Chottanagpur Region

The existing resources in the area calls for enhancement of productivity within agriculture to address the issue of food security and compliment it with diversification to higher value crops through the creation of an agri-horti-forestry model with strong market linkages, development of animal husbandry (mainly piggery, goatery and poultry complemented by veterinary services) and strengthening forest based livelihood options like Lac and other Minor Forest Produce.

Singhbhum Region

Kharif paddy stabilization through improved agriculture practices and better water control strategy through promotion of on-farm water management structures and Micro Lift Irrigation systems will play a crucial role for livelihood enhancement in the area. This will have to be complimented with livestock development in the form of piggery and dairy, coupled with improved veterinary services and development of agro-horti model. Forest based livelihood like Lac and Tasar have a good potential in this region.

On-farm water management - 5% area marked for a pond

Forest Based Livelihoods - Tasar and Lac

Lac - Lac is a resinous secretion from an insect *(Laccifer lacca)* which inhabitates mostly on Ber, Kusum and Palash trees. Lac cultivation is currently been practiced in Khunti, Bundu, Chandel, Chakradharpur, Chaibasa, Latehar, Garhwa, Daltonganj, Manika and Chandwa areas. However, unavailability of working capital, insufficient and untreated brood lac, lack of strong producers associations and lack of marketing institutions constrains this sector. The cultivation practices are traditional and are passed on from generation to generation. The presence of Indian Lac Research Institute (ILRI) provides institutional opportunities to enhance the cultivation practices and reduce the risks faced by the farmers. Improved lac production techniques like scientific pruning of host trees, better inoculation practices of the brood lac, seed treatment, spraying of proper insecticide and fungicide and improved processing techniques can contribute largely to the tribal livelihood in the region.

Kusum Tree - a host of lac insect

Tasar - Tasar rearing is mainly practiced in the Santhal Parganas region. However, in recent years, with constraints in the availability of Disease Free Laying (DFL), reduction in the host trees, poor cultivation practices and underdeveloped forward linkages in terms of reeling, spinning and weaving have constrained tasar production in the state. Tasar cultivation is agro climatically suitable in the Santhal Parganas and South Chottanagpur region where there are abundant Asan and Arjun trees. Through creation of more private grainages, creation of adequate cocoon marketing facilities and setting up of reeling centers, tasar can play a more productive role in tribal livelihood enhancement in the state.

Animal Husbandry

The Yadavs in Santhal Parganas, Ho and Gopes in Chottanagpur and Bhuiyas in Palamu depend on goats, pigs and sheep for their livelihoods, which not only provide them with income and employment, but also balanced diet in the form of meat and milk. Tribals in particular, and economically weaker section of the community in general, have a special aptitude for pig rearing and it can play a vital role in raising the economic condition of landless agricultural labourers. Non-availability of good quality animals is one of the most important constraints in livestock promotion in Jharkhand. In poultry too, there is a shortage of day-old-chicks. Also, poor veterinary, extension and health services, shortage of good quality feed and supply of green fodder round the year due to lack of irrigation facility and lack of capital, currently constrains livestock development in the state. Breed improvement complemented by better veterinary services, can provide a livelihood fillip.

Poultry birds in the shed - contributing to additional income, employment and diet

Basket of Livelihood Options

clockwise from top left
- Reaping the benefits of Kharif paddy stabilization
- Water resource augmentation for improving agriculture
- Agriculture diversification towards high value crops: Cauliflower cultivation
- Enhancing Paddy yield through System of Rice Intensification

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Natural Resource Management Strategies to enhance Tribal Livelihood in Jharkhand under the Central India Initiative

Undulating and mostly fallow land across the state calls for superior water management

The state of Jharkhand was carved out from Bihar in the year 2001. The name of the state *Jhar* (Forest) and *Khand* (Region) depicts the significance of forests in the state. Out of total geographical area of 79 lakh hectares, 23 lakh hectares is classified as forest land and 39 lakhs as agriculture land. Agriculturally the state is one of the most backward in the country. Rainfed paddy is the predominant crop in the state, followed by pulses, maize, wheat and oilseeds. The average yield of paddy is around 9.6 quintals per hectare, which is half the national average. The backwardness of agriculture in the state is contributed by poor water control strategy, largely characterized by erratic rainfall, coupled with low irrigation coverage. The state receives 1300 mm of rainfall which however is very erratic and temporal, with 80 per cent of the rainfall taking place between the months of June to September. The highly skewed rainfall in the state calls for superior water management techniques and water control strategies, which can sustain water availability across the dry months. Unfortunately, irrigation coverage in the state is only 9 per cent of the Net Sown Area, thus reducing the Gross Cultivable Area and the Cropping Intensity.

Around 61 per cent of the workforce in Jharkhand is associated with agriculture while 39 per cent works in manufacturing and service sector. In spite of this, per capita availability of food grains in Jharkhand is only 230 grams per day, as compared to 523 grams at the National level. The farmer demography in the state also shows the dominance of small and marginal farmers. Around 82 per cent of the farmers in the state are marginal and they own only 32 per cent of the land. On the other hand, 17 per cent medium and semi medium farmers own 53 percent of the land. Thus, the landholding is also skewed in the state.

A silted up Ahar in need of revival to realise it's potential as an irrigation source

The state is mostly irrigated through irrigation canals and ponds. The presence of the traditional Ahar-Pyne system and numerous ponds within the undulating topography of Jharkhand irrigate around 40 percent of the total irrigated land. There are a number of government Lift Irrigation (LI) Systems over perennial streams which currently lie defunct. The traditional Ahar-Pyne system also irrigates large area in the Palamu and Santhal Parganas region. The numerous canals, ahars and LI systems that are lying defunct need to be revived for increasing the cropped area, cropping intensity and agriculture productivity.

District Map of Jharkhand

Regions

The state of Jharkhand can be broadly divided into 4 Zones, namely Santhal Parganas Zone, Palamu-Hazaribagh Zone, Chottanagpur Zone and Singhbhum Zone. Each of the zones comprises of contiguous districts.

Jharkhand - Elevation Map

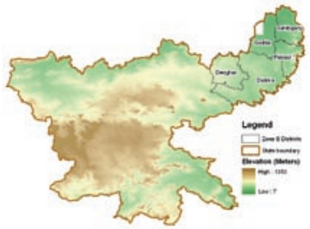
Palamu-Hazaribagh region

Palamu-Hazaribagh region lies in the North West and Western parts of the state and consist of Palamu, Latehar, Garhwa, Hazaribagh and Ramgarh districts. The communities residing in this region comprise of Primitive Tribal Groups, namely Pahariya & Korba, Bhuiya, Chamar, Korwar, Uraon, Koiri and Upper Caste. Around 80 per cent of the population is into agriculture and Paddy along with Maize is mostly grown. Koel and Sone are the two major rivers that pass through this region. Around 17 per cent of the irrigated land is under canal systems and 6 per cent is under bore wells. The traditional Ahar Pyne systems are still found in this region. Some of them are functional, but most are defunct and in dilapidated state. Animal Husbandry is an add-on occupation, where piggery, goatery and poultry are practiced. Non Timber forest Produce (NTFP) like Tendu and Mahua are an important source for cash flow in the lean period. Traditional bamboo works of the Pahariyas also contribute to the livelihood portfolio. The area has a large potential for Lac cultivation on Kusum, Ber and Palash trees.

A non-functional Pyne in the Palamu District

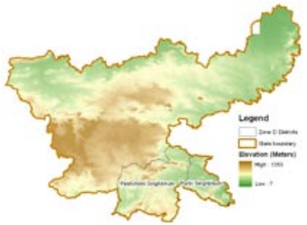
Santhal Parganas region

Santhal Parganas region lies in the East and North East regions of Jharkhand and comprises of six districts, namely Dumka, Deoghar, Pakur, Jamtara, Sahebganj and Godda. Santhal, Mal Paharias, Sauria Paharias, Yadavs and Koiris are the major communities residing in the region. The agriculture pattern in this area is biased towards paddy, followed by maize, pulses and oilseeds. Irrigation facilities are restricted and the cultivation of crops is mostly rain-fed. The Santhal Parganas region has a good forest cover and thus dependence on forests, particularly in the lean season, is observed. Teak, Tendu, Sal, Mahua, Palash, Arjun and Tendu dominate in this region. The Santhal community barely manages to eke their livelihood and their income mostly comes from rain fed agriculture and labour work. Sauria Paharias are the most vulnerable community and they source their income from agricultural labour and NTFP trading. Traditional slash and burn cultivation, popularly known as Kurao, is prevalent among the Sauria Paharias.



Singhbhum Region

The Singhbhum region lies in the southern part of the state and is comprised of the districts of West Singhbhum, East Singhbhum and Seraikela-Kharsawan. The major communities residing in this region are Santhal, Ho, Oraon and Gopes. Paddy and pulses are major crops in this zone. Kharif Paddy is the dominant crop in this region. In recent years, this region has recorded very low and declining paddy productivity. The agriculture in this region is exposed to vagaries of monsoon. The region also has a good forest cover, with 25 per cent of the geographical area classified as forest land comprising of Teak, Sal, Arjuna, Mahua, Asan, Gamhar trees. Most of the communities in the Singhbhum region are involved in collection of NTFP, mainly Tendu and Mahua leaves during summer. Inaccessibility of markets and exploitative intermediaries constrain the development of forest based livelihood opportunities. Lack of proper marketing support, inferior breed, lack of proper veterinary care and prevalence of diseases constrain the development of animal husbandry in this region.



Chottanagpur Region

This region comprises of Dhanbad, Bokaro, Giridih, Chatra, Kodarma, Gumla, Lohardaga, Simdega, and Ranchi. Demographically, this region shows a higher population density and literacy level, compared to the state average and lower SC/ST population. Irrigation coverage is poor in this region. Paddy, bajra, maize and pulses dominate the cropping pattern in this region. In Bokaro and Dhanbad, the majority of the population is involved in mining activity while agriculture and NTFPs dominate in Ranchi, Gumla, Lohardaga and Simdega.

Regional Strategy for Natural Resource Based Livelihood Enhancement

The state of Jharkhand has a large area under Paddy cultivation, but the productivity is abysmally low. Paddy being the main staple crop of the state, this often manifest in terms of lack of food security among the tribal population. To increase paddy productivity, which contributes to increased food security, a state level strategy of 'Kharif Paddy Stabilization' was planned. The strategy includes promotion of improved paddy cultivation practices, promoting high yielding varieties, and encouraging the adoption of System of Rice Intensification (SRI) among the farmers. An important part of the initiative is also to provide critical support irrigation during dry spells.

State Strategy: Kharif Paddy Stabilization

Regions	Paddy Productivity (T/Ha)	Paddy area in the state (in% of cropped area)
Palamu-Hazaribagh	1.8	6
Santhal Parganas	2.0	18
Singhbhum	1.6	58
Chottanagpur	1.9	18

Palamu-Hazaribagh Region

The region exhibits considerable scope in increasing the irrigation coverage through harvesting sub surface flows and hilly streams. Revival of the traditional Ahar Pyne water harvesting systems can have a large impact on the agriculture based livelihood development through enhancement of cropping intensity and productivity by increase in irrigation coverage in the region. With better water control strategy, the homestead land in this region can be developed through multiple cropping. The region throws up opportunities for development of horticulture, vegetable cultivation and floriculture including strong market linkage. Animal husbandry, complemented by improved veterinary services, can also provide a livelihood fillip.

Santhal Parganas Region

This region calls for emphasis on food security through Kharif Paddy Stabilization. The stabilization process in this region may include yield enhancement opportunities through improved agricultural practices like System of Rice Intensification (SRI) and improved seed intervention like Participatory Varietal Selection Process (PVSP). The region also shows scope for development of multi - tier cropping on the homestead land comprising of different vegetable, fruit trees and timber species and complimentary forest based livelihood options like Tasar and Lac cultivation.

Improved agricultural practices - System of Rice Intensification