

Zone D

This zone typically falls within the mineral extraction areas, where the livelihood is centered on mining activity. Villages in close proximity to mining areas are totally dependent on mining, while the interior villages depend primarily on agriculture as the source of livelihood. Thus, the choice of intervention within this zone will depend on the nature of the economy in the area. The villages which are dependent on agriculture lack proper water control strategies. So, development of horticulture in the uplands, through provision of irrigation by constructing tanks and small ponds, can be crucial for bolstering rural livelihoods. The paddy cultivation in the medium uplands can be stabilized through creation of dug wells, which would provide critical supplemental irrigation in case of monsoon failure. The provision of irrigation will also enable the farmers to take up a second crop after paddy, thereby augmenting their livelihoods and dietary improvements.



Diversion based water control strategy

Integrated Natural Resource Management (INRM)

PRADAN, a national level Non - Governmental Organization (NGO), has successfully intervened in natural resource based promotion through INRM in Patana Block in Keonjhar and Karanjia Block in Mayurbhanj districts of Orissa. The physical interventions include 30-40 model in the upland, followed by 5 per cent model in medium uplands and creation of seepage ponds and tanks and sometimes, micro Lift Irrigation (LI) facilities in lowlands. Though creation of the above mentioned in- situ water harvesting structures, PRADAN has been able to promote agriculture and horticulture among 1,600 households spread over 20 villages. The erosion from the uplands are reduced through 30-40 model and the 5 per cent model in the medium uplands increases the soil moisture, thereby providing critical protective irrigation in Kharif in case of monsoon failure. The construction of tanks and seepage ponds, coupled with better agronomic practices like High Yielding Varieties (HYV) paddy, System of Rice Intensification (SRI) in Kharif, promotion of summer paddy and vegetable cultivation in winter have been successfully promoted in this area.



Vegetable cultivation to boost tribal economy



(L) Nursery bed preparation for Kharif crop
(R) Bittergourd cultivation in homestead land

(L) Excavation of water body under NREGS
(R) Irrigation infrastructure ensuring Rabi season cultivation

(L) Horticulture training & exposure
(R) Marketing of produce - practical training & exposure to local markets

(L) Bumper harvest of maize crop through improved Package of Practices
(R) Interaction among Self Help Group members



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



The state of Orissa, on the east coast of the country, is spread over 1.55 lakh square kilometers. Out of the total 30 districts in the state, 16 have been classified as tribal districts. The state has around 22 per cent tribal population, 62 tribal groups and 13 Primitive Tribal Groups. The tribal groups in the state are found to be in different stages of transition, namely: Hunter Gatherers, Pastoralist Nomads, Rural Artisans, Shifting Cultivators and Settled Cultivators.



Sir Ratan Tata Trust

Collectives for Integrated Livelihood Initiatives (CINI)

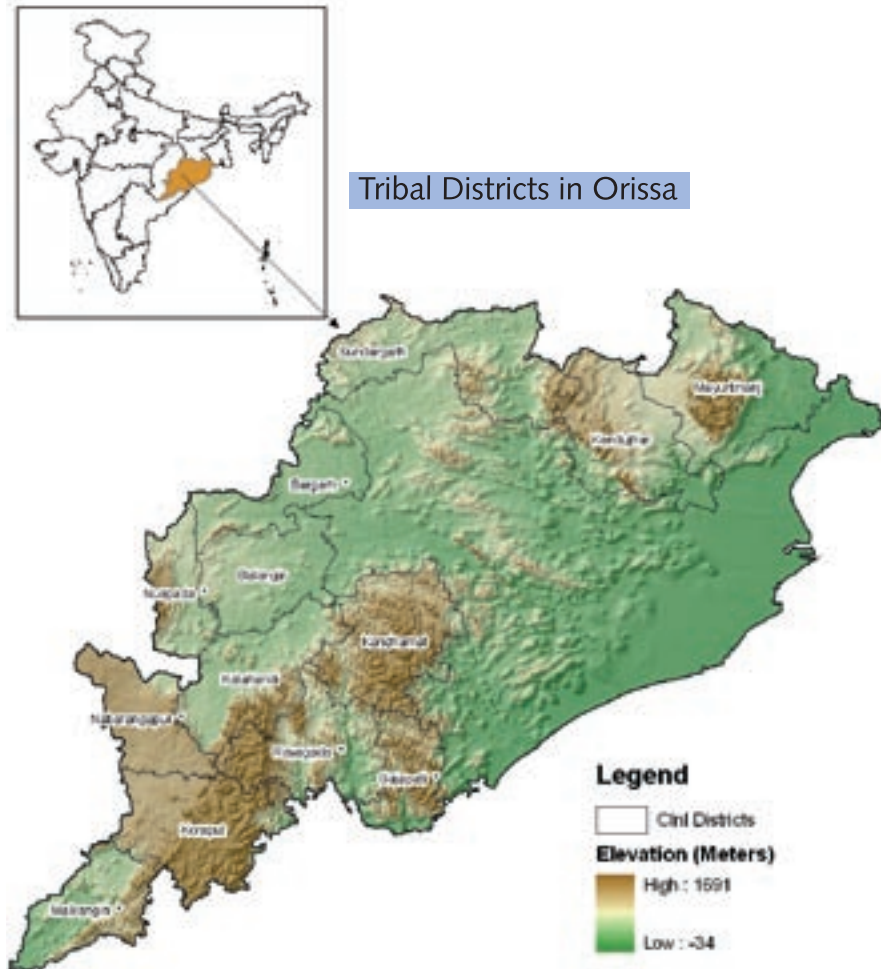
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In spite of possessing abundant natural resources, Orissa is one of the poorest states in the country with 47 per cent population living under a dollar a day. The poverty in Orissa also shows a distinct spatial pattern, where the tribal dominated southern parts exhibit socio economic indicators far worse than Sub Saharan Africa.

The state, on an average, receives 1,495 mm of rainfall and is traversed with 11 major rivers, of which Subarnarekha, Mahanadi and Brahmani-Baitarani are prominent. In spite of the opulent water resources, the irrigation potential created and the irrigation coverage is low in the state. Orissa has been able to achieve around 45 per cent of the ultimate irrigation potential and the average irrigation coverage in the state is 23 per cent. The groundwater potential in the state is about 23.279 lakh hectares, out of which, only 7.7 per cent is currently being utilized. The irrigation coverage is particularly lower in the tribal dominated areas.



Collective action for a better future: construction of an irrigation canal



Regions:

For the purpose of devising focused zone specific livelihood strategies, the state was divided into four zones based on three parameters -

- (i) proportion of agriculture land in total landholding
- (ii) irrigation coverage
- (iii) population density

Regional Strategies for Natural Resource Based Livelihood Enhancement

Zone A

This zone is characterized predominantly by agricultural land, with reasonably high irrigation coverage and areas in command of large irrigation projects. This region has the potential for intensification of agriculture through superior water control strategies and agricultural diversification towards high value crops. Horticulture plantation in the upland with in situ water management through creation of farm ponds, will steady cash income to farmers and also increase the cultivable area. The medium lands in this region can be intensified for agriculture through provision of small dug wells, which provide critical supplemental irrigation to the paddy, resulting in yield enhancement and stabilization of paddy crop in Kharif season.



Open well for supplemental irrigation

Zone B

This zone is characterized predominantly by agriculture land. The traditional cultivation practices in this zone, with low irrigation coverage, result in low yield. Thus, agriculture stabilization through Integrated Natural Resource Management (INRM) can contribute to the agriculture based livelihoods of the region. The uplands, which often remain fallow, can be treated through creation of low seepage farm tanks, in line with 30-40 Model, already piloted by some Civil Society Organizations, and fruit trees inter cropped with vegetables. The medium uplands, which largely depend on monsoons for paddy cultivation, can be treated through creation of farm ponds, shallow wells and group wells. This would enable stabilization of paddy cultivation during Kharif, followed by a second crop during Rabi season, thereby contributing to income enhancement of the household. Seepage tanks and Water Harvesting Structures with intake wells in the lowlands in this region can also contribute to agricultural intensification.



Farm pond for in-situ water harvesting

Zoning based on Agricultural land, Irrigation coverage and Population density

Criteria	Agricultural land > 50%	Agricultural land < 50%	Population Density
Irrigation coverage < 20%	ZONE B Sundergarh Mayurbhanj Kendujhar Bolangir Nuapada Kalahandi 74 Blocks • Predominantly Upland landholding • Low productivity • Rainfed agriculture • High distress migration	ZONE D Koraput Mayurbhanj Nabarangpur 19 Blocks • Livelihoods around mining • Horticulture in patches ZONE C Gajapati Kandhamal Malkangiri Rayagada 61 blocks • Forest area more than 50% • Subsistence agriculture	Population Density > 200 Population Density < 200
Irrigation coverage > 20%	ZONE A Bargarh Kalahandi Mayurbhanj 25 blocks • Well drained agricultural tract • Falls under various irrigation projects		Population Density < 200

Zone C

This region depends on both, agriculture and forest resources, for livelihood. Intensive cultivation on homestead land and medium uplands, through superior on farm water control strategies and diversion of numerous hill streams through lined / unlined canal systems, can provide a livelihood fillip in this region. Since forests play an important role in the livelihood portfolio, initiatives towards value addition of Non Timber Forest Produce (NTFP) through processing and packaging can have important implications on the livelihoods in the region. The region calls for creation and strengthening of market linkages for sale of NTFP, as current linkages prove to be exploitative. Different forms of community institutions, for example, Self Help Groups (SHG), Federations and Extractors Co-operatives, can be strengthened and consequently involved in trade of multiple NTFP and sale of produce directly to the consumer market.



NTFP based livelihood activities promoted through Self Help Groups