusion chaired by Dr. C. Rangarajan noted that in 2008, 73% of farmer households were excluded from the institutional finance system. The small and marginal farmers are excluded the most. These two categories of farmer households constitute nearly 88% of the total farm households who are not borrowing from any institutional source of credit. The limited outreach of the institutional sector in rural and remote areas needs to be addressed. Several studies have shown that repayment of debts and concerns of honour are among the main reasons of distress and suicides among the farmers. It is a major challenge to offer a suitable credit policy for farmers.

A number of studies document the positive economic impact of micro finance through self help group (SHGs) on indicators such as average value of assets per household average income per house hold employment and borrowing for income generation activities. The real power enormous economics of state generated by the SHGs, federation each of 150-200 SHGs. The SHGs federation can emerge for bulk purchase of inputs (seed fertilizer etc.) and marketing of inputs (crops) vegetable milk etc I have also provided large loan or housing and health facilities to these members by tying up with large service – loan providers. A variety of equivalent services are also made available including health livestock and weather insurances.

#### Comment:

The State is experiencing low credit flow if compared with other states and the national average. A major programme is initiated by the department to cover almost all the farmers under Kisan Credit Card Scheme. Krishak Mitra is engaged to fill up the application and all the extension functionaries in the district were assigned a time bound task to send application for the eligible farmers to the Banks. Reward for all the functionaries at different level is also being integrated in the programme to incentivise the good workers. About 19 lakh farmers are targeted to generate the application for banks.

The achievement under KCC and Crop Loan of Jharkhand is as below:

Particulars	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14
KCC (in Nos.)	162433	306079	372666	511393	688705	349716
Crop Loan( In Lakhs)	40987	49487	64315	121886	172492	102070

Out of 40 lakh farm family, 24 lakhs farm families were provided KCC and 16 lakh farm families need be provided.

### 3.8 Concerns relating to small & marginal farmers:

The Indian agriculture is typified with small and marginal holdings. They have difficulty in accessing critical inputs for agriculture, especially credit, water, power, quality seeds, fertilizers, pesticides and timely technical assistance. They also suffer from weak bargaining power. The majority tie-ups are between processors/retailers and medium and large farmers because the corporate/bulk buyers find the transaction costs of dealing with a large number of small producers prohibitively high. In this situation, formation of institutionalized organization, like the farmer producer Organizations (FPOs) can emerge as useful mechanisms. FPOs enable a) aggregation of inputs/outputs and optimal deployment of resources to maximize factor productivity; b) access to mainstream capital for improvements in production system assets; c) risk reduction through financial measures, cropping choices; and d) creates opportunity to scale the quality demanding urban consumer and agro-processing industry.

Current institutional form so FPOs are suffering from a variety of legal and financial disabilities that needs to improve by standalone law governing various aspects of FPOs. FPOs face hurdles in accessing institutional working and investment capital, largely owing to lack of adequate collateral. The existing model of bank finance to SHGs of women should be replicated to assist FPs in accessing working capital. RBI should include financing to FPS in its priority sector lending norms to get the banks to look at FPs as acceptable clients.

#### Comment:

As there are number of schemes implemented for same cause for wellbeing of the farmers. But there is lack of coordination among the implementing agencies. As a result, most of beneficiaries remained untouched from the benefit of the Govt. Schemes and a smaller group of remain in the touch of implementing agencies get benefit of most of the schemes. Secondly, the rate of assistance for the similar commodity vary from scheme to scheme. e.g. Farm implements distributed by department of soil conversation gives 75% subsidy to the beneficiaries. Similarly, the subsidy to farmers on irrigation devices/ tools under National Horticulture Mission Scheme is 90% where as under National Food Security Mission it is 50%.

This type of variations misguide the beneficiaries on one hand and distribution of farm machineries & other items with lower subsidy rate hinder the progress of the concerned schemes on the other hand.

It is suggested that subsidy in the state on any of the items for distribution among the farmers be decided uniformly by decision of a committee consisting of the heads of all concerned implementing agencies under the chairmanship of high level official of the state.

Similarly, integration of various similar nature scheme meant for the benefit of farming community be implemented under single umbrella, So that maximum use of resources be utilized in a integrated manner through convergence to harness the maximum benefit for increasing the crop production.

### **3.9 Crop Insurance:**

Small and marginal farmers- particular rainfed farmers often face partial or total crop loss due to risks associated with farming. The traditional coping mechanisms of the farmers for addressing these risks are not adequate. Crop Insurance has come up as an important tool for risk mitigation. However, only less than 10% farmers are covered with prevailing crop insurance products. The key weaknesses of current crop insurance products arise from the nature and distribution of risks associated with farming. The risk covers of farmers in rainfed areas through innovative insurance products need to be ensured. Both centre and states need to proactively work for:

#### **Comment:**

Crop insurance is definitely a risk mitigation tool which provides security to farmers against their crop loss. But the coverage of farmers/land holding under the insurance is very less in comparison of the total number of farmers/land holding of Jharkhand state.

The Basic reasons may be the recently ongoing crop Insurance Schemes in the State before Rabi 2014-15. High premium rates under Weather Based Crop Insurance Scheme (WBCIS) and Modified National Agricultural Insurance Scheme (MNAIS).

**WBCIS-** It is very tough to capture the ultimate productivity on field through any proxy indicator and side by side many time Sum Insured is also reduced when premium rate exceeds the capping rate. Premium rate is very high and unaffordable to farmers.

**MNAIS-** Premium rate is very high and unaffordable to farmers. The same problem of reduced sum insured arises when premium rate exceeds the capping rate.

Under the most prevalent Crop Insurance in Jharkhand "**National Agricultural Insurance Scheme (NAIS)**"- **Premium rate is affordable to farmers** but due to lower Indemnity level the sum insured is get reduced for the farmers. The lesser Sum Insured and the higher level Insurance unit area i.e., Block/District reduces the chance of getting claim.

**Improvement:** Since Jharkhand is a poor state the applicable premium rate for the farmers is vital and it must be low. The crop insurance based on yield and having low premium rate will be successful in Jharkhand State. But the insurance unit area should be reduced to Gram Panchayat/ Village level to capture the crop loss even in small area, which is already under the ongoing NAIS provision.

The Crop Insurance Scheme can be made more attractive through increasing the indemnity level/ guaranteed yield. There should be only two level of indemnity i.e., 80% and 90% instead of current 60%, 80% and 90%. The base of guaranteed yield may be enhanced by taking the average of

three/five year's having maximum yield out of previous ten years yield data instead of simple average of previous three year's/five year's yield.

This way the Crop Insurance Scheme may be made more attractive through increasing the Sum Insured along with keeping the premium rate low and keeping insurance unit area at Gram panchayat/Village level.

The awareness of the crop insurance scheme among the farmers is already going on through TV, Radio, Daily New Paper, wall painting, pamphlets, Posters, Banner, SMS and organizing workshop at State level, District level and Block level etc. It may be further improved by increasing their frequencies.

The coverage under previous season's crop insurance scheme NAIS Rabi 2014-15 is showing the same as this is the highest among the previous all Rabi seasons and we are expecting the same trend in the current Kharif 2015 season under NAIS.

The risk covers farmers in rainfed areas through product. There should be some changes in the present/existing schemes.

### **Suggestion :-**

1. The proposal form of crop insurance should be simplified.
2. It should be printed in Hindi as well as in regional language of concern area.
3. There should be inserted a self-declaration column regarding the holding of Agriculture land (in Acre) by the cultivator (Farmers/Bataidar).
4. Notification of crop insurance should be on acre basis, not on Hectare basis.
5. Extensive publicity required for awareness through Electronic media, Print media, Pamphlets, Banners and Hoarding, Loud speaker, Workshop at village level to District level.
6. Insurance unit should be District in lieu of block for paddy and wheat.
7. Presently three layer indemnity level is prescribed – less risk 90% yield, Medium risk 80% yield and high risk 60% yield. This needs rectification. It must be 90% yield in all zone or this present criteria should be abolished.
8. Rate of premium for small & marginal farmers should be cut down. At present it is very high. Farmers of Jharkhand State are mostly small & marginal category farmers who should pay only 1% or less than 1% of total sum assured.
9. Insurance coverage period of Kharif for non – loanee farmers should be 30<sup>th</sup> of September instead of 31<sup>st</sup> July.
10. Parameter of loss in production/yield should be based on the average production of last three high production/yield years of last ten years for settlement of claims.

Present parameter for this is last three consecutive years yield and this must be changed.

11. Sum assured amount specially for paddy & wheat is not less than Rs. 15,000.00
12. (Fifteen thousand) per acre or it should be related to MSP for the particular crop.
13. Crop cutting system should be adopted in all panchayats.
14. Crop cutting experiment should be done in the presence of the plot holder farmer, the elected local representative, like – Mukhia or ward member, the representative of Agriculture department, land & revenue department, Co-operative department/ sector like C.E.O. Chairman

or a Director or Lamps/Pacs. Photographs of all this Phenomenon should be attached with crop cutting experiment report or the system of crop cutting should be done by third party.

15. Claim should be settled as earlier as possible, with a maximum period of before coming next Kharif/Rabi season.
16. There should be a crop insurance fund pool. Beneficiaries get their claim through this pool immediately. Formalities like release of fund by centre, state or insurance company will be settled as per procedure.

## **CONVERGENCE OF SCHEMES AND PROGRAMMES**

A multitude of schemes are being implemented by Gol as Central sector, Centrally Sponsored and State Plan schemes. Many components / interventions funded by different programmes have considerable overlaps. There is a mismatch between ground level action funded from different sources due to lack of coordination and convergence which leads to inefficiencies in resource use and achieving desired benefits from investments. Not only there is duplicity or multiplicity but also lack of proper planning of interventions without keeping view of its intended use(s) and user (s) and its selection in integrated manner. The flagship programme of Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA), Rashtriya Krishi Vikas Yojana (RKVY), National Horticulture Mission (NHM), Artificial Recharge of Ground water, repair Renovation and Restoration of water bodies are directly linked to Agriculture. The Convergence of Central Sector schemes (CSS) will include pooling resources, both human and capital, transfer of productive and eco-friendly technologies and value addition through provision of backward and forward linkages. There are certain policy challenges that need to be addressed. It is difficult to ensure inter departmental coordination and resource pooling and facilitate convergence at the District level, as the line departments are under different line of command and control. Some times there are contradictions and conflicts among guidelines of various schemes. Auditing of accounts in the converged dispensation is another issue. All these difficulties can be resolved if convergence matrix are sufficiently elaborated in Detailed Project Report and are duly approved by the competent authority or mechanisms. Mission/Project officials specifically constituted for the programme or line departments implement the programme. The Pradhan Mantri Krishi Sinchai Yojana (PMKSY) has been conceptualised for providing irrigation to very field. The PMKSY may provide overarching management and governance for convergence amongst these programmes with additional support for some interventions which are not covered in the above programmes.

### **Comment:**

Govt. works on many fronts (Health, education Agriculture, Housing, Employment etc) at same time to improve the lives of people and communities. Convergence of schemes & programme is very essential for resource pooling & utilization. Some limitations in convergence can be seen at

#### **(1) Plan Preparation :-**

During Plan preparation lower level plans are generally not integrated at upper level so at the time of execution many small things turn a big bottleneck. Multiple planning unit function

separately and absence of common platform for planning execution of scheme at field level is always scheme.

**(2) Plan Execution :-**

Plan is approved at state level by one committee but at Panchayat / Village level formal or informal committees are made for the execution or monitoring of schemes. These committee are divided an local politics, cast line etc. Resource Convergence aims to establish a synergy between Govt., NGO, private sector, corporate sector, beneficiaries etc. but at functional level everyone has some apprehension about others. The department or sector who is given financial sanction / allotment is endowed with responsibility of execution and rest line sectors function only as watching the happenings or attending meetings. Actually there is reluctance to commit fund for other Departments due to fear of losing control over their resources. Different time schedule of release of fund in different schemes also break continuity in execution. So resource pooling & flowing of fund with taking active part is a major problem. Govt. official are given responsibilities not based on their expertise but on the basis of postings.

But even though some good convergence effort has been done in Kerala in MGNREGA, rural housing in Sikkim, Agriculture Rural Development in Chattisgarh, Horticulture in A.P etc.

These models should be studied in detail for redressal of problems. There should be uniform institutional framework with uniformity in planning, approval, release monitoring and subsidy and unit cost pattern.

Convergence should be at institutional level, human resource level and fund level at the same time.