



ODISHA INTEGRATED IRRIGATION PROJECT FOR CLIMATE RESILIENT AGRICULTURE (OIIPCRA)

SOCIAL ASSESSMENT AND MANAGEMENT FRAMEWORK



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Executive Summary

Project Background: The Government of Odisha is planning to implement Odisha Integrated Irrigation Project for Climate Resilient Agriculture (OIIPCRA), with the support from the World Bank, to address climate vulnerability, focusing more on drought related vulnerability. The Project Development Objective is “to intensify and diversify agriculture production, enhance climate resilience and improve water productivity in selected cascades of Odisha”. The project has following three components, to meet the Project Development Objective (PDO). The proposed project will focus on small and marginal farmers, Water Users Associations (WUA / PP), Farmer Producer Organizations (FPO / FPC) and other agricultural entrepreneurs, including women and other vulnerable groups. The project has four components, i.e., (1) Project Component A: Climate-Smart Intensification and Diversification of Production, (2) Component B: Improving Access to Irrigation and Water Productivity, (3) Component C: Institutional Capacity Strengthening, and (4) Component D: Project Management. The project is planned to be executed in 15 districts of the State, covering 538 minor irrigation tanks with a total geographical area of 1.03 lakh ha. spread over 101 blocks.

Social Assessment: The Assessment is objectively designed to prepare Tribal People’s Plan Framework (TPPF) as a part of overall Environmental and Social Management Framework (ESMF) of the project, adhering to the Government Acts / Policies, World Bank Operational Policy (OP) and need of the project. The Social Assessment (SA) was carried out, to identify and assess potential social risks and prepare social management framework (SMF) to avoid and mitigate potential adverse social impacts of the project, if any. Along with this, the overall objective also suggests interventions to enhance the potential positive social impacts of the project interventions. In TPPF, attempt is made to ensure inclusion of tribal in the overall development process and initiating appropriate measures to protect their interest in accordance to the constitutional safeguard measures.

The Social Assessment (SA) results revealed that the program interventions will not affect adversely to the people in general and community level stakeholders in particular. Impacts shall be positive which is widely acknowledged by the people in tank command villages. However, the project will have planned effort for inclusion and equity so as to ensure that marginal and small farmers, women farmers, fishers, women in general, tribals and other marginalized groups participate in the project and derive positive benefits. Accordingly, the Social Management Framework (TPPF) is developed to address key social issues identified in the process within the scope of the project.

The assessment finds different concerns and expectations of people of which some of the needs that are within the scope of the project are like (1) reorganization of the PP, (2) conducting regular election of the PP and its strengthening, (3) participation of women in PP governance, (4) inclusive targeting of women farmers and tribals under project activities, (5) strengthening PFCS through capacity building measures, (6) access to different schematic provisions of government, facilitated by PP, (7) provisioning supportive livelihood options, (8) improving water availability during Kharif (dry spell) and Rabi, (9) improving farm mechanization, (10) organizing farmers for improved market access etc.

Social Management Framework: With reference to the expectations of the people in general and farmers and other stakeholders in particular, project will take certain measures that will benefit the people in a longer term. Key project measures cover (1) consultation and local planning to address the key issues pertaining within the scope of the project, (2) improving participation / representation in the local institutions, (3) appropriate targeting for inclusion of women, tribals and other marginalized sections in different project framed activities, (4) capacity building of marginal and small farmers, women farmers, women fishers, tribals in different aspects such as climate resilient farming system,

fish farming, post-harvest management, agribusiness etc., (5) facilitating convergence with existing schemes / programs of the Govt., (6) strengthening community institutions of people like PP / WUA, FPOs, PFCS, women SHGs etc. for effective governance and quality service delivery, (7) creating infrastructural facilities for post-harvest management and agribusiness to enhance income of the farmers, (8) harvesting fishery potentials of the tanks and involving local PFCS, (9) greater association of women fishers in ornamental fish production and marketing, (10) reducing input cost by promotion of vermicompost, integrated nutrition management, integrated pest management, farm mechanization etc. (11) improving livelihood of women and poor households through supportive horticultural measures, such as mushroom cultivation, establishing small processing units, promoting nutritional garden, lemon grass cultivation and oil extraction etc.

Monitoring and Evaluation: The CB & ID Specialist at the SPMU level will be the responsible person to guide the overall process related to social inclusion, equity, participation of different category of people in the project activities and their greater association in the development process. The district / sub-district level implementing agencies will execute and monitor different aspects of the social management framework in consultation with the specialist. She / he will be associated in the screening process of such activities that require greater involvement of women and tribals and/or need special focus on women / tribal / marginalised section's involvement. She/he will monitor the processes followed in execution of the planned activities and realisation of key social development indicators.

Grievance Redressal System: The project will have grievance redressal mechanism in place to take care of grievances of the people, if any arises during the life of the project. The overall framework for redressal of grievances at appropriate levels of the project implementation structure are (1) Tier I: at the local community level through people's institutions such as PP, FPO, PFCS etc., (2) Tier II: at the district level through DLPMT, (3) Tier III: at the ADM / Collector & DM level, and (4) Tier IV: at the state level through project authorities.

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Abbreviations

ACZ	Agro-Climatic Zone
APC	Agriculture Production Commissioner
APMC	Agriculture Produce and Marketing Committee
ATIF	Agri-Tech Infrastructure Fund
ATMA	Agriculture Technology Management Agency
BKKY	Biju Krushaka Kalyan Yojana
BKRY	Biju Kanya Ratna Yojana
BMI	Body Mass Index
BOO	Build, Own and Operate
BOOT	Build, Own, Operate and Transfer
CBO	Community Based Organisation
CHC	Custom Hiring Centre
CIFA	Central Institute of Freshwater Aquaculture
CIFRI	Central Inland Fisheries Research Institute
CSR	Child Sex Ratio
DDA	Deputy Director, Agriculture
DDH	Deputy Director, Horticulture
DLPMT	District Level Project Monitoring Team
DOA	Department of Agriculture
DOH	Directorate of Horticulture
DOWR	Department of Water Resources / Water Resources Dept.
DPR	Detail Project Report
DWCD	Department of Women and Child Development
EMF	Environment Management Plan
FFS	Farmer's Field School
FGD	Focus Group Discussion
FPC	Farmer Producer Company
FPO	Farmer Producer Organisation
FRA	Forest Rights Act
GAP	Gender Action Plan
GHG	Green House Gas
GOI	Government of India
GOO	Government of Odisha
GP	Gram Panchayat
GRC	Grievance Redressal Committee
IAHTU	Integrated Anti Human Trafficking Unit/s
IAP	Irrigation and Agriculture Plan
IEC	Information, Education and Communication
IMR	Infant Mortality Rate
IT	Information Technology
ITDA	Integrated Tribal Development Agency
JSY	Janani Surakshya Yojana
KVK	Krishi Vigyan Kendra
LARR	Right to Fair Compensation & Transparency in Land Acquisition, Rehabilitation and Resettlement Act
M & E	Monitoring and Evaluation
MADA	Modified Area Development Approach
MBSN	Mahila Vikas Samabaya Nigam
MGNREGA	Mahatma Gandhi National Rural Employment Guarantee Act
MKSP	Mahila Kisan Sasaktikaran Pariyojana
MMR	Maternal Mortality Rate
MTR	Mid-Term Review
NAIS	National Agricultural Insurance Scheme
NAM	National Agriculture Market
NFHS	National Family Health Survey

NGO	Non-Government Organisation
NHM	National Horticulture Mission
NMAET	National Mission on Agriculture Extension and Technology
NMEW	National Mission for Empowerment of Women
NMSA	National Mission for Sustainable Agriculture
NRLM	National Rural Livelihood Mission
NSS	National Sample Survey (Organisation)
O & M	Operation and Maintenance
OC	Other Caste
OCTDMS	Odisha Community Tank Development & Management Society
OIIPCRA	Odisha Integrated Irrigation Project for Climate Resilient Agriculture
OLIC	Odisha Lift Irrigation Corporation
OLM	Odisha Livelihood Mission
OP	Operational Policy
ORMAS	Odisha Rural Marketing and Supply Society
OSAMB	Odisha State Agriculture Marketing Board
OSSWB	Odisha State Social Welfare Board
OUAT	Odisha University of Agricultural Technology
PD	Project Director
PDO	Project Development Objective
PESA	The Panchayat (Extension to the Scheduled Areas) Act
PFCS	Primary Fisher's Cooperative Society
PMFBY	Pradhan Mantri Fasal Bima Yojana
PMKSY	Pradhan Mantri Krishi Sinchayee Yojana
PMU	Project Management Unit
PP	Pani Panchayat
PPP	Public Private Partnership
PRA	Participatory Rural Appraisal
PVTG	Particularly Vulnerable Tribal Group/s
RKVY	Rashtriya Krishi Vikas Yojana
RMK	Rashtriya Mahila Kosh
SA	Social Assessment
SAU	State Agriculture University
SC	Scheduled Caste
SCA	Special Central Assistance
SFAC	Small Farmers Agribusiness Consortium
SGSY	Swarna Jayanti Gram Swaraj Yojana
SHG	Self Help Group
SMF	Social Management Framework
SMP	Social Management Plan
SPMU	State Project Monitoring Unit
SPSC	State Project Steering Committee
SPU	State Project Unit
SRB	Sex Ratio at Birth
SRCW	State Resource Centre for Women
SSU	Strategic Support Unit
ST	Scheduled Tribe
TMC	Terminal Market Complex
TPP	Tribal People's Plan
TPPF	Tribal People's Planning Framework
TRIFED	Tribal Cooperative Marketing Development Federation
TSS	Tribal Sub-Scheme
WCD	Women and Child Development (Department)
WCP	Women's Component Plan
WHH	Women Headed Household
WPG	Women Producer Group
WSHG	Women Self Help Group
WUA	Water User Association

Section I: Project Introduction

1.1 Background of the Project

The Government of Odisha is currently engaged in preparing the Project, Odisha Integrated Irrigation Project for Climate Resilient Agriculture (OIIPCRA), with the support from the World Bank, to address the drought related vulnerability. Essentially, it is proposed to insulate the farmers practicing rain-fed farming from vagaries of climate change and thus ensure stable and secured livelihood, specially, to the poor and vulnerable farming communities in the state.

1.2 Project Development Objective (PDO)

The Project Development Objective is “**to intensify and diversify agriculture production, enhance climate resilience and improve water productivity in selected cascades of Odisha**”. The project has following four components, to meet the Project Development Objective (PDO). The proposed project will focus on small and marginal farmers, Water Users Associations (WUA / PP), Farmer Producer Organizations (FPO / FPC) and other agricultural entrepreneurs, including women and other vulnerable groups.

The project has four components, i.e., (1) **Project Component A:** Climate-Smart Intensification and Diversification of Production, (2) **Component B:** Improving Access to Irrigation and Water Productivity, (3) **Component C:** Institutional Capacity Strengthening, and (4) **Component D:** Project Management. The Component (A) has three sub-components, i.e., (1) **Sub-component A.1:** Support to Improved Productivity and Climate Resilience, (2) **Sub-component A.2:** Support to Aquaculture Production and (2) **Sub-component A.3:** Support to Diversification and Produce Marketing. Component (B) has two sub-components, i.e., (1) **Sub-Component B.1:** Support to Water Sector Reforms, and (2) **Sub-Component B.2:** Support to Investments in Cascades.

Table 1: Project Particulars

Project Title	Odisha Integrated Irrigation Project for Climate Resilient Agriculture (OIIPCRA)
Proponent	Water Resources Department, Govt. of Odisha
Project Development Objective	To intensify and diversify agriculture production, enhance climate resilience and improve water productivity in selected cascades of Odisha
Financial Support	Govt. of India, Govt. of Odisha and The World Bank
Number of Project Districts	15 Districts
No. of Agro-Climatic Zones	Seven Agro-Climatic Zones (ACZs)
No. of Blocks	101 Blocks (refer annexure for list of blocks)
Area Coverage (in Ha.)	1,03,145 (Kharif) and 6, 543 (Rabi)
Life Span of the Project	6 Years

1.3 Project Area

1.3.1 The Project State

The project is in the State of Odisha in India. Odisha is the 9th largest state in the country in terms of area¹ with the population of 4.197 crores (census, 2011). The state is poorly urbanized² and having a population density of about 270 persons per sq. km (census, 2011). The State is having a comparable landmass size to that of Bangladesh (1,47,570 Sq. Km.). The state is located in the eastern part of the country and has a long coastline along the Bay of Bengal of about 480 km.

Table 2: State Profile, Odisha

Population size	419742	Sex ratio, 0 - 6 yrs (Females per 1000 males)
Population size (Males)	212121	Sex ratio, 0 - 6 yrs (Rural)
Population size (Females)	207620	Sex ratio, 0 - 6 yrs (Urban)
Population size (Rural)	349705	Literates, 7+ yrs
Population size (Urban)	70036	Literates, 7+ yrs (Males)
Population size (Rural Males)	175862	Literates, 7+ yrs (Females)
Population size (Rural Females)	173843	Literates, 7+ yrs (Rural)
Population size (Urban Males)	36259	Literates, 7+ yrs (Urban)
Population size (Urban Females)	33777	Literates, 7+ yrs (Rural Males)
Population density (Total, Persons per sq km)	27	Literates, 7+ yrs (Rural Females)
Sex ratio (Females per 1000 males)	97	Literates, 7+ yrs (Urban Males)
Sex ratio (Rural)	98	Literates, 7+ yrs (Urban Females)
Sex ratio (Urban)	93	Literacy rate, 7+ yrs (Persons, Per cent)
Population size, 0 - 6 yrs	52731	Literacy rate, 7+ yrs (Males, Per cent)
Population size, 0 - 6 yrs (Males)	27164	Literacy rate, 7+ yrs (Females, Per cent)
Population size, 0 - 6 yrs (Females)	25566	Literacy rate, 7+ yrs (Rural, Per cent)
Population size, 0 - 6 yrs (Rural)	45258	Literacy rate, 7+ yrs (Urban, Per cent)
Population size, 0 - 6 yrs (Urban)	7473	Literacy rate, 7+ yrs (Rural Males, Per cent)
Population size, 0 - 6 yrs (Rural Males)	23258	Literacy rate, 7+ yrs (Rural Females, Per cent)

Source: Census, 2011

The Project State of Odisha is mostly rural, though, there has been increasing trend of urbanization in recent years in the State. In 2011 census, the proportion of population living in the urban areas of the state stood at 16.68 percent as compared to 31.16 percent for the country. Odisha ranks 31st in the list of most urbanized states of the country, while in terms of actual urban population, the state ranks 11th in the list of states with the largest urban population.

1.3.2 Project Districts

The project is planned to be executed in 15 districts of the State which is 50.0 percent of the total districts of the State (Odisha is having 30 administrative districts). The project has identified 538 minor irrigation tanks and 8 medium irrigation projects which will be taken up for intervention, covering a total geographical area of 1.03 lakh ha. spread over 101 blocks. The project intends to minimize the current gap ayacut, improve water use efficiency, enhance water productivity, strengthening

¹ The state has the total geographical area of 155707 Sq. Km.

² About 45.2 per cent people residing in urban areas

participatory irrigation management system and support in facilitating climate resilience in the tank command and beyond.

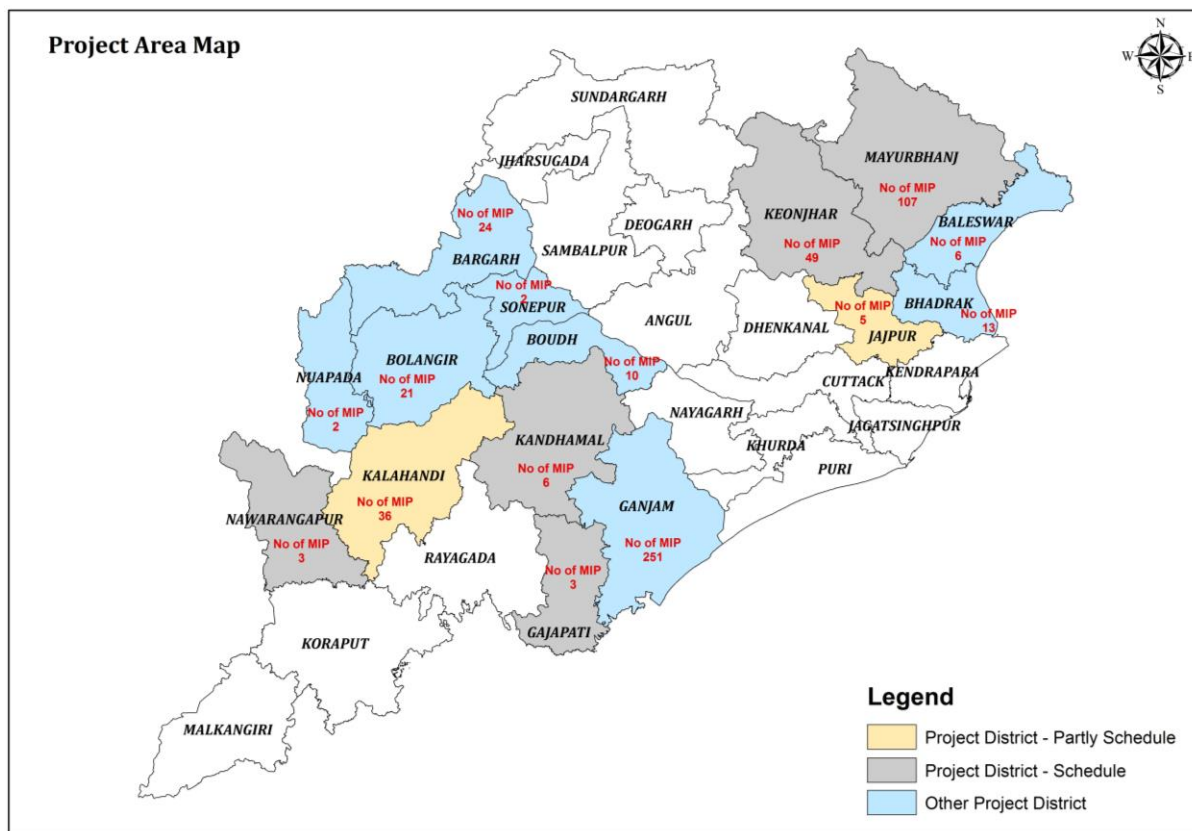


Figure 1: Project Area Map, Odisha

1.3.3 Coverage of Tanks (Minor Irrigation Projects)

The project will cover 15 districts in the state with intensive focus for agricultural development and increase in the irrigation potentiality. The framed project activities will be implemented over a period of six years in a phased manner. The detailed district wise coverage has been given in Table 3 and Table 4.

Table 3: Coverage of Block, GPs and MI Tanks in Project Districts

SN	Project District	No of Blocks	No of GPs	No of MIP tanks
1	Balangir	10	17	21
2	Balasore	5	6	6
3	Bargarh	4	19	24
4	Bhadrak	5	12	13
5	Boudh	1	8	10
6	Gajapati	1	3	3
7	Ganjam	18	166	251
8	Jajpur	3	3	5
9	Kalahandi	10	30	36
10	Kandhamal	4	6	6
11	Keonjhar	11	39	49
12	Mayurbhanj	20	81	107
13	Nabarangpur	3	3	3
14	Nuapada	2	2	2

15	Subarnpur	1	1	2
	Grand Total	98	396	538

Table 4: Designed CCA in Kharif & Rabi in Project Districts

SN	Project Districts	No of MIPs	Designed CCA (Kharif)	Designed CCA (Rabi)
1	Balangir	21	4809	623
2	Balasore	6	456	0
3	Bargarh	24	2226	279
4	Bhadrak	13	1356	60
5	Boudh	10	755	0
6	Gajapati	3	351	121
7	Ganjam	251	18149.7	722
8	Jajpur	5	598	150
9	Kalahandi	36	3555	424
10	Kandhamal	6	452	50
11	Keonjhar	49	12015	3057
12	Mayurbhanj	107	11266	1049
13	Nabarangpur	3	125	8
14	Nuapada	2	86	0
15	Subarnpur	2	94	0
	Grand Total	538	56293.7	6543

1.4 Project Components / Sub-Components

The project envisages to intensify and diversify agricultural production, enhance climate resilience and improve water productivity in selected cascades of Odisha. Further, in order to improve the market share of the produces at producer end, the project intends to promote / strengthen supply chain and value chain of agricultural / horticultural / fisheries produces (feasible commodities only based on scoping study), using Farmer Producer Organizations (FPOs) / Primary Fishers Cooperatives (PFCs). Apart from this, the project intends to establish different centres at the OUAT and Agriculture Department to support climate resilience in agriculture and promote agribusiness.

The project has four components to achieve the Project Development Objective (PDO). The project components and sub-components are discussed below (with reference to the Project Concept Note and further discussion during missions of the World Bank).

1.4.1 Component 1:

Climate-Smart Intensification and Diversification of Production

The objective of this component is to increase agricultural productivity, strengthen the capacity of organized farmer groups to cope or adapt to climate change stresses affecting crop production, and diversify production in Rabi in response to effective demand as expressed by pre-identified commercial off-takers or gleaned from other reliable market signals. Support under this component is proposed to be organized around two mutually inclusive, overlapping and reinforcing subcomponents.

Sub-Component 1.1: Support to Improved Productivity and Climate Resilience

The objectives of the sub-component in the agriculture sector (agriculture and horticulture) are; (i) Reduce the cost of production; (ii) Enhance productivity and climate resilience through technology adoption; (iii) Crop diversification towards market oriented high value crops and (iv) Promote agribusiness through supply chain management and value chain improvement. In this context, the project plans to take up agriculture and horticulture interventions along with Agri-business interventions. The sub-component objectively looks at promoting agricultural technologies that are sustainable and climate resilient vis-à-vis supports improving income of the farmers.

Specific interventions under the project area, (1) promotion of climate resilient seed varieties, (2) Demonstration of climate resilient technologies, (3) Strengthening the extension system, (4) Price forecasting of different commodities, (5) establishment of market infrastructures / processing units, (6) organizing and strengthening farmer's groups, and (7) capacity building of different stakeholders. This sub-component will be executed by the Department of Agriculture and Farmers Empowerment (DoA & FE) (the Directorate of Agriculture & Food Production and the Directorate of Horticulture are the implementing agencies for agriculture and horticulture interventions, respectively).

Sub-Component 1.2: Support to Aquaculture Production

The project intends to have a holistic approach, in terms of fishery promotion in the project tanks. The project approach to intervene in providing end to end solution, i.e., from seed production to market linkage where capacity building will be a cross cutting in all the project activities. Based on the feasibility of the tanks, the project will focus on seed promotion augmentation of inland species, improvement of existing hatcheries, establishment of captive nurseries, fish production and management support and facilitating marketing of the produce by providing facilities to the fishermen folk.

The fishery sector intervention objectively looks at (1) increasing the income of fishers by utilizing project tanks / water bodies, (2) propagation of scientific fish farming technologies among the fishers for improved production, (3) strengthening pure line fish seed production and supply chain management, (4) demonstrating intensive and semi-intensive fish farming in the ponds in the project area for higher return to the fishers, (5) strengthening post-harvest management through infrastructure and support to fishers; and (6) support to selected Fishermen Cooperatives and Government Institutions for fishery-based enterprise.

Sub-Component 1.3: Support to Diversification and Produce Marketing

The objective of this subcomponent is twofold: (i) support farmers to reduce the current emphasis on food grains (especially paddy and wheat) and increase the share of high-value agriculture (e.g. fruits, spices and vegetables) in their overall production structure; and (ii) improve produce marketing to reduce price risks associated with diversification, increase incomes, and ensure sustained farmer adoption of CSA practices. A successful shift in favor of more diversified production would also result into improved nutrition outcomes for farmers and the broader community, help reduce the water footprint of paddy, foster biodiversity, and strengthen resilience of the production systems to climate change.

Under this component, the project would fund Technical Assistance (TA) to the DAFE to promote and build productive alliance models for these and other competitive value chains that could emerge during implementation. To support productive alliances, the project will provide funding for (i) increasing farmer awareness of diversification opportunities; (ii) continuous identification of competitive value chains; (iii) farmer experimentation with new crops and training/demonstration of relevant production technologies; (iv) training farmers on production and marketing skills (including on input sourcing, production, aggregation, and new technologies, among others); (v) business plan development; (vi) fostering linkages with the financial sector or other government programs for access to credit; and (vii) financing – on a cost-sharing basis – of selected productive investments identified in the business plans. Project support to crop diversification will be based on agronomic/agro-ecological suitability, comparative advantage of specific cascades, and local, national or international market opportunities.

1.4.2 Component 2: Improving Access to Irrigation and Water Productivity

Access to reliable irrigation is generally critical to enhancing crop productivity, building resilience to climate change, promoting diversification and access to markets. It is important in the targeted project

areas that are characterized by frequent droughts and rainfall variability. The objective of this component is “to use water more efficiently, reduce water losses and save water during Kharif season, and transfer these savings to Rabi season.” To realize this objective, the project will support modernization of hydraulic assets, institutional reforms, and capacity strengthening.

Sub-Component 2.1: Support to Water Sector Reforms

Crop diversification and intensification require a higher quality of irrigation service delivery to meet the requirements of grown crops. Traditional arrangements for irrigation management often lack the capacities and incentives to deliver these improved services. The project will pursue institutional reforms and strengthen decentralized irrigation system management along with incentivizing local Pani Panchayats to deliver high performing irrigation and O&M services.

Under this sub-component (1) project will support the introduction of IWRM in one catchment on pilot basis, (2) regulation related to ground water extraction for irrigation will be reformed, (3) support the establishment of a PP support unit within the DoWR, (4) conduct a study into options for PPP in irrigation management to increase the efficiency of water use and improve the quality of irrigation service delivery.

Sub-Component 2.2: Support to Investments in Cascades

Under this sub-component, the project will invest in the modernization of hydraulic assets. To that end, a comprehensive water assessment will be conducted in the Project cascades to identify opportunities for reducing water losses and for transferring the savings water for Rabi season. For each of these opportunities, the implications on downstream water use will be identified through preparation of a pre and post-project tank / cascade-wide water balance. Investments include strengthening of canal bunds, modernizing hydraulic canal structures, installation of field channels and sub-surface pressurized pipes, and developing groundwater extraction in safe zones.

1.4.3 Component 3 Institutional Development and Capacity Building

The objective of this component is to promote and strengthen the capacity of key institutions and enhance the skills of stakeholders associated with the project at different levels. The component will help to improve the quality and efficiency in the delivery of technical and advisory services required to enhance climate resilience in the agriculture. The component will support in strengthening the existing PPs, formation of new FPOs and PFCS. Along with institution building, capacity building measures will be taken under the component for different institutions / organizations. This component will also support in strengthening OUAT, Bhubaneswar in terms of establishing different centres at the OUAT.

1.4.4 Component 4 Project Management

This component will strengthen capacities for project management, monitoring and evaluation (M&E) (including, inter alia, the areas of procurement and financial management) through the provision of goods, consultant services, training, and financing of incremental operating costs. This component will also develop a comprehensive management information and data collection and reporting system on key performance outputs and impact indicators through baseline surveys, participatory assessments, mid-term reviews and final evaluations. Staffing of the SPMU / PMU will include a number of technical, financial management, M&E and safeguards (social and environmental) experts. Detailed implementation arrangements will be spelled out in the Project Operational Manual. (POM). Regular training of PMU staff will be organized to strengthen their capacities to implement the project.

1.5 Project Preparation

As a part of the project preparation, Government of Odisha conducted different scoping studies and assessments, which include the Social Assessment (SA) study. Broad elements of the study include beneficiary assessment, stakeholder analysis, social impacts, institutional assessments and risks analysis.

1.6 Social Assessment

The overall objective of social assessment study is “to better understand and address social development issues, including tribal development requirements and ensure accomplishing the outcomes – inclusion, cohesion, equity, security, decentralization and accountability.

The project preparation recognized that the beneficiary profile is not homogeneous, rather, quite diverse comprising a number of sub-groups identifiable on the basis of their differential endowment, gender, ethnicity, different economic groups and other regional features. The challenge therefore lies in addressing the requirements of all social groups, with special attention towards the poor and socially excluded groups. Odisha is an ethnically diverse state with different (indigenous) languages, traditions and cultural practices; its diversity makes it challenging to develop a service delivery system which can respond flexibly to different needs. Also, there are multiple stakeholders to the project, who would have varying degrees of influence and impact on project activities and outcomes. This made it necessary for the project to provide a framework for participation of all key stakeholder groups and solicit their contributions towards project design and delivery mechanisms. The social assessment helped in identifying key social development issues and to assess impacts of the project. This led to drawing necessary measures that the project is expected to take up to ensure inclusion of the deprived segments, more particularly the tribal; addressing equity in accessing project benefits, strengthening decentralized governance system as per the constitutional norm and ensuring gender-based integration in project execution process.

The initial scoping and preliminary assessments made during the project preparation established that the profiles project beneficiaries are diverse, comprising of a number of social and ethnic sub-groups and other regional features. There are substantial tribal people (indigenous peoples) in the project area; and they do have a collective attachment to the project interventions and outcomes, especially in the scheduled areas. There are 9.59 million tribal people in Odisha, which accounts for 8.2 percent of the total population. Tribals are living throughout the state; but more predominantly in certain project districts such as Nabarangpur (55.79 percent), Kandhamal (53.58 percent), Gajapati (54.29 percent), Keonjhar (45.45 percent), and Mayurbhanj (58.72 percent)³. In fact, Odisha has a significant geographical area covered under the Fifth Schedule wherein tribal areas are delineated and provided with a separate set of constitutional guarantees. Further, it has also been ascertained that the tribal people do have a collective attachment to their traditional customs and habitat; and because of this, issues related to them require special measures to ensure that tribal peoples are included in and benefit from project as appropriate. It is in this backdrop, social assessment was conducted to understand and address social development issues, and ensure accomplishing the outcomes in terms of inclusion, cohesion, equity, security and accountability. The study helped in the following:

1. Mapping of project stakeholders and conducting detailed stakeholder consultations;
2. Assessing the social impacts of the proposed project interventions;
3. Review and suggest, as appropriate, the legal, policy and institutional aspects to enable accomplish the Sustainable Development objectives, including tribal development; and
4. Develop measures to enhance positive impacts and mitigate negative impacts, if any.

³ Tribal population percentage is as per census 2011; Figures in the parenthesis highlights tribal population percentage to total population of the district.

Broad elements of the study included beneficiary assessment, stakeholder analysis, social impacts, institutional assessments and risks analysis. The assessment was carried out in consistent with GOI, GOO and the World Bank safeguard requirements, policies, regulations and guidelines.

It is clear that the program interventions will not affect adversely the tribal people, but they do require special attention from the view point of ensuring inclusion and equity. Accordingly, the Tribal People Plan Framework (TPPF) is developed to address tribal issues up-front and provide culturally compatible resolutions that ensure focused and exclusive attention towards tribal / indigenous people. A framework is prepared for (1) the types of interventions are location specific and will become known only after the implementation starts, (2) villages will be selected for intervention over time and plans too will be prepared over time. As and when the tribal interface surfaces during the implementation, the framework will be adopted and a Tribal People Plan (TPP) will be prepared as a part of the overall development plan. The objectives of the TPPF are to ensure that the tribal populations are: (i) adequately and fully consulted; (ii) enabled to participate in the project and derive full benefits; and (iii) that the project's institutional and implementation arrangements take due note of the existing governance in the tribal areas as specified under the Constitution of India and relevant legal provisions. The TPPF is prepared in accordance with the World Bank's Operational Policy (OP) 4.10 on Indigenous peoples as well as legal provisions of Government of India and Government of Odisha.

The proposed project may have some localized social impacts. The project will avoid, minimize, and mitigate these impacts by adhering to India's national safeguard regulatory frameworks, the state's own safeguard regulations, and the principles and processes laid down in the World Bank's OPs. The SMF will guide the long-term implementation of project activities / works including screening of project sites, conducting SA study and developing SMP, monitoring different work, and periodic updating of safeguard-related reports. The SMF will define roles, responsibilities, and procedures for screening, minimizing, and mitigating any potential adverse environmental and social impacts or risks; and screens and removes any activity likely to have a significant social impact or risk. The SMF will thus sensitize the project staff (from state level to field level) about the need to factor in social concerns while planning and executing activities. It will ensure that the safeguards categorization will be adhered to in a credible and transparent manner over the life of the OIIPCRA Project.

The SMF describes the overall social safeguard procedures to be undertaken during project implementation. The purpose of the SMF is to manage the potential adverse impacts by establishing a guide consisting of a set of procedures and measures to facilitate adequate social management, including risk management of social impacts, directed to the group of activities to be financed by the project and whose specific location may change over project implementation.

The assessment for the preparation of Social Management Framework (SMF) was carried out in sample project tanks that were planned to be covered under OIIPCRA intervention. The sample covered 11 tanks from the list of tanks to be taken up under the project. Apart from farmers, information was obtained from a range of stakeholders, including different government departments, community-based organizations, including Pani Panchayats; Farmer Producers Organizations (FPOs), PFCS (Primary Fishermen Co-operative Society) and women SHGs. With the support of these organizations a detailed analysis relating to existing institutional and implementation arrangements and consequent opportunities and challenges are explored. The social assessment was conducted through Focus Group Discussions (FGDs) at the tank level by involving different stakeholders. The details of social risks and opportunities arising out of the project were assessed on the basis of FGD outputs and stakeholder consultations.

1.6.1 Aspects of Social Assessment

1.6.2.1 Beneficiary Assessment

Assessment of the potential beneficiaries, based on primary data and available secondary data, comprising socio-economic profile of the project state and district, was undertaken in the assessment process, including tribal communities. The assessment covered current status of development in different aspects, local institutional and governance mechanisms and the local operational arrangements.

1.6.2.2 Stakeholder Analysis

Identifying stakeholders at different intervention levels, mapping their key expectations, expected impacts, issues and concerns as related to each stakeholder and the subgroups thereof.

1.6.2.3 Impact Assessment

Identifying positive and negative social impacts likely to occur for different sub-groups or beneficiaries as a result of project interventions; assessing and prioritize impacts based on their significance; and likelihood of measures (within the scope of the project) to minimize negative impacts and derive the maximum from positive impacts.

1.6.2.4 Institutional Analysis

Documenting the existing institutional and implementation arrangements, covering key actors, such as government departments, technical institutions, non-government agencies etc.

1.6.2.5 Risk Assessment and Analysis

The assessment and its analysis, from within and external to the project and specific measures required to address them. Identifying key issues to be addressed by the project and preparing a Social Management Framework to address the same which includes; implementation arrangements, capacity building, awareness and application of IEC etc. The assessment also adhered to the Bank's Operational Policy on Indigenous Peoples i.e. OP 4.10.

1.6.2.6 Develop Monitoring and Evaluation Framework

Preparing a Monitoring and Evaluation System from social perspectives, based on the planned activities under the scope of the project.

1.6.2.7 Capacity Building Framework

Given that the objective is to mainstream environmental and social safeguards in planning and implementation, a robust capacity building plan for various levels of stakeholders would be prepared by the project.

1.6.2.8 Implementation Arrangements

Establish a clear understanding of the institutional requirements, roles and responsibilities for adopting and implementing the SMF. Importantly, this would include a thorough review of the authority and capability of institutions at different levels (e.g. block, district and state) and their capacity to manage and monitor SMF implementation.

1.6.2.9 Budget for SMF

Estimating a realistic budget to be allocated for timely implementation of the SMF in the project; including human resource requirements, building and enhancing the capacity of the institutions responsible for implementing the SMF and cost of ensuring safeguard policies and mitigation measures.

1.7 Associated Preparation Activities

In addition to SA, other efforts undertaken have resulted in different project related documents, like Project Implementation Plan, Baseline Study, Environment Assessment (EA), Environment Management Framework (EMF), Financial Manual, Procurement Manual and PP Manual.

1.8 Implementation Phases of the Project

1.8.1 Preparatory Phase

All the basic activities, that will help to lay the foundation of the project, will be done during preparatory phase. Key activities to be taken up during Preparatory Phase are;

1.8.1.1 Development of Guiding Documents

Different project related documents, like Project Implementation Plan, Financial Manual, Procurement Manual, Social Management Framework (SMF), Environment Management Framework (EMF), baseline assessment etc. will be prepared during this phase. These documents will contain guiding principles to execute the project.

1.8.1.2 Recruitment of Human Resources

The project will recruit human resources, as per the requirement, following the recruitment procedures of the Government of Odisha. Selection and recruitment of human resources will take place at all the levels of the project, based on the structural arrangement for implementation of the project. Some officials from other line departments may be hired on deputation basis to render their expertise to meet the project requirements.

1.8.1.3 Orientation of Human Resources

Newly recruited professionals / staff will be oriented on project idea, its components, key activities of the project, implementation strategy, collaboration mechanism, delivery instruments (institutional structure) and overall outcome of the project. Different thematic experts will orient the project personnel on different project components / sub-components. Administrative arrangements for the execution of the project, like reporting mechanism, financial accounting etc. will also be discussed with the newly recruited personnel.

1.8.1.4 Placement of Human Resources

The recruited personnel, after orientation, will be placed at different levels, as per the requirement and based on the project structure. The implementation structure will be equipped with human resources to deliver the services as per the project plan.

1.8.1.5 Preparation of DPR

The project will prepare a Detail Project Report (DPR) covering technical dimensions to improve irrigation facility and bringing in irrigation efficiency in the tank command. Detail project report will be prepared for each tank (initially 30 percent tanks to be taken up in Phase I) to be taken up under the project in selected districts.

1.8.1.6 Conducting Baseline Study

In the preparatory phase, baseline study will be conducted in sample villages in the tank command (villages identified and finalised based on the tanks). All the objective level indicators (PDO level) and intermediate indicators will be assessed and mapped in the baseline. The project log-frame will be finalised accordingly with achievable milestones under each component / sub-component.

1.8.1.7 Irrigation and Agriculture Planning (IAP)

Apart from DPR, the project envisages to prepare tank specific Irrigation and Agriculture Plan (IAP) in each project tank / cascade level to have desired outcomes from the intervention. The perspective plan will specify key intervention areas, within the overall intervention framework and strategic partnership for execution. It is assumed that need of different tank command villages may be different and a common implementation plan with equal distribution of activities across the project area may not yield desired result. Secondly, all the framed activities may not be equally desirable in all the project tank command. Hence, based on the needs, some activities may be focused more in certain areas and this

perspective can be captured in a localized / decentralized planning process. The IAP will be prepared in all the project tanks with the participation of local community and institutions / organizations / entities. Detail plan of action of the project by district and sub-district will be prepared and finalized, consolidating the tank specific plans.

1.8.1.8 Finalization of Institutional Collaboration Mechanism

Different stakeholders will be associated in the project in different phases of implementation and / or specific to different activities framed under the project. Some institutions / entities will be involved for the entire project period. The collaboration mechanism by project delivery areas will be finalized in the preparatory phase. Memorandum of Understanding will be signed with the identified and selected institutions / organizations / entities, specifying their areas of collaboration and contribution to the project. Some institutions / organizations are expected to be associated for specific activity / sub-component of the project. Collaboration mechanism with such organizations / institutions will be finalized in the later stage, as per the requirement.

1.8.2 Implementation Phase

All the major activities planned in the project, under different components / sub-components, will be taken up during this phase of the intervention. List of activities to be taken up during the implementation phase by project components are presented in Table 5.

Table 5: Broad Activities to be Implemented in Implementation Phase

Com. 1 (Sub-Com. 1.1)	Com. 1 (Sub-Com. 1.2)	Com. 1 (Sub-Com. 1.3)	Com. 2 (Sub-Com. 2.1)	Com. 2 (Sub-Com. 2.2)	Com. C	Com. D
Certified Seed Production; Alternate Energy Systems for Agriculture; Promoting Adaptive Sustainable Agriculture Practices; Farm Mechanization; Area Expansion Under Horticulture; Soil Health Management; Promoting Micro Irrigation; Protected Cultivation;	Crop Diversification & Demonstration; Post-Harvest Management & Agri-Business (Agriculture); Establishment of Storage Structures; Post-Harvest Management-Value Addition (Horticultural Crops);	Fish Seed Production; Fish Feed Production; Fish Production Processing and Value Addition in Fishery	Tank System Improvement; Improvement in Irrigation Coverage;	Institution Strengthening; Water Productivity & Efficiency.	Promotion of New Institutions (FPO / PFCS); Capacity Building of Community Institutions / Stakeholders	Establishment of SPMU / Sub-SPU / DLPMT Establishment of Project MIS Monitoring and Evaluation Documentation of Project Learning

1.8.3 Consolidation Phase

All the project activities will be consolidated in this phase, clearing the backlogs, if any, and to conduct the final project evaluation.

1.9 Approach and Methodology

The social assessment was conducted in a consultative and participatory manner. Consultations were conducted with different stakeholders and subject experts. Similarly, during the field visits, primary stakeholders i.e. farmers of different holding categories including small and marginal farmers (men and women), fisher folk, tribal communities, government department officials, PP members, local CBOs / NGOs and other service providers etc. were consulted. Their views and concerns have been incorporated in this document.

The methodology consisted of participatory consultations, secondary data collection and analysis to illustrate the existing social status, preparing respective management plans including screening mechanism for the proposed interventions, defining monitoring indicators, preparing plan for capacity building of stakeholders and the budget of the SMF. Secondary data sources mainly consisted of reports, statistics including census information and online publications of the Government of India and the Government of Odisha.

Primary data collection consisted of field visit to sample villages in the tank command / project villages and discussion with different stakeholders. Similarly, interaction with the farmers, fishers, local CBOs / NGOs etc. in sample project villages was done to understand the situation. Finally, the stakeholder consultations were conducted in the project area in the selected villages to document concerns of the primary stakeholders, with reference to the project.

1.9.1 Desk Review of Relevant Documents

A detailed and in-depth review of existing information on the project and the project area was undertaken, covering:

- Social baseline of the project districts;
- Central & state level legal and regulatory framework;
- World Bank operational safeguard policies;
- Secondary data sources of the Government of India and the Government of Odisha.

1.9.2 Field Assessment

To understand the expected project risks and people's perception on the project and its activities, field assessment was conducted to sample tanks, covering all agroclimatic zones wherein the project area lies. The field visit also covered schedule V area, an area with concentration of tribal population. Field assessment was conducted in seven project districts out of proposed 15 project districts, covering each agroclimatic zone where the project falls (one project district from each agroclimatic zone). In each sample district, sample project tanks were visited and stakeholders were consulted on potential social impacts. The assessment included visit to local community in the tank command (sample tank) and discussion with different category of stakeholders (small and marginal, medium and large farmers, women farmers, tribal farmers, tribal groups etc.), consultation with different stakeholders at the district and sub-district level, consultation with the local PP, local Farmer Producer Organisations (FPOs) and other community groups, etc.

1.9.3 Stakeholder Consultations

As discussed earlier, consultations were carried out with farmers of different holding categories and social groups, local service providers, state and district level line departments and agencies, extension institutions (for example, ATMA and Krishi Vigyan Kendra), etc. An example of consultation framework is presented below.

Table 6: Stakeholders Covered in Different Project Locations

Stakeholders
Community Level
Small & Marginal Farmers
Medium/Large Farmers
Women Farmers
Tribal Farmers / tribal women
Fishers / women fishers
WUA / PP
FPO / FPC
Local CBO / NGO
Service Providers: District Level
Local Extension Service Providers
Officials of Agriculture Dept.
Officials of Horticulture Dept.
Officials of Fishery Dept.
Officials of Animal Husbandry Dept.
Officials of Irrigation/Minor Irrigation / OLIC Dept.
Institutions at State Level
State pollution Control Board
Dept. of Water Resources
Agriculture & Farmers Welfare Dept. and PSUs
Fishery and Animal Husbandry Dept. and PSUs
State Agriculture University
CIFA / CIFRI & Related Institutions
Agri-Marketing Dept.

The Social Assessment (SA) process began with the screening and identification of social issues and stakeholders and communities, including socially and economically disadvantaged communities, for each project activity. The SA focused on (a) Identification of key social issues associated with the proposed project activities and specifying the social development outcomes; and (b) preparing a management framework based on available information of the project area.

Table 7: Social Assessment and Management Plan

Assessment Aspects	Particulars	Methodology
Social Assessment along with Social Management Framework	Demographic Composition such as Household size, Male Female Ratio, Occupational Structure, Livelihood opportunities and threats, migration behaviour. Social institutions, type of prevailing network within the Community. Socio Political Environment as development goals, priorities, commitment to project objectives, control over resources, experience, and relationship with other stakeholder groups Socio-cultural Environment Expected positive and adverse impact of the Project;	Review of Literature on Social Aspects; Focus Group Discussion at Community Level; Stakeholder Consultations; PRA techniques as and when required.

	Mitigation measures / plan for adverse impact of the project, if any	
Resettlement Policy Framework (RPF)	<p>Assessment of land requirement for the framed activities and possible acquisition requirement;</p> <p>Assessment of the project related individual loss of properties if any in the project area and any displacement / evacuation</p> <p>Management plan for rehabilitation and resettlement;</p> <p>Fixing up the mitigation / compensation criteria as per the government acts / policies of the Central and State government.</p>	<p>Review of Literature on Social Aspects;</p> <p>Focus Group Discussion at Community Level;</p> <p>Stakeholder Consultations</p>
Tribal People's Planning Framework (TPPF)	<p>Assessment of expected benefit and expected adverse impact of the project;</p> <p>Assessment of the expectations of the tribal people from the project;</p> <p>Preparation of indigenous people's plan / tribal people's planning framework to ensure the project benefits to tribal people.</p>	<p>Review of Literature on Social Aspects;</p> <p>Focus Group Discussion at Community Level;</p> <p>Stakeholder Consultations.</p>
Gender Action Plans (GAPs)	<p>Assessment of the expected project benefits and adverse impact, if any on women, in particular;</p> <p>Preparing Gender Action Plan (GAP) in project component / sub-component to ensure equal participation and opportunity for both the Sex with special focus on Women.</p>	<p>Review of Literature on Social Aspects;</p> <p>Focus Group Discussion at Community Level;</p> <p>Stakeholder Consultations.</p>

1.9.4 Broad Areas of Assessment and Analysis

Different social aspects that were covered under Social Assessment (SA) are (1) demographic composition and share of women, (2) tribal population in project districts / scheduled areas, (3) women in agricultural activities / other engagements, (4) PP and their involvement, (5) FPO and their current role, (6) wage and women engagement, (7) socio-economic scenario, (8) decision making process etc.

1.9.5 Sampling Frame

Agro-Climatic Zone: The project will cover a total of 538 minor irrigation projects (tanks) under OIIPCR for rehabilitation and system automation. The project is proposed to be implemented in 7 agro-climatic zones (ACZs) out of total 10 ACZ of the state. Of the total minor irrigation projects, 0.56 percent are in eastern ghat high land, 46.65 percent in East & South Eastern Coastal Plain, 29.0 percent are in North Central Plateau, 4.46 percent in North Eastern Coastal Plain, 1.67 percent in North Eastern Ghat, 10.59 percent in Western Central Table Land and remaining 7.06 percent in Western Central Table Land.

Scheduled Area: Of the total 538 minor irrigation projects, the assessment for SMF covered 10 tanks, covering all seven agro-climatic zones where the project is planned to be executed. The overall sample covered under the project for social assessment is given below. Apart from coverage of all ACZs (ACZs where project tanks fall), the assessment also covered fifth scheduled areas (districts / blocks)⁴ namely Nabarangpur, Mayurbhanj, Keonjhar, Kandhamal and Gajapati.

⁴As per the Constitutional provision under Article 244 (1) of the Constitution of India, the 'Scheduled Areas' are defined as 'such areas as the President may by order declare to be Scheduled Areas' – as per paragraph 6(1) of the Fifth Schedule of the

District, Block and GP Coverage: The assessment covered a total of 7 districts and one sample tank selected from each sample district. The assessment covered both scheduled and non-scheduled districts.

Table 8: Sample Frame for ESMF Study

Agro-Climatic Zone	Project District	Sample District	District Category
Eastern Ghat High Land	Nabarangpur	Nabarangpur	Scheduled V
East & South Eastern Coastal Plain	Ganjam	Ganjam	Not Scheduled
North Central Plateau	Keonjhar, Mayurbhanj	Mayurbhanj	Scheduled V
North Eastern Coastal Plain	Balasore, Bhadrak, Jajpur	Jajpur	Partly Scheduled
North Eastern Ghat	Gajapati, Kandhamal	Kandhamal	Scheduled V
Western Central Table Land 1	Balangir, Bargarh, Boudh & Subarnapur	Boudh	Not Scheduled
Western Central Table Land 2	Kalahandi & Nuapada	Kalahandi	Partly Scheduled

The sample tanks were selected based on the different parameters such as (1) ayacut area, (2) project type (minor / medium), (3) 5th schedule / unscheduled area etc. following **Stratified Random Sampling** procedure. The tanks were grouped in to four strata based on its ayacut area, i.e., (1) small projects with ayacut of <= 100 acres, (2) medium projects with ayacut 100 to 500 acres, (3) medium-large with ayacut from 500 to 1000 acres and (4) large projects with ayacut area of > 1000 acres. The tanks were selected from each category, representing each agroclimatic zone.

Table 9: Tank wise sample coverage

SL No	MIP	PP	FPO	SHG	Fisher	Fertilizer/ Pesticide	DFO / CCF	CD A	ITDA	Hatchery
1	Dhandamunda MIP, Nabarangpur	1		1	1	1				
2	Jallibandha MIP, Ganjam			1		1	1			1
3	Talakholaighai, Mohanpur MIP, Ganjam			1				1		
4	Bisipur MIP, Mayurbhanj	1		1	1	2	1		1	
5	Khaibandha MIP, Balasore	1		1	1					1
6	Cradigappa MIP, Kandhamal	1		1			1		1	
7	Dandrabahal MIP, Bolangir	1	1	1	1	2				1
8	Jamunasagar MIP, Kalahandi	1		1	1	1				
9	Ghodahada Irri. Project, Ganjam	1		1	1	1				
10	Kalo Irri. Project, Mayurbhanj	1		1	2	1				
11	Upper Suktel Irri. Project, Bolangir	1		1	1	2				
	Total	9	1	11	9	11	3	1		3

PP= Pani Panchayat; FPO= Farmer Producer Organization; DFO= District Forest Officer, Brahmapur; CCF= Chief Conservator of Forest, Simlipal; CDA= Chilika Development Authority, Chilka.

In the absence of PP and FPO of respective tank, consultation was carried out with local farmer group and the opinion of local people practicing pisciculture in domestic tank was considered in case of non-availability of fisherfolk.

Table 10: Stakeholders wise Adopted Study Tools

Stakeholders	Adopted Study Tools/ Methodology
Pani Panchayat (PP)	FGD
Farmers Producer Organization (FPO)	FGD
Self Help Group (SHG)	FGD

Constitution of India. The specification of “Scheduled Areas” in relation to a State is by a notified order of the President, after consultation with the Governor of that State.

Fisher folk	FGD
Government Departments	Consultation

FGD= Focus Group Discussion, KII= Key Informants Interview, CCF= Chief Conservator of Forest

1.9.6 Study Tools / Instruments

Different tools / instruments were designed and used for collection of data / information from both primary and secondary level. There would be two different types of tools i.e. **Structured tools** for quantitative data (secondary sources) and **semi-structured tools** for qualitative interactions / consultation with other stakeholders / service providers (Government officials, PRI members, SHG leaders, federation leaders, PP Members / Office Bearers etc.). The broad tools to be developed and administered are as follows.

1.9.6.1 Secondary Information Checklist:

It is a checklist (partly close ended) to collect and record secondary information related to study / assessment aspects. This is a **semi-structured** checklist designed to collect different secondary information available at the project end and at different other sources for analysis. This checklist used for capturing secondary information related to project aspects.

1.9.6.2 Interview Checklist:

Semi-structured interview checklist was used to capture responses of different categories of respondent i.e. (1) Government officials at State, District & Block level (2) State Agricultural Universities (3) Other Government Institutions (4) PP members and functionaries (5) Community Organisations / Institutions etc.

1.9.6.3 FGD Checklist:

For group level consultations, a semi-structured FGD checklist tool was used for interaction with community and community organisations (CBOs) like PPs, Women SHGs, ground water users, fisher folk etc.

Consultation with stakeholders was taken up in two phases. In Phase-I, consultations were taken up prior to the preparation of SMF with the objective of assessing the possible adverse impact of the project on corresponding areas and to understand the opinion of different stakeholders on different project components. Phase II consultations were organized after the preparation of SMF to share the project strategies and actions to mitigate the identified adverse impacts and seeking opinion of the stakeholders on its adequacy and any modifications that are required in the designed framework. A stakeholder consultation workshop was organized to share the SMF and receive feedback from different concerns. The workshops were organized at the state level and key suggestions of the stakeholders were recorded and applicable suggestions were incorporated in the overall framework. Apart from government departmental officials, local community groups, local service providing entities, non-government agencies were also participated in the process. The SMF was finalized incorporating suggestions of different stakeholders rendered in the consultation processes.

Mainly focus group discussion (FGD) based study methodology was adopted at tank command level. FGD was conducted with at least one Pani Panchayat (PP), Fisher Community, Self Help Group (SHG), Farmers Producer Organization (FPO) from sample MI location. Consultation was held with district / block level office of line departments like Irrigation, Agriculture, Fishery, Integrated Tribal Development Agency (ITDA), Food Processing, Horticulture. In addition to these, state level all line departments were also consulted from time to time during the assessment period.

1.9.7 Data Collection and Analysis

Required data were collected from both primary and secondary sources. The secondary sources covered Government publications / reports, different studies / researches conducted by scholars on different project components and information from district level offices of the Government on schematic activities and initiatives. Available secondary data, collected from different sources were analysed to understand the current situation and overall trend. As discussed earlier, primary information was collected from a range of stakeholders from state, district and community level. A detailed discussion was done on different project components with the community to understand their views on the possible adverse impact of the project suggested measures on the local social and environmental conditions. Analysis of secondary data and findings of consultations with various stakeholders are presented in this document.

1.10 Study Team

The study was conducted in different phases comprising different experts. The supporting agency was also involved in the process of assessment. A number of consultation workshops were organized in different locations of the state by the study team members to assess the possible impact of the project. The team also consulted with different agriculture scientists, agriculture university and officials of partnering departments to assess the expected adverse impact of the project.

1.11 Report Presentation Framework

The findings of the assessment and the management framework is presented in different sections in this report, in the following manner.

Section I: Introduction and Project Overview:

Section one introduces the project and gives an overview on project objectives and activities. This section describes the approach and methodology adopted in the assessment process and key stakeholders consulted during the process.

Section 2: Policy, Acts, Regulations and Safeguards:

Relevant national and state acts and policies, institutional framework and regulations that may apply during the implementation of the project are discussed in this section.

Section 3: Social Baseline:

The demographic situation of the State, land holding pattern, occupation, income, gender aspects and tribal components are discussed in this section to understand the social status of the project state.

Section 4: Stakeholder Consultation:

This section presents key stakeholders consulted and their concerns and expectations from the project in different aspects. This section basically presents people's perception and opinion.

Section 5: Social Management Framework:

Plan to mitigate the expected adverse impact of the project on social aspects, if any, is presented here which are based on the consultation with different stakeholders and analysis of available secondary data.

Section 6: Implementation Plan

The overall plan for implementing SMF and required institutional arrangement and capacity building components are discussed in this section.

Section II: Policies, Acts, Regulations and Safeguards

2.1 Introduction

In this section, some of the policies and legislations of the Government of India and the Government of Odisha are briefly discussed, that will have bearing on the project. This is followed by a brief description of the project relevant development programmes and schemes being implemented by the Government of India and the Government of Odisha. Later, at the end of the section, the World Bank Safeguard Policies are presented.

2.2 Panchayati Raj Act

As per the 73rd constitutional amendment act, 1992, the panchayats as the local self-government are empowered to plan, execute and monitor certain activities as per the activity mapping. As per the status of devolution, 21 subjects of 11 departments have been devolved in the State of Odisha to PR institutions. The act strengthens the decentralized governance system and promotes bottom-up planning. As per the act, the GP level plans are to be prepared in Gram Sabha which is having an important bearing on the planning process of the proposed project. The act is having both mandatory and discretionary provisions and of the mandatory provisions of the Panchayati Raj Act, the most critical are those that strengthen the structure of representative democracy and political representation at the local level. To ensure inclusion, mandatory reservations have been provided for women, scheduled castes and scheduled tribes.

1. The establishment in every state (except those with populations below 2 million) of rural local bodies (panchayats) at the village, intermediate and district levels (Article 243B)
2. Direct elections to all seats in the panchayats at all levels (Article 243C)
3. Compulsory elections to panchayats every five years with the elections being held before the end of the term of the incumbent panchayat in the event that a panchayat is dissolved prematurely, elections must be held within six months, with the newly elected members serving out the remainder of the five-year term (Article 243E)
4. Mandatory reservation of seats in all panchayats at all levels for Davits and Advises in proportion to their share of the panchayat population (Article 243D)
5. Mandatory reservation of one-third of all seats in all panchayats at all levels for women, with the reservation for women applying to the seats reserved for Davits and Advises as well (Article 243D)
6. Indirect elections to the position of panchayat chairperson at the intermediate and district levels (Article 243C)
7. Mandatory reservation of the position of panchayat chairperson at all levels for Davits and Advises in proportion to their share in the state population (Article 243D)
8. Mandatory reservation of one-third of the positions of panchayat chairperson at all three levels for women (Article 243D)
9. In addition, the act mandates the constitution of two state-level commissions: an independent election commission to supervise and manage elections to local bodies, much as the Election Commission of India manages state assembly and parliamentary elections (Article 243K); and a state finance commission, established every five years, to review the financial position of local bodies and recommend the principles that should govern the allocation of funds and taxation authority to local bodies (Article 243I).

The Article 243ZD, mandates the constitution of District Planning Committees to consolidate the plans prepared by both rural and urban local bodies. In order to facilitate. This is an essential pre-requisite for each tier of the Panchayati Raj system to prepare plans for its areas, as defined through Activity

Mapping, and then for all these plans, along with plans of municipalities, to be "consolidated" by the District Planning Committees (DPC) as mandated by Article 243 ZD of the Constitution.

2.3 Panchayats (Extension to the Scheduled Areas) Act, 1996

To mainstream the tribal in the development process, without disturbing or destroying their cultural identity and socio-economic milieu, the Parliament extended the provisions of 73rd Amendment Act to the Scheduled Areas by passing Provisions of Panchayats (Extension to the Scheduled Areas) Act, 1996. The Panchayat (Extension to the Scheduled Areas) Act, 1996, commonly known as PESA, legally recognizes Scheduled Tribe's own systems of self-governance. The Gram Sabha of the village becomes the focal institution, endowed with significant powers. Under section 4(d) of PESA: "every Gram Sabha shall be competent to safeguard and preserve the traditions and customs of the people, their cultural identity, community resources and the customary mode of dispute resolution." PESA legally recognizes the right of tribal communities to govern themselves through their own systems of self-government and also acknowledges their traditional rights over natural resources. The salient features of the Panchayats (Extension to the Scheduled Areas) Act include the following:

1. Legislation on Panchayats shall be in conformity with the customary law, social and religious practices and traditional management practices of community resources;
2. Habitation or a group of habitations or a hamlet or a group of hamlets comprising a community and managing its affairs in accordance with traditions and customs; and shall have a separate Gram Sabha.
3. Every Gram Sabha to safeguard and preserve the traditions and customs of people, their cultural identity, community resources and the customary mode of dispute resolution.
4. The Gram Sabhas have roles and responsibilities in approving all development works in the village, identify beneficiaries, issue certificates of utilization of funds; powers to control institutions and functionaries in all social sectors and local plans.
5. Gram Sabhas or Panchayats at appropriate level shall also have powers to manage minor water bodies; power of mandatory consultation in matters of land acquisition; resettlement and rehabilitation and prospecting licenses/mining leases for minor minerals; power to prevent alienation of land and restore alienated land; regulate and restrict sale/consumption of liquor; manage village markets, control money lending to STs; and ownership of minor forest produce.
6. The provisions of Panchayats with certain modifications and exceptions have been extended to the Schedule V areas.

In line with the PESA Act, the Government of Odisha has formulated rules for the Panchayats (Extension to Scheduled Areas) Act, 1996

To further provide regional autonomy, protect the interests of the tribes and improve their status, certain areas of the State have been declared as the Scheduled Areas; these areas are usually populated predominantly by tribes. There are exclusive provisions under 5th schedule of the constitution which are;

1. The Governor of the state has been entrusted with special responsibilities in the administration of the Scheduled Areas in the state. The governor has been vested with legislative powers.
2. He/she is required to prepare a special report annually, or whenever required and submit to the President regarding the administration of the Scheduled Areas. [Section 3 of Schedule V].
3. The Union Government can issue appropriate directives to the State Governments as to the administration of the Scheduled Areas.

4. This Schedule also provides for constitution of the Tribes Advisory Council to advice on such matter pertaining to the welfare and advancement of the Schedule Tribes as may be referred to them by the Governor [S 4(2)].
5. The Governor may make rules regarding the number of members of the Tribes Advisory Council, its conduct, meeting and other incidental matters [S4 (2)].
6. The Governor may further direct, by public notification, that a particular Act of the Parliament or of the State Legislature shall not apply to a Scheduled Areas or to its parts with such exceptions as may be directed [S 5(1)].
7. The Governor may make Regulations for peace and good governance in the Scheduled Areas by which she/he may, among other things, prohibit or restrict the transfer of land by the members of the Schedule Tribes amongst themselves; regulate the allotment of land to members of the tribes in such areas; and regulate the business as moneylender by persons who lend money to members of the Scheduled Tribes, etc., [S 5(2)]. While making such regulations the Governor may, in consultation with the Tribes Advisory Council, repeal or amend any Act of parliament or of the Legislature of the State or any existing law which is for the time being applicable to the area in question [S 5(3)]. The Governor shall submit all regulation, which applies to such Scheduled Areas forthwith to the President, and these shall be effective only with the assent of the president [S 5 (4)].

2.4 Odisha Pani Panchayat Act:

High dependency on agriculture in the state demands efficient and equitable supply and distribution of water and its optimal utilisation. It is also required scientific and systematic development and maintenance of irrigation infrastructure by which water will be made available to the farmers. It is realized that decentralized system of operation and management of irrigation structures and water distribution networks will yield better result where farmers will participate and take up the ownership of irrigation systems at their field level. Participatory Irrigation Management (PIM) was conceived as the vehicle to improve water distribution mechanism and attending water use efficiency along with maintenance of the structures. It was planned to promote farmers organisations, in shape of Pani Panchayat, who will take up required responsibility for water distribution, management and maintenance of the irrigation structures. In this context, the Orissa Pani Panchayat Act, 2002, was enacted to ensure participation of the farmers' / water users in the management of irrigation systems and for matters connected therewith or incidental thereto (The Orissa Gazette, No.1053, 8 July, Cuttack: 2002).

The object of the PP is “to promote and secure distribution of water among its users, adequate maintenance of the irrigation system, efficient and economical utilisation of water to optimise agricultural production, to protect the environment, and to ensure ecological balance by involving the farmers, inculcating a sense of ownership of the irrigation system in accordance with the water budget and the operational plan”.

Operational Jurisdiction of the PP: Area of operation, in relation to PP means a contiguous patch of land in the commanded area of an irrigation system, which is notified for the purposes as per the provisions of the OPP Act, 2002. The act stipulates that the Superintending Engineer (SE) of an irrigation project may, by notification and in accordance with the rules made under the Act, delineate every command area under each of the irrigation systems on a hydraulic basis ordinarily between 300 to 600 hectares which may be considered administratively viable; and

declare it to be the area of a Pani Panchayat⁵. Every Pani Panchayat's area shall be comprised of several *Chaks* which shall, as far as possible, cover the area irrigated by one outlet. As per the act, the number of *Chaks* shall not be less than four or as may be specified by the concerned Superintending Engineer⁶. The PP Rule, 2003 specifies that the PPP area may be less than 300 hectares but shall not be less than 40 hectares in case of Minor Irrigation Flow Project. Further, the Pani Panchayat area shall avoid critical patches such as hills, rocks, sand dunes etc.

Membership in the PP: On constitution of PP, the act stipulates that all the water users who are land holders in the area of a Pani Panchayat would be the member of the PP and will constitute the General Body of the PP⁷. The OPPA (amended), 2008, has made a provision by which fishermen of that area may be admitted as member of the PP where the area of any PP comes under a minor irrigation system. However, Government may, by notification, nominate at-least one officer each from Department of Water Resources, Department of Agriculture and Farmers Empowerment, Department of Revenue & DM to be members of the Pani Panchayat without having voting right.

Functions of the PP: The PP will take up different functions, keeping the interest of the members in its core and in sustainable and environment friendly manner. The PP rule, 2003 stipulates certain functions of the PP adhering to the overall objective of the formation of PP as per OPPA, 2002. The functions of the PP would be;

1. Functioning in a democratic manner through consensus respecting the rights and duties of all members;
2. Make PP a viable, vibrant and functioning entity;
3. Emphasize in making water available to the tail end areas;
4. Ensure collection of dues and make prudent investment of their resources;
5. Utilize their assets in a manner that is essential, productive, beneficial and sustainable;
6. Working in close coordinate with Government departments and its agencies;
7. Maintaining the distribution system for sustainable water resources management and development;
8. Ensuring dissemination of information;
9. Build up a reliable database of the farmers, fishers, landless and other households;
10. Adopting effective soil and water conservation techniques with the guidance of departmental agencies in the areas of high water requirement like cropped areas;
11. Following sustainable and effective land use system;
12. Implement agro-forest ecosystem wherever soil erosion is a serious threat;
13. Adopt integrated watershed management system and integrated balanced nutrient management system;
14. Ensuring preservation and protection of hydraulic structures, without any modification unless otherwise approved by an authority vested with such powers;
15. Work towards maintaining and sustaining an ecological balance and prevent degradation of the environment particularly soils and quality of water;
16. Becoming a sustainable institution through a process of capacity building, skill up gradation and recovery of costs, wherever necessary; and
17. Devising suitable cropping programme every season in order to optimize productivity and production consistent with the availability of water supply;

⁵ In respect of the commanded area under lift irrigation systems, the entire commanded area may, as far as possible, form a single area of Pani Panchayat and may be notified as such by the concerned Executive Engineer of Orissa Lift Irrigation Corporation (OLIC).

⁶ In case of lift irrigation points, there is no necessity of formation of any chak for constituting a Pani Panchayat having a commanded area of less than 40 hectares.

⁷ A land holder may nominate any adult member of his/her family to be the member of the PP. A minor landholder shall be represented by his/her legal guardian.

Constitution of PP:

Chak Committee (CC): All the land holders in a Chak will elect three members to form a Chak Committee (CC) in such a way that there shall be one member from the upper reach, one from the middle and one from the lower reach within the Chak. They will also simultaneously elect one among those three to represent the Chak in the Executive Committee of the Pani Panchayat⁸. A person is eligible to become a member of more than one Chak Committee of a Pani Panchayat, based on the land holding in different Chak, but he can represent to the executive committee as member of only one Chak.

General Body (GB): All the water users who are land holders in the area of PP, including fishermen, shall constitute the GB of the PP and shall have the right to vote. Any land holder may nominate any adult member of his/her family to be the member of PP. Government may, by notification, nominate at least one officer each from Department of Water Resources, Department of Agriculture and Farmers Empowerment, Department of Revenue to be members of the PP without having the right to vote.

Managing Committee (MC): For smooth and effective governance of the PP, the act has the provision of constituting executive committee. There shall be an Executive Committee for each Pani Panchayat consisting of the representatives of the Chaks elected by the land holders of each Chak⁹ and the fishermen following appropriate methods of selection like secret ballot / election / nomination. The Executive Committee shall exercise the powers and perform the functions of the Pani Panchayat. The Executive Committee shall elect one Secretary and one Treasurer in the manner as may be prescribed from among the members of the EC to assist its President. Government may, by notification, nominate one officer not below the rank of Junior Engineer of the Department of Water Resources and another officer not below the rank of Junior Agriculture Officer of the Department of Agriculture and farmers empowerment without having the right to vote, to be the permanent invitees to the meetings of the Executive Committee.

Sub-Committees: The General Body of a PP shall have three sub-committees, i.e., (a) Finance and Resource sub-committee (b) Works sub-committee and (c) Water Management sub-committee. Each sub-committee shall have one Convener (Secretary of the Executive Committee as convener) and four members drawn from members of the Chak Committees.

PP and Their Involvement in the Project:

The OPPA, 2002 and OPRP, 2003 created a legal entity, the Pani Panchayat for all irrigation systems in the state. The Act entitles the PP to operate and maintain the irrigation system by involving all the farmers, fishers and others who are its members. Consequently, the primary responsibility for the management of the irrigation networks and tank (minor) lies with the PP. Therefore, it is imperative that the project will be implemented, involving the PPs for effective restoration of the tank, water distribution, irrigation and crop planning and for its sustainable management.

Association of PPs in the project is evident where tanks are the focus and project intend to improve the irrigation scenario in the tank command. The PP is expected to perform different roles, as per the OPPA, 2002 and OPRP, 2003, so that irrigation situation in the tank command improves and the water users get benefit. At the same time, the PPs will also be strengthened in the process. So, PPs are considered to be the vehicle of change and a catalytic force, in the shape of community organization, to ensure effective execution of project components / sub-components.

⁸ In case of lift irrigation points, the members of the executive committee of a PP shall be elected by the members of the general body of the said PP.

⁹ In case of lift irrigation points, the number of members of the executive committee shall not be less than four or more than ten.

Sustainable restoration of the tank requires not only the co-operation of the farmers in the tank command who have been availing the benefit of tank irrigation but also farmers who have using utilizing ground water in different cropping seasons and the fishermen who have traditional rights of fishing in the tank. Existing fishermen will continue the practice of fishing in the project tanks as per the decisions taken by the PP in its general body and executive body meetings. Wherever there are no fishermen, the PP will have option to auction the fishing rights to any group of people in consensus with the PP general body. The PP will also facilitate in imparting necessary training to the fishermen to improve their livelihood. Key activities to be performed by the PPs, within the scope of the project are;

Project Planning: Addressing to the actual need of the farmers / members of the PP is key to the successful implementation of the project. In this regard, the project will adopt a participatory planning process in the tank command. Through the planning process, Integrated Irrigation and Agriculture Plan (IAP) will be prepared, in association with the PP at the tank / cascade level. The IAP will include activities of all the three components of the project (Component 1, 2 and 3) including the PP Institution Development and Capacity Building aspects. In the planning process, the PP along with the facilitating entities will ensure that the marginal and small farmers, tribal families, women farmers, fisher folk and other vulnerable families have access to project benefits.

Water Budgeting and Crop Planning: Based on the availability of water, taking in to account both surface the ground water, crop plan is to be prepared by the PP. The PP has to facilitate the planning process during the onset of agricultural seasons (Kharif, Rabi, Summer). The Chak Committee (CC) member and farmers of each CC has to discuss and plan the crops based on the availability of water. A basic contingency plan will also be prepared to address any weather off-set.

Implementation: In the context of the project, after the preparation of the plan and its approval by the PP general body, the concerned project authority at the district / sub-district level will enter into an agreement with each PP for the implementation of the planned activities. Works, as approved by the EC of the PP, shall be taken up for execution by the PP itself, within the limit of the approved budget.

Working with Partner Institutions: The PP and its sub-committees would work hand in hand with partner institutions that are associated in the execution of the project.

Mobilizing Beneficiary Contribution: The project strategy explicitly states that, there should be an element of beneficiary contribution in cash or kind or both. The rationale for this strategy is that cost sharing will inculcate a sense of ownership and will form the basis of longer-term sustainability. The PPs will mobilize beneficiary contribution (cash or kind or both as per the decision of the PP) during the life of the project. This amount will be deposited in the PP bank account and it can be used for the purpose of O&M after the completion of the project period.

O&M of Tank System: The PPs will take up operation and maintenance of irrigation system on a regular basis that are costing up to Rs. 5.0 Lakh or as per the limit prescribed by the Government from time to time. The works shall be executed by the PPs under the supervision of the Water Resources Department at the rate not exceeding the estimated rates. The O&M activities to be taken up by the PPs includes (a) desilting (feeder channels, irrigation channels and tank bed), (b) weed removal, (c) embankment repair, (d) revetment, if necessary, (e) repairing of shutters, masonry and lining etc.

Water Distribution and Management: As per the OPPA, 2002 and OPPR, 2003; water distribution at the farm field level is the most important work that needs to be planned and managed efficiently by the PP. In the project, it is proposed to strengthen the PPs with adequate capacity to deal with water distribution and its efficient management. Based on the water available in the system, the water management sub-committee shall prepare the water distribution plan in accordance with the demand of the farmers (estimated crop water requirement).

Monitoring & Supervision: Monitoring of the project activities will involve verification and checking of physical activities and ensuring that the activities are implemented as per the design and schedule and with the prescribed quality. Since the project emphasizes participatory monitoring, stakeholder will be involved in monitoring. The PPs, while monitoring, will look after the inclusiveness and equity criteria, as build in the project at the planning stage and its adherence during implementation of the project activities.

Transparency & Public Disclosure: The PPs will adopt pro-active disclosure of its activities and financial details by different feasible means like official display, discussion with GB members etc. The PP shall take all required measures for maintaining transparency related to the works taken up and suo-moto disclosure of activity related information.

Settlement of Disputes and Appeal: Any dispute or difference on constitution, management, powers or functions of a PP arising shall be settled as prescribed in the OPPR, 2003. Any such disputes or difference arising in a PP shall be settled by the EC of that PP. Any such disputes or differences arising between water users and the EC of the PP or between two or more PPs shall be determined by the Executive Engineer concerned. Any party to a dispute or difference aggrieved by the decision made or order passed by the EC of a PP may appeal to the Executive Engineer Concerned, whose decision thereon shall be final. Any party to a dispute or difference by the decision made or order passed by the Executive Engineer may appeal to the Superintending Engineer concerned, whose decision thereon shall be final.

2.5 LARR Act, 2013

The Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act, 2013 (also Land Acquisition Act, 2013) is an Act of Indian Parliament that regulates land acquisition and lays down the procedure and rules for granting compensation, rehabilitation and resettlement to the affected persons in India. The Act has provisions to provide fair compensation to those whose land is taken away, brings transparency to the process of acquisition of land to set up factories or buildings, infrastructural projects and assures rehabilitation of those affected. The act has special and exclusive provisions for the tribal families who are to be displaced or affected by any form of land acquisition.

The project activities are planned to be executed without acquisition of any land for project purposes. The infrastructures proposed under different project components will utilize existing govt. land / land available with the GP which are free from encroachment / squatters and not having any litigation.

2.6 Forest Rights Act, 2006

This Act, “Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act”, 2006 grants legal recognition to the rights of traditional forest dwelling communities and makes a beginning towards giving communities and the public a role in forest and wildlife conservation. The Act gives rights to the forest dwellers which secure individual or community tenure or both. The Act gives forest rights of forest dwelling Scheduled Tribes and other traditional forest dwellers on all forest lands, namely:- (a) right to hold and live in the forest land under the individual or common occupation for habitation or for self-cultivation for livelihood by a member or members of a forest dwelling Scheduled Tribe or other traditional forest dwellers; (b) community rights over forest; (c) right of ownership, access to collect, use, and dispose of minor forest produce which has been traditionally collected within or outside village boundaries. The scope of the Act also covers the following rights that are placed on the forest dwelling communities.

1. Community rights of uses or entitlements such as fish and other products of water bodies, grazing (both settled or transhumant) and traditional seasonal resource access of nomadic or pastoralist communities;
2. Community tenures of habitat and habitation for primitive tribal groups and pre- agricultural communities;
3. Rights in or over disputed lands under any nomenclature in any State where claims are disputed;
4. Conversion of leases or grants issued by any local authority or any State Government on forest lands to titles;
5. Settlement and conversion of all forest villages, old habitation un-surveyed villages and other villages in forest, whether recorded, notified, or not, into revenue villages;
6. Protect, regenerate, or conserve or manage any community forest resource, which they have been traditionally protecting and conserving for sustainable use;
7. Rights which are recognised under any State law or laws of any Autonomous District Council or Autonomous Regional Council or which are accepted as rights of tribals under any traditional or customary law of concerned tribes of any State;
8. Access to biodiversity and community right to intellectual property and traditional knowledge related to biodiversity and cultural diversity;
9. Any other traditional right customarily enjoyed by the forest dwelling Scheduled Tribes or other traditional forest dwellers, as the case may be, which are not mentioned in clauses (a) to (k) but excluding the traditional right of hunting or trapping or extracting a part of the body of any species of wild animal;
10. In-situ rehabilitation, including alternative land in cases where the Scheduled Tribes and other traditional forest dwellers have been illegally evicted or displaced from forest land of any description without receiving their legal entitlement or rehabilitation prior to the 13th of December 2005.

The project is not expected to take any such measure that may affect the basic interest of the forest dwellers, contrary to the prescription of the Act. Rather, the implementation of the project will create scope for the forest dwellers, who have been allotted rights over the forest land for agriculture. They may take up climate resilient agricultural practices in their fields to cope with the climate variability for improved livelihoods security. The project suggested measures are supportive to the act and can add value to the current initiatives in terms of improving livelihood and food security of the forest dwellers.

2.7 Constitutional Safeguard for Tribals

2.7.1 Constitutional Definition of Scheduled Tribes

"Scheduled Tribes" means such tribes or tribal communities or parts of or groups within such tribes or tribal communities as are deemed under article 342 to be Scheduled Tribes for the purposes of the Constitution. As it is stipulated in the constitution, the President (President of India) may with respect to any State or Union Territory, and where it is a State, after consultation with the Governor thereof, by public notification, specify the tribes, or tribal communities or parts of or groups within tribes or tribal communities which shall for the purposes of this Constitution be deemed to be Scheduled Tribes in relation to that State or Union Territory, as the case may be. With regard to inclusion or exclusion, Parliament may by law include in or exclude from the list of Scheduled Tribes specified in a notification, any tribe or tribal community or part of or group within any tribe or tribal community.

2.7.2 Educational, Economic and Public Employment-related Safeguards

2.7.2.1 Prohibition of Discrimination

As per this provision, the State shall not discriminate against any citizen on grounds only of religion, race, caste, sex, place of birth or any of them. Other provisions are;

1. No citizen shall, on grounds only of religion, race, caste, sex, place of birth or any of them, be subject to any disability, liability, restriction or condition with regard to (a.) access to shops, public restaurants, hotels and places of public entertainment; or (b.) the use of wells, tanks, bathing ghats, roads and places of public resort maintained wholly or partly out of State funds or dedicated to the use of general public.
2. Nothing (clause (2) of article 29) shall prevent the State from making any special provision for the advancement of any socially and educationally backward classes of citizens or for the Scheduled Castes and the Scheduled Tribes.
3. Nothing (sub-clause (g) of clause (1) of article 19) shall prevent the State from making any special provision, by law, for the advancement of any socially and educationally backward classes of citizens or for the Scheduled Castes or the Scheduled Tribes in so far as such special provisions relate to their admission to educational institutions including private educational institutions, whether aided or unaided by the State, other than the minority educational institutions referred to in clause (1) of article 30.

2.7.2.2 Equality of Opportunity in Matters of Public Employment

There shall be equality of opportunity for all citizens in matters relating to employment or appointment to any office under the State. No citizen shall, on grounds only of religion, race, caste, sex, descent, place of birth, residence or any of them, be ineligible for, or discriminated against in respect of, any employment or office under the State. The Central and State Government can make provision for the reservation of appointments or posts in favour of any backward class of citizens which, in the opinion of the Centre/State, is not adequately represented in the services under the State.

2.7.2.3 Protection of Rights

All citizens shall have the right (a) to freedom of speech and expression; (b) to assemble peaceably and without arms; (c) to form associations or unions; (d) to move freely throughout the territory of India; (e) to reside and settle in any part of the territory of India; and (g) to practise any profession, or to carry on any occupation, trade or business.

2.7.2.4 Directive Principles of State Policy

Promotion of Educational and Economic interests of Scheduled Castes, Scheduled Tribes and other weaker sections: The State shall promote with special care the educational and economic interests of the weaker sections of the people, and, in particular, of the Scheduled Castes and the Scheduled Tribes, and shall protect them from social injustice and all forms of exploitation.

2.7.2.5 Special Provisions

Claims of Scheduled Castes and Scheduled Tribes to Services and Posts: The claims of the members of the Scheduled Castes and the Scheduled Tribes shall be taken into consideration, consistently with the maintenance of efficiency of administration, in the making of appointments to services and posts in connection with the affairs of the Union or of a State: Provision in favour of the members of the Scheduled Castes and the Scheduled Tribes can be made for relaxation in qualifying marks in any examination or lowering the standards of evaluation, for reservation in matters of promotion to any class or classes of services or posts in connection with the affairs of the Union or of a State.

2.7.3 Political Safeguards

2.7.3.1 Special Provisions

Reservation of seats for Scheduled Castes and Scheduled Tribes in the House of the People: Seats shall be reserved in the House of the People for Scheduled Castes and Scheduled Tribes. The number of seats reserved in any State or Union territory for the Scheduled Castes or the Scheduled Tribes at the

same proportion to the total number of seats allotted to that State or Union territory in the House of the People as the population of the Scheduled Castes / Tribes in the State or Union territory.

Reservation of seats for Scheduled Castes and Scheduled Tribes in the Legislative Assemblies of the States: Seats shall be reserved for the Scheduled Castes and the Scheduled Tribes in the Legislative Assembly of every State, based on proportion to the total number of seats in the Assembly as the population of the Scheduled Castes and Scheduled Tribes in the State.

Reservation of seats at GPs: Seats shall be reserved for the Scheduled Castes and the Scheduled Tribes in every Panchayat and the number of seats so reserved shall be the same proportion to the total number of seats to be filled by direct election in that Panchayat as the population of the Scheduled Castes or Scheduled Tribes in that Panchayat area to the total population of that area and such seats may be allotted by rotation to different constituencies in a Panchayat. Not less than one-third of the total number of seats reserved shall be reserved for women belonging to the Scheduled Castes or Scheduled Tribes and such seats may be allotted by rotation to different constituencies in a Panchayat.

2.8 The SCs and The STs (Prevention of Atrocities) Act, 1989

The act was passed in 1989 to prevent Scheduled Castes and Scheduled Tribes from atrocities. The act suggests Precautionary and Preventive Measures. under which State Government shall identify the area where it has reason to believe that atrocity may take place or there is an apprehension of reoccurrence of an offence under the Act: The state shall order the concerned officer to visit the identified area and review the law and order situation. If deem necessary, in the identified area cancel the arms licences of the persons, not being member of the Scheduled Castes or Scheduled Tribes, their near relations, servants or employees and family friends and get such arms deposited in the Government Armoury. The act suggests constitution of a high-power State-level committee, district and divisional level committees or such number of other committees as deem proper and necessary for assisting the Government in implementation of the provisions of the Act; The act has made provision to set-up a vigilance and monitoring committee to suggest effective measures to implement the provisions of the Act. The state can set-up Awareness Centres and organise Workshops in the identified area or at some other place to educate the persons belonging to the Scheduled Castes and the Scheduled Tribes about their rights and the protection available to them under the provisions of various Central and State enactments or rules, regulations and schemes framed thereunder. Under the act, Non-Government Organisations are encouraged for establishing and maintaining Awareness Centres and organizing Workshops and provide them necessary financial and other sort of assistance;

As per the provision of the act, the State Government shall set up a Scheduled Castes and the Scheduled Tribes Protection Cell at the State head quarter under the charge of Director General of Police/Inspector General of Police. This Cell shall be responsible for (i) conducting survey of the identified area; (ii) maintaining public order and tranquility in the identified area; (iii) recommending to the State Government for deployment of special police force or establishment of special police post in the identified area; (iv) making investigations about the probable causes leading to an offence under the Act; (v) restoring the feeling of security amongst the members of the Scheduled Castes and the Scheduled Tribes; (vi) informing the nodal officer and special officer about the law and order situation in the identified area; (vii) making enquiries about the investigation and spot inspections conducted by various officers; (viii) making enquiries about the action taken by the Superintendent of Police in the cases where an officer in-charge of the police station has refused to enter an information in a book to be maintained by that police station; (ix) making enquiries about the willful negligence by a public servant;

2.9 Tribal Development and Tribal Sub-Scheme (TSS) Approach

The tribal situation varies by states where some areas have high tribal concentration while in other areas, the tribal form only a small portion of the total population. The Constitution of India provides a comprehensive framework for the socio-economic development of Scheduled Tribes and for preventing their exploitation by other groups of society. A detailed and comprehensive review of the tribal problem was taken on the eve of the Fifth Five Year Plan and the Tribal Sub-Plan strategy took note of the fact that an integrated approach to the tribal problems was necessary in terms of their geographic and demographic concentration. The tribal areas in the country were classified under three broad categories, i.e., (1) category 1: States and Union Territories having a majority Scheduled Tribes population, (2) Category 2: States and Union Territories having substantial tribal population but majority tribal population in particular administrative units, such as block and tehsils, and (3) Category 3: States and Union Territories having dispersed tribal population.

In the light of the above approach, for the second category of States and Union Territories, tribal sub-Plan approach was adopted after delineating areas of tribal concentration. To look after the tribal population coming within the new tribal sub-Plan strategy, in a coordinated manner, Integrated Tribal Development Projects are conceived during Fifth Five Year Plan. During the Sixth Plan, Modified Area Development Approach (MADA) was adopted to cover smaller areas of tribal concentration and during the Seventh Plan, the TSP strategy was extended further to cover even more smaller areas of tribal concentration and thus cluster of tribal concentration was identified. At the time of delineation of project areas under the Tribal Sub-Plan strategy, it was observed that the ITDPs/ITDAs are not co-terminus. Areas declared under Fifth Schedule of the Constitution. The Scheduled Areas as per the Constitutional orders have been declared in eight States and Odisha is one among them. As per the provisions contained in the Fifth Schedule of the Constitution, various enactment in the forms of Acts and Regulations have been promulgated in the states for the welfare of scheduled tribes and their protection from exploitation.

The TSP strategy is having twin objectives, i.e., Socio-economic development of Schedule Tribes and protection of tribal against exploitation, the Govt. of India in Aug., 1976 had decided to make the boundaries of Scheduled Areas co-terminus with TSP areas (ITDP/ITDA only) so that the protective measure available to Scheduled Tribes in Sch. Areas could be uniformly applied to TSP areas for effective implementation of the development programmes in these areas. Accordingly, the TSP areas have been made co-terminus with Scheduled Areas in the State.

2.10 National Policy for Women

In 2016, Government of India in its Ministry of Women and Child Development formulated a draft women policy. The policy was formulated decade after the formulation of National Policy for the Empowerment of Women (2001). The objectives of the policy look at (1) creating a conducive socio-cultural, economic and political environment for women, (2) mainstreaming gender in all-round development processes / programmes, (3) a holistic and life cycle approach to women's health, (4) improving and incentivizing access of women / girls to universal and quality education, (5) improving participation of women in workforce etc. Different priority areas are identified in the policy that are contextually relevant for women, such as (1) health, food security and nutrition, (2) education, (3) economy (includes agricultural activities; poverty reduction; industry, labour and employment, service sector engagement etc.), (4) governance and decision making, (5) violence against women. In the line of National Policy for Women, the Government of Odisha is having a State policy on Women to protect their rights and entitlement.

2.11 National Policy for Farmers 2007

The National Policy for Farmers was formulated in view of the need to focus more on the economic well-being of the farmers, rather than just on production. The policy recognizes the socio-economic well-being of the farmers, besides production and growth. The aim of the Policy is “to stimulate attitudes and actions which should result in assessing agricultural progress in terms of improvement in the income of farm families, not only to meet their consumption requirements but also to enhance their capacity to invest in farm related activities”. The major goals of the National Policy for Farmers, among others, are to:

1. Improve economic viability of farming by substantially increasing the net income of farmers and to ensure that agricultural progress is measured by advances made in this income.
2. Protect and improve land, water, bio-diversity and genetic resources essential for sustained increase in the productivity, profitability and stability of major farming systems by creating an economic stake in conservation.
3. Develop support services including provision for seeds, irrigation, power, machinery and implements, fertilizers and credit at affordable prices in adequate quantity for farmers.
4. Strengthen the bio-security of crops, farm animals, fish and forest trees for safeguarding the livelihood and income security of farmer families and the health and trade security of the nation.
5. Provide appropriate price and trade policy mechanisms to enhance farmers’ income.
6. Provide for suitable risk management measures for adequate and timely compensation to farmers.
7. Mainstream the human and gender dimension in all farm policies and programmes.
8. Pay explicit attention to sustainable rural livelihoods.
9. Foster community-centred food, water and energy security systems in rural India and to ensure nutrition security at the level of every child, woman and man.
10. Develop and introduce a social security system for farmers.
11. Provide appropriate opportunities in adequate measure for non-farm employment for the farm households.

Overall, the policy looks at improving the socio-economic condition of the farmers through various measures, like, (1) reform in asset, i.e., ensuring that every farmer household in villages possesses and/or has access to productive assets like land, livestock, fishpond, homestead farm and/or income through an enterprise and or market driven skills, so that the household income is increased substantially on a sustainable basis; (2) land reforms, with particular reference to tenancy laws, land leasing, distribution of ceiling surplus land and wasteland, providing adequate access to common property and wasteland resources and the consolidation of holdings; (3) availability of water for irrigation and water use efficiency; (4) livestock development etc.

2.12 Agricultural Produce Market Committee Act, 2003

The Agricultural Produce Market Committee Act, 1963 (APMC, 1963) operate on two principles, i.e., (1) to ensure that farmers are not exploited by intermediaries (or money lenders) who compel farmers to sell their produce at the farm gate for an extremely low price; (2) all food produce should first be brought to a market yard and then sold through auction.

The specific objective of market regulation is to ensure that farmers are offered fair prices in a transparent manner. The APMC Act empowers state governments to notify the commodities, and designate markets and market areas where the regulated trade takes place. The Act also provides for the formation of agricultural produce market committees (APMC) that are responsible for the operation of the markets. The entire State is divided and declared as a market area wherein the markets are managed by the Market Committees constituted by the State Governments. Once an area is declared a market

area and falls under the jurisdiction of a Market Committee, no person or agency is allowed freely to carry on wholesale marketing activities.

The Government of Odisha has amended the Agricultural Produce Market Committee Act deregulating sale of vegetables and fruits.

2.13 Odisha FPO Policy:

Recently (in the year 2018), Odisha has formulated its FPO policy which is having the vision “to position Odisha in a sustained growth path and generating higher returns to farming communities by establishment of FPOs in the sector of Agriculture, Horticulture, Fisheries, Dairy, and Animal Husbandry. These Producer Organizations would be facilitated with new technology, infrastructure, knowledge, IT applications, market intelligence & linkage and credit and finance arrangements so that they can ensure availability of end to end services to their members”.

According to the policy, a Farmer Producer Organization (FPO) is typically a society/company consisting of only practicing farmers who are also actual producers of a specified commodity / commodities, and is formed under the Cooperative Societies Act, 1962 or as a Farmers Producer Company (FPC) under Section 581 (C) of the Indian Companies Act, 1956, as amended in 2013. FPOs have generally been recognised as the most appropriate institutional form around which Government can mobilise farmers and build their capacity to collectively leverage their production and marketing strength. These organizations are created at the cluster, block, district or State level depending upon the needs of the producers considering the demand potential to adopt value chain approach to enhance farmers’/producers’ economic and social benefits.

Financial Support:

Government of Odisha will provide financial support in the form of (a) Corpus Fund, (b) Investment Promotion Subsidy, (c) Exemption from Stamp Duty for loan agreements, credit deeds, mortgage and hypothecation deeds, lease deeds, lease-cum-sale and absolute sale deeds etc., (d) concessional registration charges, (e) interest subsidy and (f) equity grant and credit guarantee funds.

Institutional Support by Government of Odisha:

Government of Odisha will provide institutional support in shape of (a) establishing an information and support centre for FPOs at the Directorate of Horticulture under Department of Agriculture and Farmers’ Empowerment in association with other Departments, (b) support for business plan preparation and (c) supporting in preparing bankable project reports, training modules, MIS development, website design and other technical support.

Other supports, as a part of policy framework for FPO promotion covers the followings.

1. Registration of FPOs;
2. Schemes for FPOs which covers ensuring access to and usage of quality inputs and services for intensive agriculture production and enhancing competitiveness, facilitating access to fair and remunerative markets including linking of producer groups to marketing opportunities through market aggregators, storage, processing and distribution;
3. Enabling ecosystem for FPOs, i.e., recognizing FPOs at par with cooperatives/self-help groups/federations/ Corporations for all benefits and facilities that are extended to member-owned institutions, making provisions for easy issue of licenses to FPOs to trade in inputs like seed, fertilizer, farm machinery, pesticides etc. for use of their members as well as routing the supply of agricultural inputs, single window clearance system by Department of Agriculture and Farmers’ empowerment for issue of licenses for trade in inputs, production, processing, distribution of seeds and saplings, making land available at a concessional rate or free for establishment of exclusive storage, sorting, grading yards and processing plants, support as

producers of certified seeds, saplings and other planting materials and production and marketing subsidies at par with cooperatives and corporations. allowing direct sale of farm produce at the farm gate through FPO owned procurement and marketing centres, linking FPOs to financial institutions for developing working capital, storage and processing infrastructure and other investments;

4. FPOs will provide end-to end services to its members, covering all aspects of cultivation i.e., financial, input supply, technology transfer, procurement and packaging, marketing, insurance and networking services. Based on the emerging needs, the FPOs can add new services with approval of the Government to ensure best interest of the farmer;
5. Appointment of nodal agency for the promotion of FPOs, coordinated by Director of Horticulture.

2.14 Odisha Fisheries Policy, 2015:

The Odisha Fisheries Policy, 2015 aims to address sustainable utilisation, protection / promotion of the nutritional security, livelihood security of the fisher community, gaps in the legal and regulatory framework and their enforcement, gaps in the administrative structure and processes, financing mechanisms including subsidies, technology and extension support as well as social and environmental implications.

The policy is having the vision “to be a pioneer in aquaculture development & fisheries extension for ensuring food security, livelihood, welfare of fishers and employment generation”. The policy looks at;

1. Sustainable development of inland, coastal and marine, capture and culture fisheries so as to attain self-sufficiency in fish production for domestic consumption and development of sea food industry;
2. Enhancing contribution of the fisheries sector to food, nutritional and livelihood security of the people of the State of Odisha and the Nation;
3. A balanced approach for the promotion of fisheries management, based on sound ecological, economic and precautionary principles to ensure that fish populations remain viable, productive and accessible to future generations;
4. An efficient value-chain and an organized and secure marketing / supply system / chain for fish and fishery products is created so as to protect the producers’ and consumers’ interest and to augment marine products export and foreign exchange earnings to the State of Odisha;
5. Augmenting infrastructure facilities for aquaculture clusters and for landing and berthing of fishing crafts;
6. Promoting public-private partnership and community participation for developing, managing, conserving and sharing the fishery resources, for the benefit of the society;
7. Creating human resource base for fisheries management and development through capacity building.

In inland fisheries, the policy looks at (1) Realistic resource assessment, (2) promotion of capture fisheries, (3) culture-based fisheries in lakes/reservoirs, (4) aquaculture in tanks and ponds, (5) fish seed production and certification, and (6) ornamental fish culture. The policy gives emphasis on Issues like education of fishermen / women, vocational training on improved fisheries techniques, livelihood enhancement and diversification by creating alternate and supplementary employment opportunities through capacity building and market tie-up and grant of social benefits to fishermen / women without land holding. Some of the relevant prescriptions of the policy are;

1. Hygienic handling, dry fish processing and production of value-added products in the small-scale sector by the Women SHGs will be encouraged by improving their skill through training and by providing the requisite market linkages;

2. Creation of awareness for consumption of small fish species which will help in improving micronutrient deficiencies in nutrient deficient rural poor, pregnant women, lactating mothers and children in particular;
3. Required support systems will be created to ensure that a sizable number of unemployed youths, women and poorer sections of the society can take up self-employment activities in the fisheries and allied sectors for their economic empowerment.
4. Capacity development measures will be taken to improve institutional capabilities and competencies of officials as well as the fishers. Capacity development will be focused at four levels: (a) individual fishers including fish farmers, fisherwomen and other stakeholders, (b) State Fisheries Department personnel, (c) NGOs, Fisheries cooperatives, and (d) the unemployed youth and entrepreneurs. It will be ensured that the Government establishes linkage between the fisheries and other line departments / organizations and engages them for building capacity/ training in sustainable fisheries development and management. Evaluation of long-term impacts of interventions will be undertaken and used to inform future approaches to fisheries development and management and livelihood enhancement among the fishers.
5. The Government will address issues relating to equity in employment and business opportunities; and ensure equity in the access, tenure, participation and sharing of benefits that accrue in fisheries. The gender concerns will be integrated in fisheries planning, decision making and implementation, to ensure sustainable social and economic development. Training and capacity building of the women fishers and fish farmers will be given adequate importance.
6. Hygienic handling, dry fish processing and production of value-added products in the small-scale sector by the Women SHGs will be encouraged by improving their skill through training and by providing the requisite market linkages.

Aquaculture in Tanks and Ponds:

The strategy for aquaculture in tanks and ponds would include, as per the policy, (a) scientific stocking, (b) horizontal (i.e., bringing un-utilised cultivable area under scientific extensive/ semi-intensive farming) and vertical expansion (i.e., improving the production of the existing extensive and semi-intensive area), (c) integrated farming, (d) contract farming, (e) species diversification, (f) development of basic infrastructure facilities in aquaculture clusters, (g) empowerment of farmers and fisherwomen, and (h) increase in productivity and doubling aquaculture production.

2.15 Labour Laws

India is having a number of labour related laws, such as (1) laws related to conditions of employment, (2) laws relating to compensation, (3) laws relating to social security, (4) laws relating to liabilities and disputes, (5) laws related to discrimination and harassment, and (6) miscellaneous / other laws. Some of these acts will be applicable to the project such as child labour (prohibition and regulation) act, 1970; minimum wage act, 1958; equal remuneration act, 1976; protection of women against sexual harassment at the work place, 2007 etc.

2.16 World Bank Safeguard Policies

This section is intended to highlight World Bank safeguards in projects. The World Bank's environmental and social safeguard policies are a cornerstone of its support to sustainable poverty reduction. The objective of these policies is to prevent and mitigate undue harm to people and their environment in the development process. These policies provide guidelines for Bank and borrower in the identification, preparation, and implementation of programs and projects. Safeguard policies also provide a platform for the participation of stakeholders in project design and have been an important

instrument for building a sense of ownership among local populations. In essence, the safeguards ensure that environmental and social issues are evaluated in decision making, help reduce and manage the risks associated with a project or program, and provide a mechanism for consultation and disclosure of information. The safeguards policies of the World Bank are discussed below in Table 11.

Table 11: Social Safeguard Policies of The World Bank

OP/OB	Safeguard	Policy Objectives
4.10	Indigenous Peoples	Design and implement projects in a way that fosters full respect for indigenous peoples' dignity, human rights, and cultural uniqueness and so that they (1) receive culturally compatible social and economic benefits, and (2) do not suffer adverse effects during the development process.
4.12	Involuntary Resettlement	Avoid or minimize involuntary resettlement and, where this is not feasible, assist displaced persons in improving or at least restoring their livelihoods and in real terms relative to pre-displacement levels or to levels prevailing prior to the beginning of project implementation, whichever is higher.

Note: With Reference to The World Bank Safeguard Policies

2.17 Relevant Programmes and Schemes of the Government

Both Central and State Governments have been implementing a number of schemes / programmes under central, state and district sectors (Central Scheme, Centrally Sponsored Scheme and State Scheme), that are relevant to the project. Some of these schemes and its salient features are discussed below, which are relevant in the context of the project (Table 12).

Table 12: Relevant Schemes, Schematic Provisions and Linkage Potential

Sl. No.	Scheme	Schematic Provisions and Linkage Potential
1	Pradhan Mantri Kisan SAMman Nidhi (PM-KISAN)	The scheme aims to supplement the financial needs of the farmers in procuring various inputs to ensure proper crop health and appropriate yields, commensurate with the anticipated farm income. Under the scheme, financial benefit as given to all Small and Marginal landholder farmer families across the country. Landholder Farmer families with total cultivable holding up to 2 hectares is provided a benefit of Rs.6000 per annum per family payable in three equal installments, every four months (lunched in 2019).
2	KALIA	<ol style="list-style-type: none"> 1. Krushak Assistance for Livelihood and Income Augmentation (KALIA) scheme has been launched to accelerate agricultural prosperity and elimination of poverty. The scheme is a package for farmers' welfare. 2. All small and marginal farmers along with landless agricultural households, vulnerable agricultural household, landless agricultural labourers and sharecroppers/actual cultivators are eligible under different components of KALIA; 3. Financial assistance of Rs.25,000 per farm family over five seasons will be provided to purchase seeds, fertilizers, pesticides and use assistance towards labour.
3	Pradhan Mantri Fasal Bima Yojana (PMFBY)	PMFBY (introduced from Kharif 2016) is to ensure compensation to the affected farmers in case of crop loss due to natural risks. Five crops, namely paddy, groundnut, cotton, ginger and turmeric, were notified under this programme for compensation.
4	Biju Krushaka Kalyan Yojana (BKKY)	Providing health and accident insurance to all the farm families in the State.
5	National Mission on Agriculture Extension and Technology (NMAET)	NMAET includes four Sub-Missions under which farmers are supported, i.e., (1) Sub-Mission on Agricultural Mechanization (SMAM), (2) Sub-Mission on Agricultural Extension (SMAE), (3) Sub-Mission on Seed and Planting

		Material (SMSP) and (4) Sub-Mission on Plant Protection and Plant Quarantine (SMPP)
6	Sustainable Harnessing of Ground Water in Water Deficit Areas	Installation / energization of bore wells for irrigation in water deficit areas.
7	National Horticulture Mission (NHM)	<ol style="list-style-type: none"> 1. Farmers are supported with the objectives of increasing fruit production, enhancing the economic status of the farmers, promotion of export oriented agro-based industries, training, and development of market infrastructure; 2. Of the total 30 districts, 24 districts of the State were identified in 4 clusters under National Horticulture Mission for development of 9 major horticultural crops; 3. The selected crops include: mango, citrus, litchi and banana in fruits, cashew in plantation crops, ginger and turmeric in spices, and rose, marigold and gladioli in floriculture.
8	Strengthening of Agmark Grading Facilities	<ol style="list-style-type: none"> 1. Analysis of samples / research samples for developing and promoting grading and standardization of agricultural commodities under Agmark
9	Development / Strengthening of Agricultural Marketing Infrastructure, Grading & Standardization	<ol style="list-style-type: none"> 1. The scheme is for those States which have amended the APMC Act (Odisha included); 2. Direct marketing, contract farming and permit to set up of markets in private and cooperative sectors; 3. Credit linked back-ended subsidy on capital cost of general or commodity specific infrastructure for marketing of agricultural commodities and for strengthening and modernization of existing agricultural markets, wholesale, rural periodic or in tribal areas; 4. Rate of subsidy: 25% of the capital cost of the project. Subsidy of 33% in case of entrepreneurs belonging to Scheduled Caste (SC)/Scheduled Tribe (ST) and their cooperatives; 5. Maximum amount of subsidy restricted to Rs.50 lakhs for each project and Rs.60 lakhs in case of entrepreneurs belonging to Scheduled Caste/Scheduled Tribe and their cooperatives.
10	Gramin Bhandaran Yojana:	<ol style="list-style-type: none"> 1. Creation of scientific storage capacity with allied facilities in rural areas.
11	Agriculture-Business Development (SFAC):	<ol style="list-style-type: none"> 1. Setting up of agribusiness ventures, 2. Catalyzing private investment in setting up of agribusiness projects 3. Strengthen backward linkages of agri-business projects with producers; 4. Assist farmers, producer groups to enhance their participation in value chain through Project Development Facility; 5. Training and visits of agri-entrepreneurs in setting up identified agribusiness projects.
12	Setting up of Terminal Market Complex (TMC):	<ol style="list-style-type: none"> 1. Backward linkages with farmers through collection centres 2. Forward linkages through wholesalers, distribution centres, retail cash and carry stores, processing units for exporters etc.
13	National Agriculture Market (NAM) through Agri-Tech Infrastructure Fund (ATIF):	<ol style="list-style-type: none"> 1. Setting up of common e-market platform that would be deployable in selected regulated wholesale markets (SFAC implements the national e-platform).
14	Integrated Scheme for Agricultural Marketing:	<ol style="list-style-type: none"> 1. Creation of agricultural marketing infrastructure by providing backend subsidy support to State, cooperative and private sector investments; 2. Creation of scientific storage capacity; 3. Promote Integrated Value Chains (up to primary processing); 4. ICT as a vehicle of extension for agricultural marketing; 5. Establishing a nation-wide information network system for speedy collection and dissemination of market information;

		<ol style="list-style-type: none"> 6. Support framing of grade standards and quality certification of agricultural commodities; 7. Catalyze private investment in agribusiness projects; 8. Training, research, education, extension and consultancy in the agri marketing sector.
15	National Agricultural Insurance Scheme (NAIS):	<ol style="list-style-type: none"> 1. Insurance coverage and financial support to the farmers in the event of failure of any of the notified crops as a result of natural calamities, pests and diseases; 2. Encouraging farmers to adopt progressive farming practices, high value in-puts and higher technology in agriculture; 3. Stabilize farm incomes, particularly in disaster years.
16	Sub-Mission on Agricultural Mechanization:	<ol style="list-style-type: none"> 1. Increasing reach of farm mechanization to small and marginal farmers and to the regions where availability of farm power is low; 2. Promoting Custom Hiring Centres; 3. Creating hubs for hi-tech & high value farm equipment; 4. Awareness among stakeholders through demonstration and capacity building activities.
17	National Mission for Sustainable Agriculture (NMSA):	<ol style="list-style-type: none"> 1. Promotion of Integrated / Composite Farming Systems; 2. Conservation of natural resources through appropriate soil and moisture conservation measures; 3. Comprehensive soil health management practices based on soil fertility maps, 4. Soil test-based application of macro & micro nutrients; 5. Judicious use of fertilizers; 6. Efficient water management to expand coverage for achieving ‘more crop per drop’; 7. Developing capacity of farmers & stakeholders on climate change adaptation and mitigation measures; 8. Pilot models in select blocks for improving productivity of rain-fed farming by mainstreaming rain-fed technologies refined through NICRA;
18	Rashtriya Krishi Vikas Yojana (RKVY):	<ol style="list-style-type: none"> 1. Preparation of agriculture plan; 2. Focused intervention to reduce yield gap in important crops; 3. Distribution of ag. Inputs, extension, soil health management and IPM promotion; 4. Dairy development; 5. Fishery promotion; 6. Information dissemination; 7. Infrastructure development under Infrastructure and Assets.
19	National Food Security Mission:	<ol style="list-style-type: none"> 1. Extension of improved technologies i.e. seed, Integrated Nutrient Management including micronutrients, soil amendments, IPM and resource conservation technologies; 2. Capacity building of farmers.
20	Development and Strengthening of Infrastructure Facilities for Production and Distribution of Quality Seeds:	<ol style="list-style-type: none"> 1. Establishing seed bank and its maintenance; 2. Development of seed village; 3. Assistance for Creation / Strengthening of Infrastructure Facilities in Public Sector; 4. Strengthening State Seed Testing Laboratories for quality control; 5. Awareness campaign through SAUs, scientific organizations/Institutes; 6. Promotion of tissue culture through SAUs/specialized institutions/seed corporations; 7. Boosting Seed Production in Private Sector.
21	Pradhan Mantri Krishi Sinchayee Yojana (PMKSY)	<ol style="list-style-type: none"> 1. Creation of new water sources; repair, restoration and renovation of defunct water sources; construction of water harvesting structures, secondary & micro storage, groundwater development, enhancing potentials of traditional water bodies at village level, etc. 2. Developing/augmenting distribution network where irrigation sources (both assured and protective) are available or created;

		<ol style="list-style-type: none"> 3. Promotion of scientific moisture conservation and run off control measures to improve ground water recharge so as to create opportunities for farmer to access recharged water through shallow tube/dug wells; 4. Promoting efficient water conveyance and field application devices within the farm viz, underground piping system, Drip & Sprinklers, pivots, rain-guns and other application devices etc.; 5. Encouraging community irrigation through registered user groups/farmer producers' organisations/NGOs; and 6. Farmer oriented activities like capacity building, training and exposure visits, demonstrations, farm schools, skill development in efficient water and crop management practices (crop alignment) including large scale awareness on more crop per drop of water through mass media campaign, exhibitions, field days, and extension activities through short animation films etc.
22	Mahatma Gandhi National Rural Employment Guarantee Act, 2005 (MGNREGA)	<ol style="list-style-type: none"> 1. Supplementary livelihood in rural areas through unskilled manual work, 2. Categories of work permitted to be taken up for providing employment are water conservation, drought proofing, irrigation, land development, rejuvenation of traditional water bodies, flood control and drainage work, rural connectivity and work on the land of Scheduled Castes (SCs), Scheduled Tribes (STs), Families Below Poverty Line (BPL) and Indira Awas Yojana (IAY) beneficiaries, land reform beneficiaries and individual small and marginal farmers.
	Tribal Development Schemes	
23	Special Central Assistance (SCA) & Grants Under Article 275(1) of the Constitution	<ol style="list-style-type: none"> 1. Family-oriented income generation (SCA to TSP); 2. Administration of Scheduled Area and Residential school.
24	Scheme for Development of Particularly Vulnerable Tribal Groups (PVTGs)	<ol style="list-style-type: none"> 1. Preparation of "Conservation-cum-Development (CCD) Plans" for PVTGs; 2. Support for housing, infrastructure development, education, health, land distribution / development, agriculture development, cattle development, social security, insurance, etc.
25	Tribal Cooperative Marketing Development Federation (TRIFED)	<ol style="list-style-type: none"> 1. Marketing assistance for minor forest produce and surplus agricultural produce.
26	Vanbandhu Kalyan Yojana	<ol style="list-style-type: none"> 1. Creating enabling environment for need based and outcome oriented holistic development of the tribal people; 2. Convergence of resources through appropriate institutional mechanism.

Schemes for Fishery Promotion (In-Land Fishery):

Table 13: Schemes for Fishery Promotion (Inland Fishery)

SN	Scheme	Scheme Particulars
A	Scheme: Development of Inland Fisheries and Aquaculture	The scheme supports (1) Construction of New Pond/tank to Increase water area under Freshwater pisciculture, (2) Renovation of pond/tank to increase water area under pisciculture, (3) Promotion of freshwater Prawn culture, (4) Fresh water fish seed hatchery to increase fish seed production, (5) Fish feed unit to supply fish feed to fish farmers, (6) Establishment of freshwater prawn seed hatchery to supply FW prawn seed to farmers, (7) One time supply of soil & water testing kits for estimation of water quality of pond water, (8) Setting up of integrated units, including hatcheries for ornamental fishes for the production of ornamental fish seed and its marketing, (9) Establishing brood banks for ornamental fishes with the objective of conservation of ornamental fish species, and (10) Provision of subsidy for the purchase of vehicle at 50% of the cost of vehicle.

B.	Inland Capture Fisheries	The scheme supports (1) Establishing Fish Seed Rearing Units Cages/Pen with inputs, support craft and gear (supply of net and boars in subsidised rate), (2) Construction of fish landing centre, and (3) Riverine Fisheries Conservation and Awareness Programme
C	Organization of skill up-gradation Training & Awareness Meet	Organising training programme and awareness meet on different aquaculture practices, processing and extension activities to farmers / master trainers/government officers at induction level.
D	Intensive Aquaculture in Ponds (NFDB)	The scheme supports for (1) Construction of new fish/prawn ponds and tanks for Pangasius, (2) Renovation of exiting fish / prawn ponds & Tanks, (3) support Entrepreneurs / farmers for Pangasius, (4) Inputs for prawn farming, (5) support to entrepreneurs / farmers For fish/prawn farming in paddy fields for Pangasius, (5) Establishment of freshwater prawn seed hatchery, (6) Establishment of fish seed hatchery with / without nurseries, (7) Renovation of fish Seed Farms / construction of fish seed rearing units for rearing fry to large fingerling of 80-100mm size, (8) Feed mill (extruded floating pelleted feed for 5 tons/hour production capacity entrepreneurs, and (9) Ornamental Fisheries: Backyard hatchery, Medium scale ornamental unit, Integrated ornamental units, Aquarium fabrication unit, Training to beneficiaries on ornamental Fisheries
E	Reservoir Fisheries Development (RFD)	The scheme supports in fingerling Stocking in reservoirs and training to fishermen on reservoir management.
F	Development of Domestic Fish Marketing	The scheme covers (1) Modernization of wholesale fish markets, (2) Development / construction of new retail markets, complexes and retail outlets, (3) Establishment of modern fish retail outlet, (4) Setting up of retail fish outlets, (5) Retailing by fisherwomen, (6) Cold chain development and processing of value-added products, (7) Campaign for promotion of fish products and consumption, (8) Organization of fish festival / fish mela, (9) Establishing model fish dressing centre, (10) Setting up of Solar drying of fish units, (11) Platform for sun drying of fish, (11) Training and demonstration to fisherwomen on hygienic handling of fish and processing /value addition.
G	Human Resource Development Program: Training	Training programme on different aquaculture practices, processing and extension activities to farmers / master trainers/government officers at induction level.

Schemes of Horticulture:

Table 14: Horticulture Schemes

SN	Scheme	Scheme Particulars
A	Input Subsidy (Hort)	Planting material is the basic requisite for getting a good yield in horticultural crops. So, the grafts/gootees/seedlings of good varieties of fruit plants are supplied at a subsidized rate to encourage farmers.
B.	Development of Potato,	Supply of vegetable mini kits provided to the farmers at a subsidized rate for improving area under vegetables and for income of the farmers.

	Vegetable & Spices:	
C	Horticulture Programme in Non-Mission Districts	This programme envisages establishment of new gardens of fruits and flowers in compact areas, organic farming, training activities etc. in the non-mission districts in the pattern of National Horticulture Mission. The programme covers 6 districts which are not covered under NHM program, namely Jharsuguda, Bhadrak, Jajpur, Kendrapara, Jagatsinghpur and Boudh.
D	Fruit Development (Compact area Plantation)	To increase the area and production, the scheme supports to take up mango, citrus, Banana sucker & cashew plantation in compact patches. The plating material used in the plantation is to be procured from departmental farms / nurseries and registered private nurseries inside the state
E	Floriculture Development:	Floriculture is picking up in the State particularly around the urban centers. Under the scheme, assistance is provided to the farmers for cultivation of flower like Marigold, Gladioli and Rose
F	Human Resource Development:	<p>Exposure Visit to Outside the State: Sending the farmers to outside the state on exposure visit for increasing their technical know-how.</p> <p>Organization of District Level Show: District level shows organized to disseminate the latest knowledge in the field of horticulture and to increase the competitiveness among farmers.</p> <p>Plantation Training to Farmers: Imparting plantation training to farmers to disseminate the technical know-how for taking up a successful plantation.</p>
G	Organic Farming:	Construction of Vermicompost Units: To promote organic farming, assistance is provided to the farmers for construction of vermicompost units.
H	Mobility & IEC Materials	It supports development of Information, Education and Communication material and its distribution among the farmers along with mobility support to staff for monitoring.
I	Intercropping in fruit orchards	Support to take up pineapple and root & tuber crops as intercrop in fruit orchards. This will provide short term assured economic benefit to the farmers.
J	National Horticulture Mission	The main objectives under National Horticulture Mission are to increase production of suitable fruits in the state thus enhance the economic status of the farmers, promotion of export oriented agro based industries through provision of subsidy on supply of quality planting materials, training and development of market infrastructure etc.
K	Micro Irrigation	This scheme envisages providing subsidy for drip irrigation and sprinkler irrigation in horticultural crops.

Section III: Social Baseline

3.1 Demographic Composition

Among the project districts, Ganjam is having the maximum population followed by Mayurbhanj and Balasore. The population density is highest in Jajpur i.e. 684 per sq. Km and lowest in Kandhamal i.e. 100 per Sq. Km in the year 2017-18. Overall population density of the state has increased to 295 per sq. Km from 270 per sq. Km in 2011 at annual rate of 1.27%. Due to urbanization the percentage urban population has been increasing to 17.81 percent in 2018 from 16.69 percent in 2011. Still the rate of urbanization is below the national average¹⁰. Sex ratio is observed higher in schedule districts such as 1057 in Kandhamal, 1050 in Gajapati and 1039 in Nabarangpur compared to non-schedule districts like in Subarnapur, sex ratio is around 956 and in Balasore it is around 960 during year 2017-18.

Table 15 Demographic Profile of Project Districts (Projected for the year 2017-18)

District	Population			Sex Composition		Density	District population% to State
	Total	Rural	Urban	Male	Female		
Nabarangpur	13,79,048	12,67,248	1,15,186	6,76,687	7,02,862	261	3.00
Ganjam	38,13,227	28,75,976	9,62,226	19,32,128	18,80,050	465	8.29
Keonjhar	19,90,540	17,05,766	2,85,492	9,97,829	9,93,260	240	4.33
Mayurbhanj	27,49,896	25,26,816	2,24,116	13,58,228	13,91,692	264	5.98
Balasore	25,52,797	22,74,151	2,79,156	13,02,881	12,50,608	671	5.55
Bhadrak	16,39,864	14,17,886	2,25,343	8,25,599	8,14,728	655	3.56
Jajpur	19,84,225	17,98,465	2,07,888	10,04,994	9,79,214	684	4.31
Gajapati	6,23,175	5,37,994	86,552	3,03,937	3,19,285	144	1.35
Kandhamal	7,99,085	7,03,724	1,02,145	3,88,444	4,10,767	100	1.74
Bolangir	19,09,387	16,75,108	2,34,485	9,60,630	9,49,287	290	4.15
Baragarh	15,83,451	13,96,619	1,94,701	8,00,338	7,83,101	271	3.44
Boudh	4,95,941	4,73,541	22,290	2,48,554	2,47,235	160	1.08
Subarnapur	6,63,036	6,05,359	58,253	3,39,118	3,24,153	284	1.44
Kalahandi	17,71,620	16,31,659	1,39,964	8,83,263	8,87,834	224	3.85
Nuapada	6,73,116	6,35,949	37,188	3,31,374	3,41,774	175	1.46
Odisha	4,60,06,163	3,78,10,452	82,74,618	2,32,06,878	2,28,12,302	295	100.00

*Above data is forecasted from census 2011 to year 2017-18 using CAGR method only for project districts

The project state of Odisha is having a total population of 41.97 million (census, 2011) out of which 21.21 million (50.54 percent) are male and 20.76 million (49.46 percent) are female. Out of the total increase of 5.17 million in the population between 2001 and 2011, the contribution of rural and urban areas is 3.68 million and 1.49 million respectively. Ganjam district has the largest rural population of 2.76 million (7.9 percent of the state's rural population) whereas Khordha has the highest urban population of 1.08 (15.5 percent of state's urban population) in the state.

The growth rate of population in Odisha between 2001 to 2011 is 14.0 percent (Rural-11.8 percent and Urban 26.9 percent). The district of Balangir has recorded the highest decadal growth rate in rural population (22.7 percent) and Nayagarh has recorded the highest decadal growth rate in urban population (115.1 percent) during 2001-2011.

The state is basically rural in nature as 83.31 percent population of the total population reside in rural areas, and urban population is 16.7 percent of the total population. There has been an increase of 1.7 percent in the proportion of urban population in the last decade. Boudh (95.4 percent) has the highest proportion of rural population, while Khordha (48.2 percent) has the highest proportion of urban

¹⁰ In 2017, population residing in urban areas in India increased to 34%, according to the World Bank.

population. There has been an increasing trend in urbanisation in the state in recent years due to mobility of rural workforce to urban areas.

Population density (persons per sq. km.) of the state, as per Census 2011, remains to be 270 showing an increase of 34 points from 2001. Among the districts, Khordha (800) is most densely inhabited followed by Jagatsinghapur (682) both in 2001 and 2011 Censuses. The lowest density of population is recorded in Kandhamal district (91) in both the censuses period.

As per Census 2011, the child population in the age group of 0-6 years stands at 5.27 million. Of this, 4.53 million were in rural areas and 0.75 million in urban areas. Compared to Census 2001, the Child population has decreased by 0.09 million in the state. There has been a decline of 0.17 million in rural areas and an increase of 0.08 million in urban areas. In terms of proportion of child population to the total population, there has been a decline of 2.0 percentage points, i.e., 2.1 percentage points in rural areas and 1.3 percentage points in urban areas. The Child population has declined by 1.6 percent between 2001 and 2011 which encompass decline of 1.0 percent among males and 2.2 percent in case of females.

Table 16: Population of Project Districts, Census 2011.

Districts	Population in ('000 Nos)					Percentage to Total Population		Population Density Per sq. Km		District Population to State Population %
	M	F	T	R	U	R	U	2001	2011	
Balasore	1186	1134	2320	2067	253	89.08	10.92	532	610	5.53
Bargarh	749	732	1481	1331	150	89	10.13	231	254	3.53
Bhadrak	760	746	1506	1320	186	87.66	12.34	532	601	3.59
Bolangir	830	819	1649	1452	197	88.03	11.97	203	251	3.93
Boudh	221	220	441	421	20	95.37	4.63	121	142	1.05
Gajapati	283	295	578	507	71	87.77	12.23	120	134	1.38
Ganjam	1779	1750	3529	2761	768	78.24	21.76	385	430	8.41
Jajpur	926	901	1827	1692	135	92.61	7.39	560	630	4.35
Kalahandi	787	790	1577	1455	122	92.26	7.74	169	199	3.76
Kandhamal	360	373	733	661	72	90.14	9.86	81	91	1.75
Keonjhar	907	895	1802	1549	253	85.95	14.05	188	217	4.29
Mayurbhanj	1256	1264	2520	2327	193	92.34	7.66	213	242	6.0
Nabarangpur	605	616	1221	1133	88	92.82	7.18	194	231	2.91
Nuapara	302	308	610	576	34	94.42	5.58	138	158	1.45
Subarnapur	311	299	610	560	50	91.82	8.18	232	261	1.45
Odisha	21212	20762	41974	34971	7003	83.31	16.69	236	270	100.0

Source: Population Census 2011, Odisha

Note: M;Male, F: Female, T: Total, R:Rural, U: Urban

Percent of Households

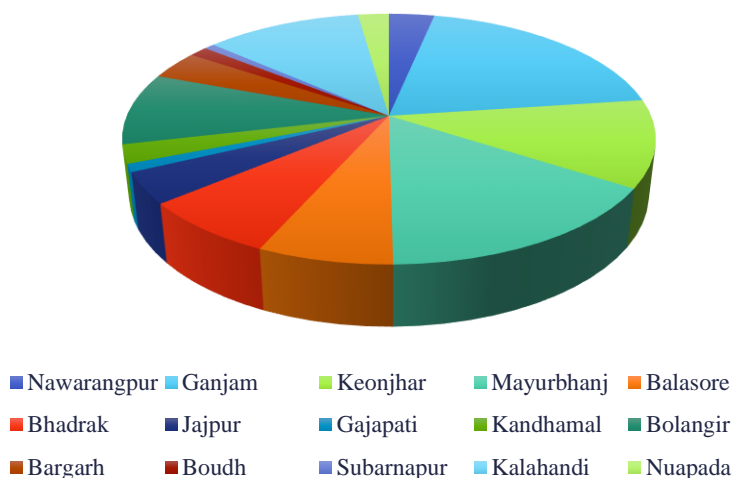


Figure 2: Distribution of Households in Project Districts / Blocks

Among the project districts, the district of Ganjam and Mayurbhanj are having the maximum population as compared to all other districts. Ganjam is having the maximum rural population. Jajpur is having maximum Population Density per sq. km. The percentage of district population to State population in Ganjam is 8.41 which are higher than the other districts. The percentage of urban population to the total population in the State is 16.69 percent and the percentage of rural population to the total population in the State is 83.31%. Districts like Boudh and Nuapara have highest percentage of rural population whereas districts like Khurda and Jharsuguda have good percentage of urban population. Gajapati, Kandhamal, Koraput and Raygada have good sex ratio as compared to other districts. The population density per sq km for 2011 is 270 and that in 2001 is 236, this means that the population density increased to 14.41 percentage by 2011. Balasore, Cuttack and Khurda are also having good percentage of district population to State population.

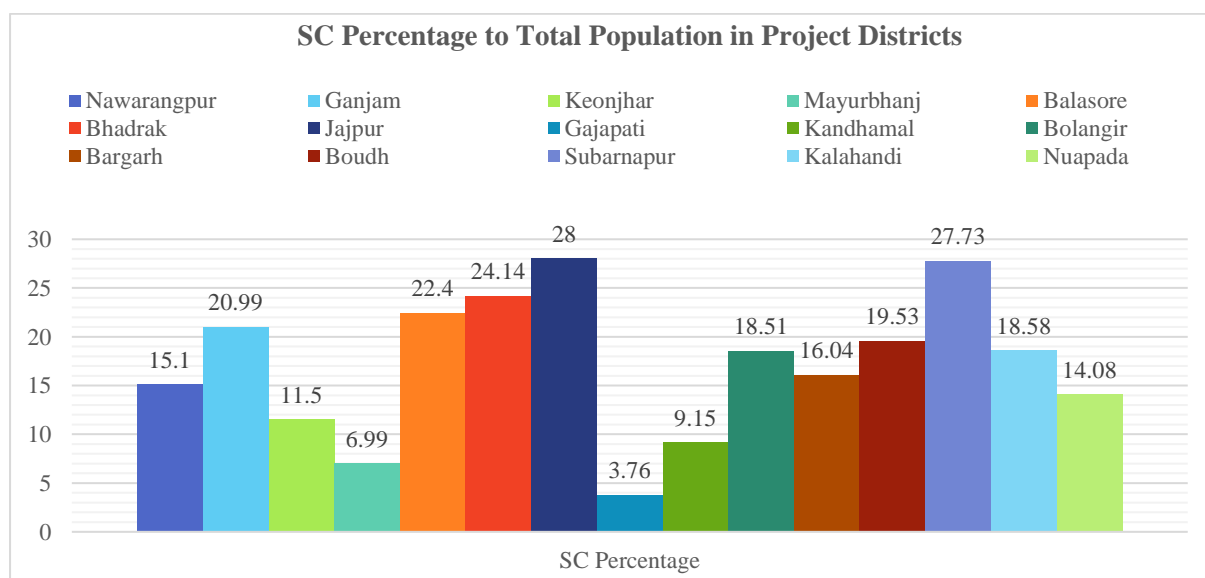


Figure 3: Scheduled Caste Percentage in Project Districts / Blocks

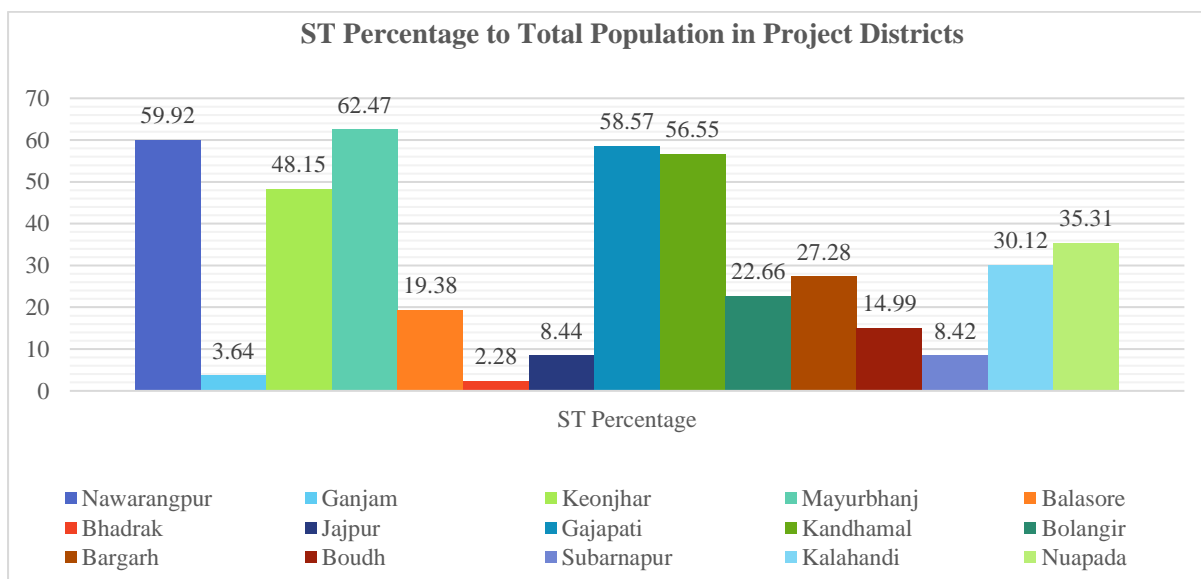


Figure 4: Scheduled Tribe Percentage in Project Districts / Blocks

3.1.1 Sex Ratio

As per the projected demographic profile of the State and Project Districts for the year 2017-18, the Sex ratio of the State estimated to be 983 in comparison to 979 during 2011, i.e., increase of 4 points favouring women. The project sex ratio by project districts reveals highest sex ratio in Kandhamal (1057), followed by Gajapati (1050) and Nabarangpur (1029). Sex ratio by project district, as per the projected figure is presented below.

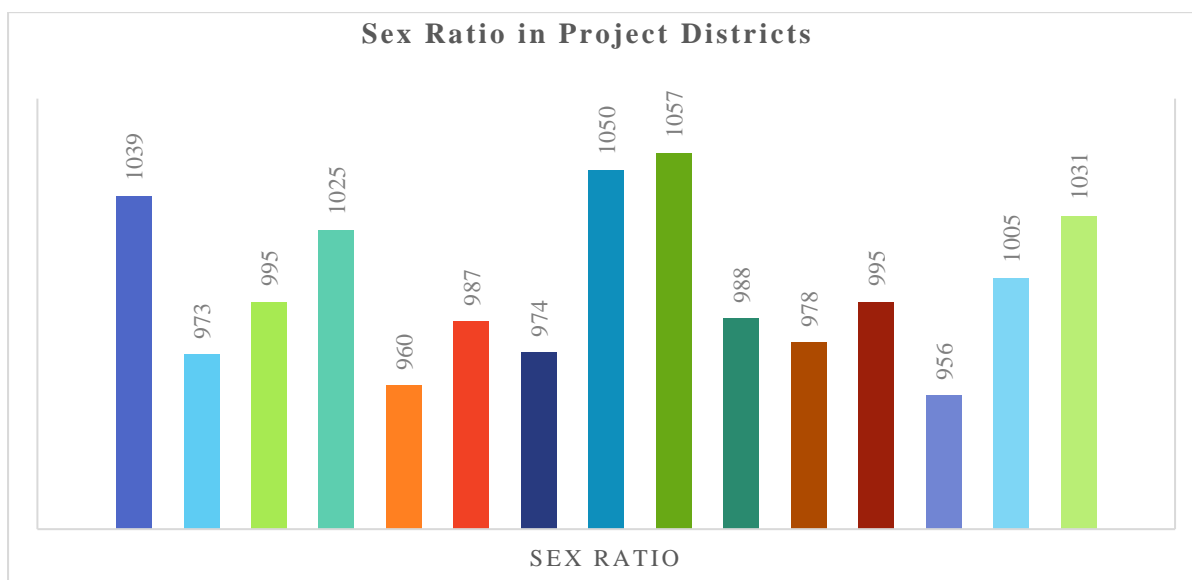


Figure 5: Sex Ratio in Project Districts / Blocks (Projected figure for 2017-18)

The Sex Ratio in the state, which was 972 in 2001, has increased by 7 points to 979 in 2011 which is higher than many other states of the country. In rural areas the sex ratio has increased from 987 to 989. The corresponding increase in urban areas has been of 37 points from 895 to 932. Rayagada has recorded the highest sex ratio in respect of total population (1051), Rural population (1064) and Gajapati

has recorded the highest sex ratio in Urban population (1006). The lowest sex ratio in rural areas has been recorded in Nayagarh (915). The corresponding value in urban areas has been returned in Anugul (889). 11 districts, viz., Debagarh, Kendrapara, Jagatsinghapur, Cuttack, Dhenkanal, Anugul, Nayagarh, Khordha, Puri, Ganjam and Subarnapur show fall in the sex ratio in rural areas compared to 2001 Census. There is no change in sex ratio in rural areas of two districts, viz., Bargarh and Baleshwar. In urban areas decreasing trend is noticed only in Malkangiri district during the decade.

Child Sex Ratio (0-6 years) (Girls per thousand Boys): Census 2011 marks a considerable fall in child sex ratio (0-6 years) from 953 to 941(-12 points) during 2001-2011. This is the lowest child sex ratio since 1961. In rural areas, the fall has been to the tune of 9 points (955 to 946) and in urban areas the decline has been to an extent of 20 points (933 to 913) over the last decade. Highest sex ratio has been recorded both in rural (999) and urban (971) areas in Nabarangapur district whereas, lowest child sex ratio has been recorded in Nayagarh district both in rural (857) and urban (835) areas.

The sex ratio among Scheduled Caste population has increased from 979 in 2001 Census to 987 in 2011 Census registering an increase of 8 points. The sex ratio among Scheduled Tribe population has increased from 1003 in 2001 Census to 1029 in 2011 Census registering an increase of 26 points

Table 17: Sex Ratio in Project Districts

SN	Districts	Sex Ratio (No. of Females per '000 Males)		
		Rural	Urban	Total
1	2	3	4	5
1	Balasore	957	959	957
2	Bargarh	979	961	977
3	Bhadrak	985	956	981
4	Bolangir	992	948	987
5	Boudh	993	947	991
6	Gajapati	1048	1006	1043
7	Ganjam	995	941	983
8	Jajpur	976	944	973
9	Kalahandi	1008	953	1003
10	Kandhamal	1043	984	1037
11	Keonjhar	999	920	988
12	Mayurbhanj	1010	956	1006
13	Nabarangpur	1021	990	1019
14	Nuapara	1024	983	1021
15	Subarnapur	961	945	960
	Odisha	989	932	979

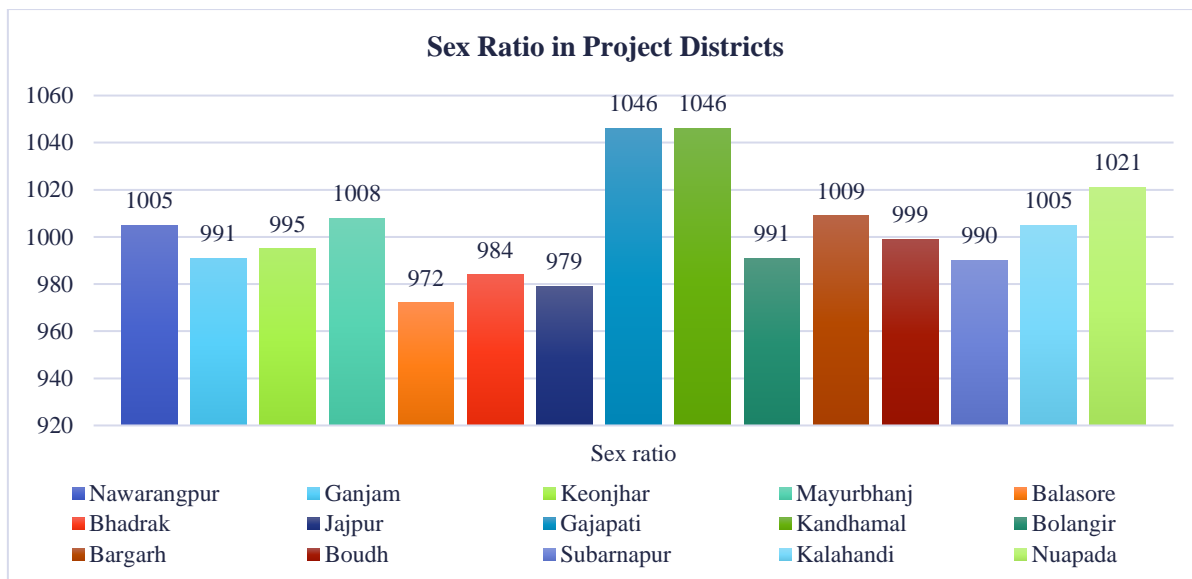


Figure 6: Sex Ratio in Project Districts / Blocks

Sex ratio is very low in Balasore, Jajpur and Bhadrak and very high in Gajapati and Kandhamal districts (schedule districts) for the selected project blocks. Overall scenario is that sex ratio is higher in schedule districts and lower in non-schedule districts.

3.2 Literacy

The Effective Literacy Rate in Odisha remains to be 72.9 percent (Rural 70.2 percent; Urban 85.7 percent). There has been an increase of 9.8 percentage points in the effective literacy rate (10.4 percentage points in rural areas and 4.9 percentage points in urban areas) during 2001 to 2011 (decadal growth). The number of literates (Aged 7 years and above) in Odisha is 26.74 million (Census 2011), of which, 21.38 million literates are in rural areas and 5.36 million literates are in urban areas. Out of an increase of 6.91 million literates during the decade 2001-2011, rural areas accounted for 5.47 million and urban areas 1.44 million. The highest number of rural literates has been recorded in Ganjam (1.64 million) and Khordha (0.89 million) has recorded the highest number of literates in urban areas.

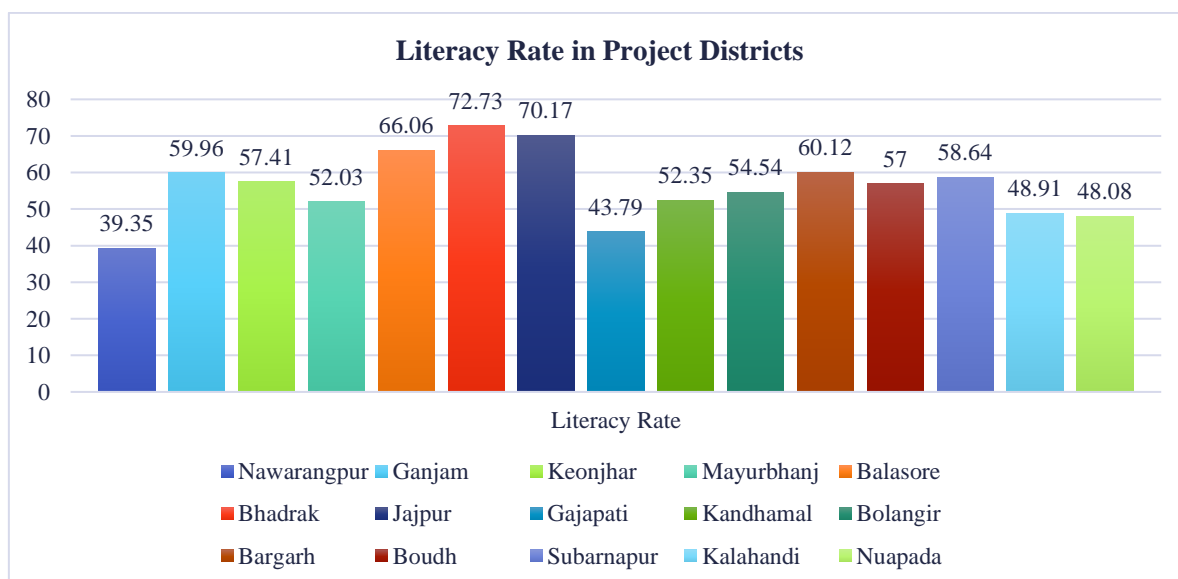


Figure 7: Literacy Rate in Project Districts / Blocks

Male literates numbered 15.09 million (56.43 percent of the total literates) and the highest number of male literates in rural areas is in Ganjam (0.95 million), while the lowest is in Debagarh (0.10 million). In urban areas, the lowest number of male literates is returned in Baudh (0.01 million) and the highest number in Khordha (0.49 million).

Female literates numbered 11.65 million (43.57 percent of the total literates) in the state during 2011. The highest number of female literates in rural areas is in Ganjam (0.69 million), while the lowest is in Debagarh (0.08 million). In urban areas, the lowest number of female literates is in Baudh (0.01 million) and the highest number in Khordha (0.40 million).

Male Literacy: The male literacy Rate of the State has been 81.6 percent (Rural 79.6 percent; Urban 90.7 percent). The highest male literacy rate in rural areas is in Jagatsinghpur (92.5 percent), while the lowest is in Koraput (54.1 percent). In urban areas, the lowest male literacy rate is in Malkangiri (83.4 percent) and the highest in Khordha (94.2 percent). The male literacy rate (81.6 percent) of the state is more than that of the male literacy rate of India (80.9 percent).

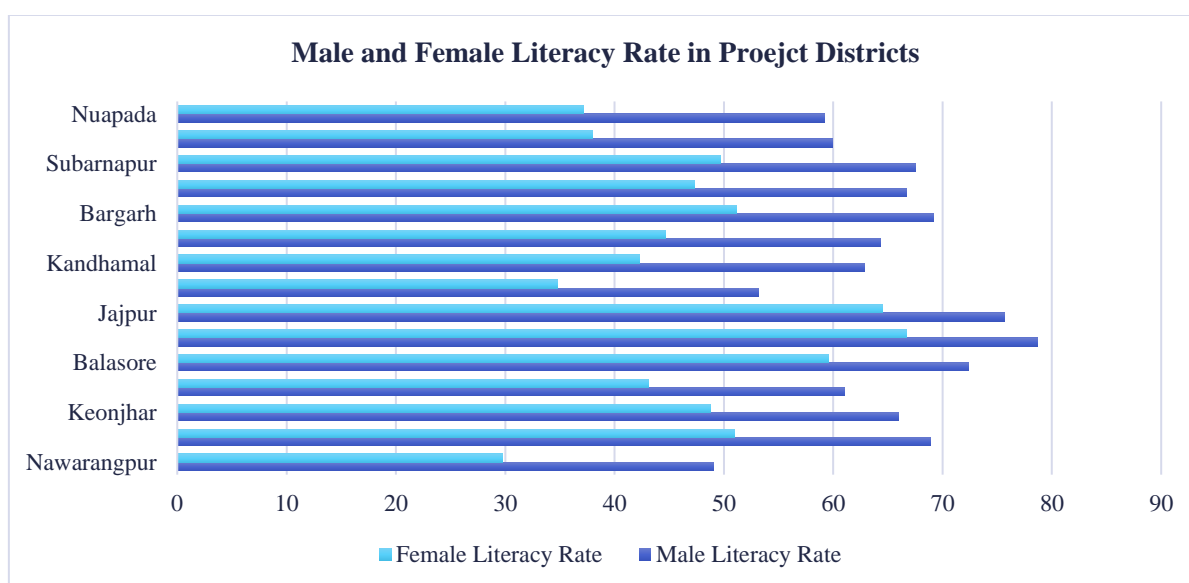


Figure 8: Male & Female Literacy Rate in Project Districts / Blocks

Female Literacy: The female Literacy Rate of the State has been 64.0 percent (Rural 60.7 percent; Urban 80.4 percent). The highest female literacy rate in rural areas is in Jagatsinghapur (80.4 percent), while the lowest is in Koraput (31.3 percent). In urban areas, the lowest female literacy rate is in Malkangiri (64.9 percent) and the highest in Khordha (87.5 percent).

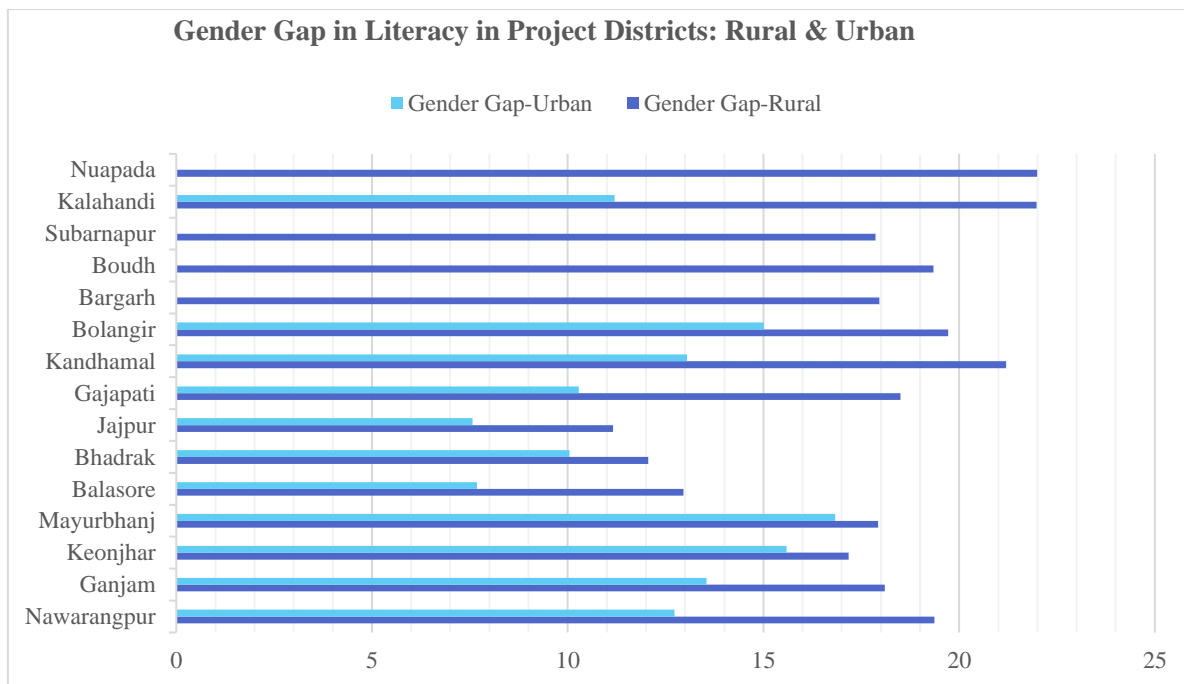


Figure 9: Gender Gap in Literacy Rate in Project Districts / Blocks

The female literacy rate has increased significantly by 13.5 percentage points in the last decade (Rural 14.0 percentage points and Urban 7.5 percentage points). On the other hand, male literacy rate increased only by 6.3 points (Rural-6.7 percentage points and Urban 2.8 percentage points). It is significant to note that the gap in literacy rate among males and females has reduced from 24.8 in 2001 to 17.6 in 2011 (Rural from 26.2 in 2001 to 18.9 in 2011 and Urban from 15.0 in 2001 to 10.3 in 2011).

3.2.1 Literacy among Scheduled Castes and Tribes

Among the project districts, highest literacy rate among STs observed in Sonepur (66.78 percent) followed by Bargarh (64.86 percent) and Boudh (63.84 percent). Lowest literacy rate among the STs of project districts observed in Nawarangpur (38.54 percent) and Bhadrak (43.49 percent). In high tribal concentrated districts, literacy rate among the tribals is comparatively less than that of districts with less concentration of tribal. Literacy rate of STs by project district is presented in the Table.

Table 18: Literacy Rate among Scheduled Tribes and Scheduled Castes in Project Districts

SN	District	Total (All Communities)			Scheduled Tribes			Scheduled Castes		
		Total	Male	Female	Total	Male	Female	Total	Male	Female
1	2	3	4	5	6	7	8	9	10	11
1	Balasore	79.79	87.00	72.28	50.06	61.47	38.71	72.79	82.16	63.12
2	Bargarh	74.62	83.68	65.38	64.86	75.47	54.30	68.43	78.47	58.27
3	Bhadrak	82.78	89.64	75.83	43.49	53.21	33.60	74.03	84.07	63.89
4	Bolangir	64.72	75.85	53.50	54.93	67.78	42.34	63.42	74.23	52.52
5	Boudh	71.61	83.34	59.79	63.84	77.88	50.17	66.90	79.54	54.29
6	Gajapati	53.49	64.38	43.18	43.66	55.39	32.83	51.03	62.40	40.45
7	Ganjam	71.09	80.99	61.13	49.71	60.71	38.89	59.62	72.31	47.22
8	Jajpur	80.13	86.84	73.29	47.60	59.68	35.48	70.30	79.29	61.02
9	Kalahandi	59.22	71.90	46.68	49.29	63.31	35.84	61.97	73.95	50.29
10	Kandhamal	64.13	76.93	51.94	58.34	72.12	45.58	66.12	78.88	53.90
11	Keonjhar	68.24	78.12	58.28	53.24	65.22	41.56	73.77	83.81	63.76
12	Mayurbhanja	63.17	73.76	52.71	53.11	65.28	41.36	66.06	76.40	55.88
13	Nawapara	57.35	70.29	44.76	51.01	65.13	37.73	60.03	72.40	47.97
14	Nawarangpur	46.43	57.31	35.80	38.54	49.46	28.02	57.61	67.73	47.60

15	Sonepur	74.42	84.40	64.04	66.78	77.38	56.05	70.34	80.95	59.29
	Odisha	72.87	81.59	64.01	52.24	63.70	41.20	69.02	79.21	58.76

Source: Census of India, 2011.

1. The literacy rate of the state is 72.87 percent (census 2011) with male literacy rate of 81.59 percent and female literacy rate of 64.01 percent;
2. The literacy rate of tribal is lowest among all other social categories with 52.24 percent (census 2011);
3. The male literacy rate of tribal 63.70 percent, whereas female literacy rate is 41.20 percent;
4. Gender-gap in literacy rate is found to be 22.5 percentage points in case of tribals;

3.3 Worker Participation Rate

As per Census 2011, the total number of workers in Odisha, is 17.54 million, of which 11.90 million workers are males and 5.64 million are females. Out of the increase of 3.27 million workers during the decade 2001-2011, 2.10 million are male workers and 1.16 million are female workers. The workers have registered a growth of 22.9 percent, which is higher than the overall population growth rate of 14.0 per cent during the decade. The male workers have grown by 21.4 percent and female workers by 26.0 percent. Distribution of workers reflect that 15.10 million workers are in the rural areas and 2.44 million are in the urban areas. The female workers in rural and urban areas are 5.16 million and 0.48 million respectively.

The Work Participation Rate (WPR) of the state is 41.8 percent which is higher than the corresponding WPR of 38.8 per cent in Census 2001. The WPR for males has increased to 56.1 percent in 2011 in comparison to 52.5 percent in Census 2001. The female WPR has increased to 27.2 percent in 2011 from 24.7 per cent in Census 2001. Debagarh with 52.9 percent ranks first in WPR for total workers as well as female workers (47.3 per cent). The lowest WPR has been in Jajapur (30.2 percent). The lowest female WPR has been reported from Jajapur (7.3 percent). The highest male WPR has been reported in Bargarh (63.2 percent) and lowest in Jajapur (52.5 percent).

3.3.1 Main and Marginal Workers:

Out of 17.54 million total workers, 10.71 million are main workers and the remaining 6.83 are marginal workers. The percentage of main workers among the total workers is 61.0 percent (Census 2011) against 67.2 percent in Census 2001. The percentage of main workers among the male workers is 73.9 percent and female workers 33.9 percent. The percentage of both male and female main workers have reduced during the decade (male from 81.7 percent to 73.9 percent and female from 35.4 percent to 33.9 percent).

Amongst the 6.83 million marginal workers, 5.60 million work for 3 to 6 months whereas only 1.24 million work for less than 3 months, amounting to 81.9 percent and 18.1 percent respectively. Percentage share of persons working for 3 to 6 months is slightly higher in urban areas (85.5 percent) than in rural areas (81.7 percent), whereas for persons working for less than 3 months, it is higher in rural areas (18.3 percent) than its counterpart in urban areas (14.5 percent). Rayagada reported highest percent of marginal workers 86.4 percent in the 3 to 6 months category and Baleshwar reported the lowest 75.5 percent.

3.3.2 Categories of Economic Activities of the Workers:

The broad categories of economic activities, also known as a four-fold classification of the workers, are, Cultivators (C), Agricultural Labourers (AL), working in Household Industries (HHI) and Other Workers (OW). The cultivators and agricultural labourers broadly show the workers engaged in the

agricultural sector¹¹. Out of 17.54 million total workers, 4.10 million are cultivators and another 6.74 million are agricultural labourers. Thus, 61.8 percent of the workers are engaged in agricultural activities compared to 64.8 percent in Census 2001. Of the remaining workers, 0.78 million are in household industries and 5.91 million are other workers.

During the decade 2001-11, the census results show a fall of 0.14 million in cultivators and an increase of 1.74 million in agricultural labourers. The household industries have shown an increase of 0.08 million and other workers have increased by 1.59. The fall in the number of cultivators, during the decade 2001-11, was due to fall among the female cultivators. The number of female cultivators decreased to 0.73 million from 0.90 million in Census 2001. However, among the males the number of cultivators has increased to 3.38 in census 2011 from 3.35 in census 2001. Among the districts, Baleshwar has reported the highest numbers in the categories of cultivators (0.29 million) and Ganjam in the categories of other workers (0.60 million); Mayurbhanj has recorded highest number of agricultural labourers (0.57 million) and persons working in household industries (0.11 million).

Table 19: Overview of Work Participation and State Demography, Census 2011.

Particulars	Total	Rural	Urban
Total Population Person	41974218	34970562	7003656
Total Population Male	21212136	17586203	3625933
Total Population Female	20762082	17384359	3377723
Main Working Population Person	10707543	8623947	2083596
Main Working Population Male	8794413	7045991	1748422
Main Working Population Female	1913130	1577956	335174
Main Cultivator Population Person	3279769	3219409	60360
Main Cultivator Population Male	2924537	2869857	54680
Main Cultivator Population Female	355232	349552	5680
Main Agricultural Labourers Population Person	2420540	2355909	64631
Main Agricultural Labourers Population Male	1746831	1697973	48858
Main Agricultural Labourers Population Female	673709	657936	15773
Main Other Workers Population Person	4565748	2702910	1862838
Main Other Workers Population Male	3807869	2239950	1567919
Main Other Workers Population Female	757879	462960	294919
Marginal Worker Population Person	6834046	6479767	354279
Marginal Worker Population Male	3108242	2895583	212659
Marginal Worker Population Female	3725804	3584184	141620
Marginal Cultivator Population Person	824220	810942	13278
Marginal Cultivator Population Male	450813	442804	8009
Marginal Cultivator Population Female	373407	368138	5269
Marginal Agriculture Labourers Population Person	4319453	4263034	56419
Marginal Agriculture Labourers Population Male	1735005	1706770	28235
Marginal Agriculture Labourers Population Female	2584448	2556264	28184
Marginal Other Workers Population Person	1348779	1092219	256560
Marginal Other Workers Population Male	798385	636313	162072
Marginal Other Workers Population Female	550394	455906	94488
Non-Working Population Person	24432629	19866848	4565781
Non-Working Population Male	9309481	7644629	1664852
Non-Working Population Female	15123148	12222219	2900929

Source: Population Census 2011, Odisha

Odisha had 41.04 lakh cultivators and 67.40 lakh agricultural laborers out of 175.42 lakh total workers in 2011 census. The shares of cultivators and agriculture laborers together have fallen by 3 percentage points from 64.8 percent to 61.82 percent between 2001 and 2011 because of lower participation of women cultivators which decreased by 19 percentage points from 9 lakh to 7.29 lakh during the same interval. However, the number of male cultivators increased by 0.28 lakh during this period. Among the districts, Balasore has the highest number of cultivators (2.89 lakh). Mayurbhanj has the highest

¹¹ Persons engaged in plantation activities, considered as a part of “other workers”.

number of agricultural laborers (5.69 lakh) and persons working in household industries (1.14 lakh). Ganjam district recorded the highest number in the category of ‘other workers’ (5.95 lakh).

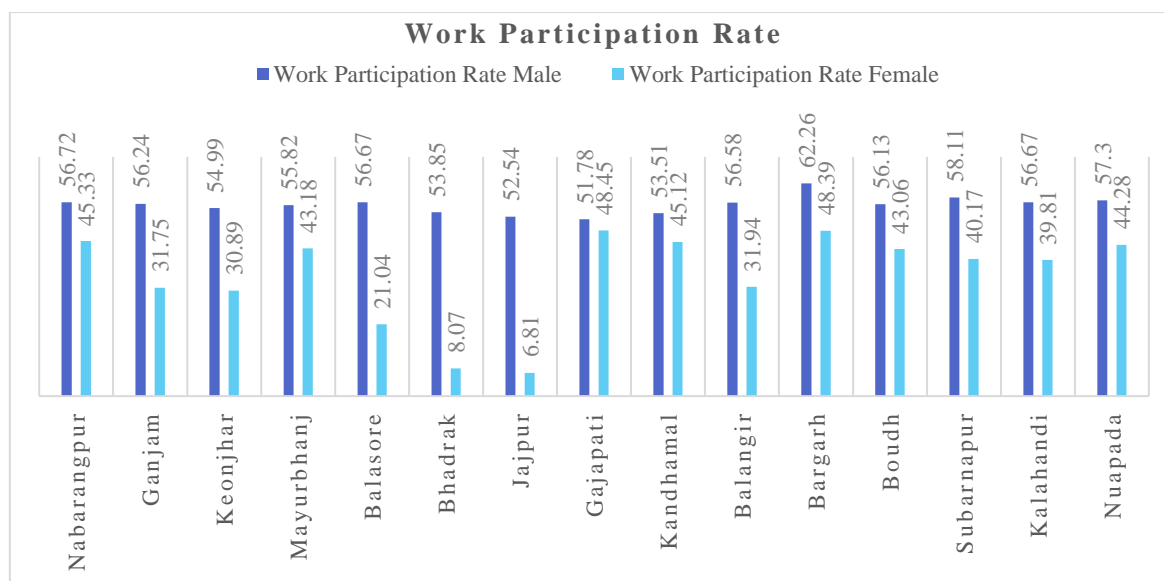


Figure 10: Work Participation Rate in Project Districts / Blocks

The Population Census 2011 shows that the State has more percentage of main working population in rural region (80.4 percent) than in urban region (19.6 percent). It can be easily observed that the rural region forms major part of the main cultivator population (98.16 percent) and main agricultural labourer population (97.33 percent). According to Population Census 2011, the State has more number of marginal other worker population in rural regions (80.98 percent) than in urban region (19.02). The annual growth rate of the population in Odisha from 2001 to 2011 is 18.42 percent. The main worker population increased to 1.11 percent from 2001 to 2011. The main cultivator population decreased to 0.46 percent from 2001 to 2011. The main agricultural labourer population in 2011 increased to 1.44 percent when compared to the main agricultural labourer population of 2001.

In project districts, work participation in case of male population varies from 50 percent to 65 percent which is above the national average i.e. 53.26 percent. Gajapati has least male work participation rate i.e. 51.78 percent while Bargarh has witnessed highest i.e. 62.26 percent. But in case of female work participation Gajapati has highest rate i.e. 48.45 percent way above than average national rate i.e. 30.02 percent and very low female work participation is observed in Jajpur i.e. 6.81 percent and Bhadrak i.e. 8.07 percent. Hence gender gap in work participation is highest in Bhadrak and Jajpur (Non-schedule area) around 45 percent and lowest in Gajapati i.e. 3.3 percent and Kandhamal i.e.8.39 percent (Schedule area). Most of the male workers are coming under main worker category (involved in work for more than 6 months in a year) and female workers are dominated under marginal category (involved in work less than 6 months in a year).

Table 20: Work Force Participation in Project Districts, Census 2011.

District	Work Participation Rate			Main Worker			Marginal Worker		
	Male	Female	Gender gap	Male	Female	Gender gap	Male	Female	Gender gap
1	2	3	4	5	6	7	8	9	10
Nabarangpur	56.72	45.33	11.40	39.68	8.24	31.43	17.05	37.08	-20.03
Ganjam	56.24	31.75	24.49	38.51	10.05	28.46	17.73	21.70	-3.97
Keonjhar	54.99	30.89	24.10	39.10	8.79	30.31	15.89	22.10	-6.21
Mayurbhanj	55.82	43.18	12.64	32.02	11.32	20.70	23.80	31.86	-8.06
Balasore	56.67	21.04	35.62	44.28	8.14	36.14	12.38	12.91	-0.52
Bhadrak	53.85	8.07	45.78	38.96	3.25	35.70	14.90	4.82	10.07
Jajpur	52.54	6.81	45.73	39.10	3.20	35.89	13.44	3.60	9.84

Gajapati	51.78	48.45	3.32	33.30	17.10	16.20	18.47	31.36	-12.88
Kandhamal	53.51	45.12	8.39	35.86	13.76	22.10	17.65	31.36	-13.71
Balangir	56.58	31.94	24.64	38.92	8.48	30.45	17.66	23.47	-5.81
Bargarh	62.26	48.39	13.87	43.65	11.71	31.95	18.61	36.68	-18.07
Boudh	56.13	43.06	13.07	40.58	9.91	30.67	15.55	33.15	-17.60
Subarnapur	58.11	40.17	17.94	36.42	8.45	27.98	21.68	31.72	-10.04
Kalahandi	56.67	39.81	16.86	36.69	9.22	27.47	19.98	30.59	-10.61
Nuapada	57.30	44.28	13.02	38.85	9.73	29.13	18.45	34.55	-16.11

Source: Census 2011

*Data is given for selected project blocks only, not the entire districts.

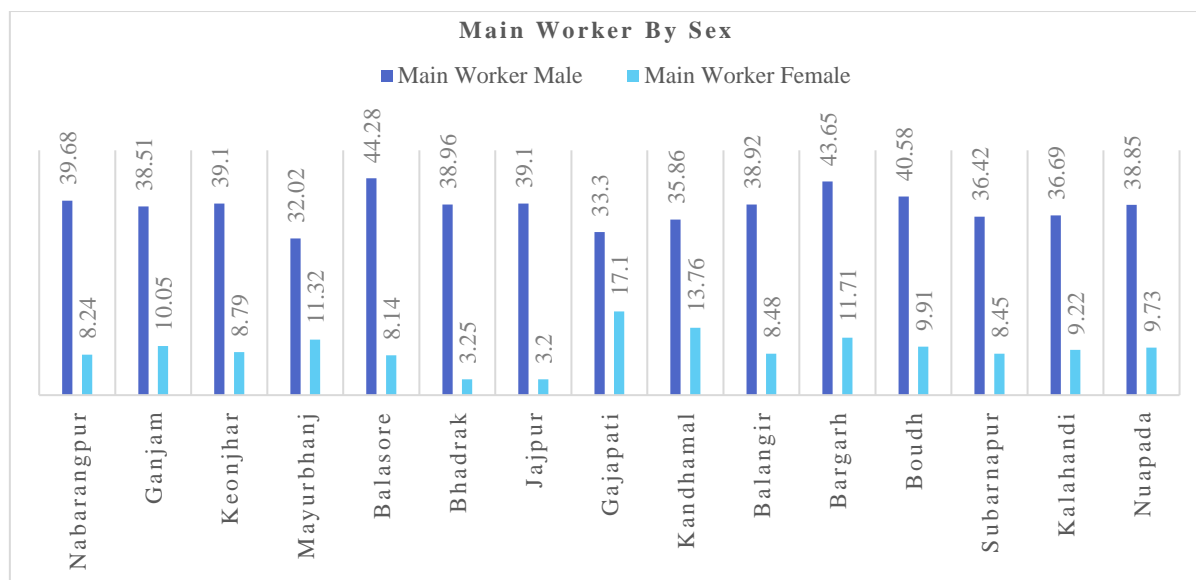


Figure 11: Main Worker by Sex in Project Districts / Blocks

The work participation distribution for different categories (Cultivator, Agricultural Labourer, HH Industrial Worker and Other workers) reflects that Nawarangpur district has highest male participation for agriculture activities i.e. 88.57 percent combining cultivator i.e. 57.50 percent and agricultural labourer i.e. 31.07 percent and least involvement in household Industrial activities i.e. 1.75 percent and other works i.e. 9.68 percent. The percentage of agricultural labourers is highest in Kalahandi district, i.e., 47.52 percent while percentage of cultivator is lowest, i.e., 28.26 percent for male workers. In case of Ganjam, least involvement in agriculture activities for male workers is observed i.e. 58.94 percent and more involved in non-agricultural activities i.e. 41.06 percent in comparison to other project districts.

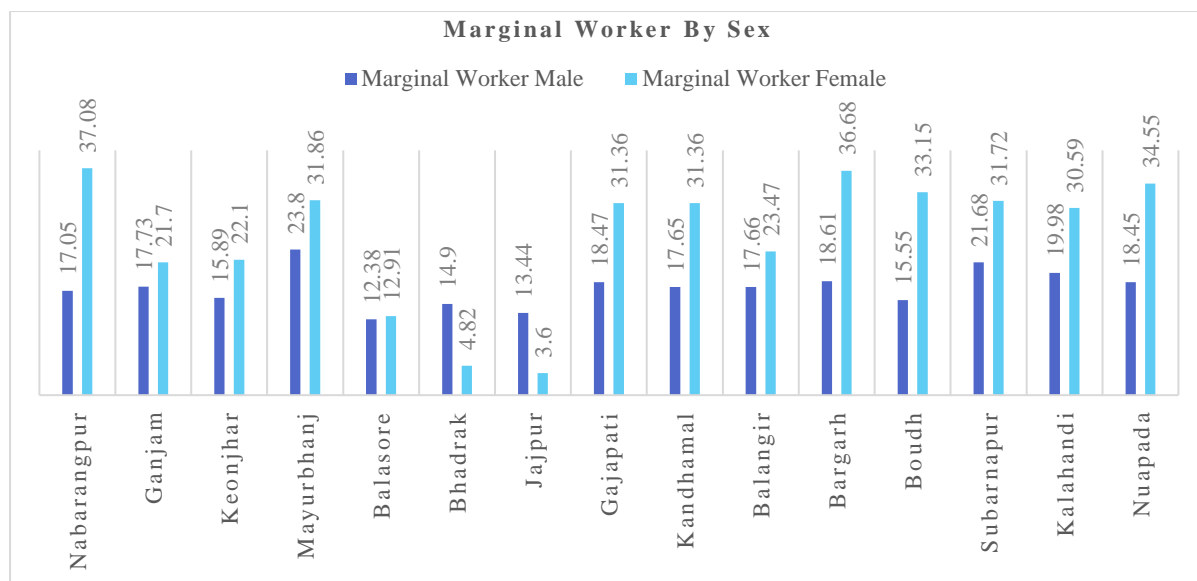


Figure 12: Marginal Worker by Sex in Project Districts / Blocks

Table 21 Category wise Male Work participation rate (Both Main and Marginal)

District	Cultivator (%)	Agricultural Labourer (%)	HH Industrial Worker (%)	Other Worker (%)	% of Odisha
1	2	3	4	5	6
Nawarangpur	57.50	31.07	1.75	9.68	0.99
Ganjam	28.35	30.59	4.33	36.73	5.95
Keonjhar	37.25	29.03	2.33	31.38	3.19
Mayurbhanj	28.80	39.79	4.77	26.64	4.33
Balasore	32.57	32.52	3.29	31.62	1.98
Bhadrak	38.28	33.82	2.82	25.08	2.20
Jajpur	24.35	38.16	3.32	34.17	1.09
Gajapati	39.76	38.39	2.07	19.79	0.28
Kandhamal	31.65	37.30	2.58	28.47	0.63
Bolangir	33.24	36.18	3.71	26.88	2.43
Bargarh	39.20	44.16	3.57	13.07	1.06
Boudh	43.42	35.62	4.10	16.86	0.35
Subarnapur	34.17	46.09	3.02	16.72	0.21
Kalahandi	28.26	47.52	2.34	21.88	2.90
Nuapada	42.23	33.77	3.25	20.76	0.59

Source: Census 2011

*Data is given for selected project blocks only, not the entire districts.

For agriculture activities female workers are more involved as agricultural labourers but not as cultivators in all project districts. The percentage of female workers dependent on agriculture activities is highest in Nawarangpur district, i.e., 91.75 percent and least in Jajpur, i.e., 49.38 percent. In case of Jajpur and Bhadrak districts most of the female workers are involved in non-agricultural works, i.e., 50.61 percent and 45.81 percent respectively compared to other project districts.

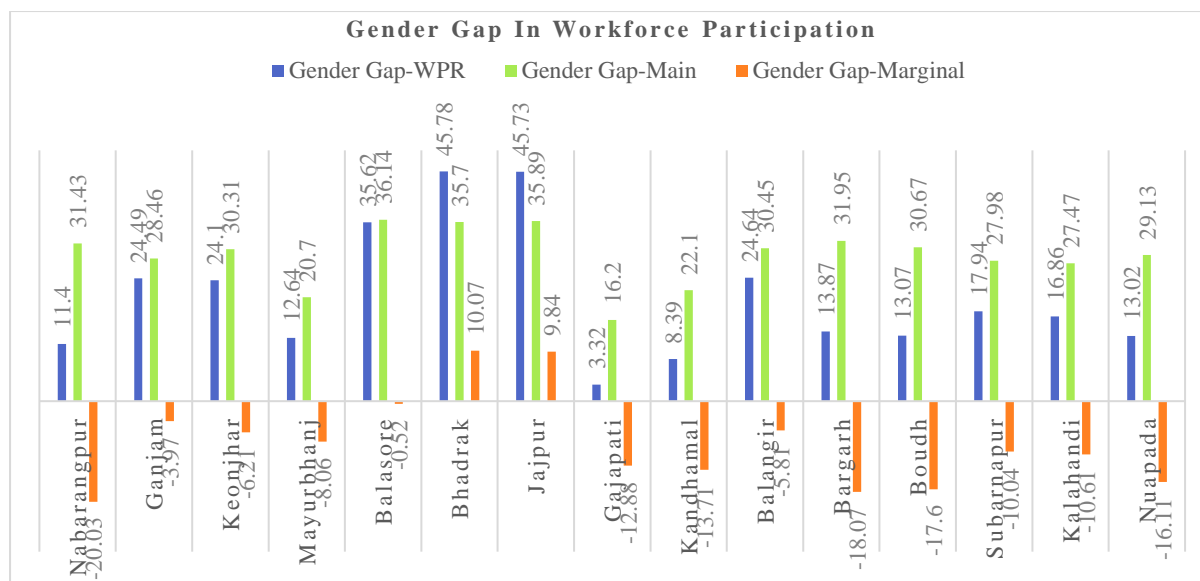


Figure 13: Gender Gap in Workforce Participation in Project Districts / Blocks

Table 22: Category wise Female Work participation rate (Both Main and Marginal)

District	Cultivator (%)	Agricultural Labourer (%)	HH Industrial Worker (%)	Other Worker (%)	% of Odisha
1	2	3	4	5	6
Nawarangpur	15.08	76.67	2.16	6.09	1.68
Ganjam	11.93	67.26	2.52	18.29	7.03
Keonjhar	12.69	67.94	3.51	15.86	3.77
Mayurbhanj	8.02	60.93	14.23	16.82	7.13
Balasore	13.28	56.13	6.33	24.27	1.51
Bhadrak	15.57	38.63	6.92	38.89	0.69
Jajpur	9.35	40.03	5.63	44.98	0.29
Gajapati	17.27	66.34	2.48	13.92	0.59
Kandhamal	16.17	60.21	6.20	17.42	1.18
Bolangir	11.48	66.62	4.50	17.40	2.87
Bargarh	15.89	74.67	3.36	6.08	1.75
Boudh	9.33	77.09	5.29	8.28	0.57
Subarnapur	10.25	76.18	3.16	10.42	0.30
Kalahandi	9.33	76.36	2.62	11.69	4.32
Nuapada	19.11	68.23	3.35	9.30	0.98

Source: Census 2011

*Data is given for selected project blocks only, not the entire districts.

3.4 Land Holding

3.4.1 Number of Operational Holdings:

The number of operational holdings of the State has increased from 43.56 lakh (2005-06) to 46.67 lakh (2010-11). The fragmentation / division of operational holdings/families in semi-medium, medium and large size class may be the major factor for the increasing trend of holdings. The share of marginal and small holdings together was about 92% and the rest 8% belongs to semi medium, medium and large categories.

Table 23: Number of Operational Holding and Area Operated

Category	No. of Operational Holding				Area Operated (in Ha.)			
	2005-06	% to Total	2010-11	% to Total	2005-06	% to Total	2010-11	% to Total
1	2	3	4	5	6	7	8	9
Marginal	2597164	59.62	3368296	72.17	1341668	26.73	1921842	39.61
Small	1156162	26.54	918647	19.68	1587713	31.63	1497752	30.87

Semi-Medium	472129	10.84	311261	6.67	1250650	24.92	918947	18.94
Medium	119529	2.74	63688	1.36	658208	13.11	381272	7.86
Large	11408	0.26	5574	0.12	181237	3.61	132201	2.72
All Size	4356392	100.00	4667466	100.00	5019476	100.00	4852014	100.00

Source: Agriculture Census, 2010-11

The total operational holdings comprise 46.58 lakh individual holdings, 0.07 lakh Joint holdings and 0.02 lakhs institutional holdings. The female holding was estimated to be 1.54 lakh which accounted for 3.29 percent in the State.

3.4.2 Operated Area:

The State had a total operated area of 48.52 lakh ha. in 2010-11 which shows a decrease of 3.34 percent over 2005-06. The reason for decrease of operated area may be attributed to urbanization and industrialization in the State. The share of operated area of marginal and small size together was 70.48 percent and the rest 29.52 percent was that of semi-medium, medium and large category. The share of holdings operated by female was 1.48 lakh ha. (3.05 percent) in the State.

Table 24: Operated Area Holding

Size Group	Individual	Joint	Institutional	Total
1	2	3	4	5
Marginal	19,19,520	2,209	113	19,21,842
Small	14,94,034	3,580	139	14,97,752
Semi-Medium	9,14,658	3,864	425	9,18,947
Medium	3,77,690	2,496	1,086	3,81,272
Large	80,023	533	51,644	1,32,201
All Size	47,85,925	12,682	53,407	48,52,014

The individual operational holdings had a total operated area of 47.86 lakh ha. whereas the joint holdings and institutional holdings had 0.13 lakh ha. and 0.53 lakh ha. of operated area respectively.

The average size of holding in the State had decreased from 1.15 ha. (2005-06) to 1.04 ha. in 2010-11 which is due to decrease in operated area and increase in number of holdings. The average size of holding in case of marginal, small, semi-medium, medium and large groups was 0.57 Ha., 1.63 Ha., 2.95ha., 5.99 ha. and 23.72 ha. respectively. However, the SC and ST holdings had an average operated area of 0.81 Ha. and 1.13 Ha. respectively.

Table 25: Average Size of Operational Holding

Size Group	Number of Holdings	Area Operated (Ha.)	Average Size of Holding (Ha.)
1	2	3	4
Marginal	33,68,296	19,21,842	0.57
Small	9,18,647	14,97,752	1.63
Semi-Medium	3,11,261	9,18,947	2.95
Medium	63,688	3,81,272	5.99
Large	5,574	1,32,201	23.72
All Size (2010-11)	46,67,466	48,52,014	1.04
2005-06	43,56,392	50,19,476	1.15

The number of holdings in the State in 1970-71 was 34.07 lakh and increased to a level of 35.16 lakh in 1976-77. In 1980-81, the number of holding was declined to 33.28 lakh. Thereafter, the number of holdings reflected an increasing trend and reached a level of 46.67 lakh in 2010-11. The rate of increase of number of holdings over 1970-71 to 2010-11 comes to 36.98%.

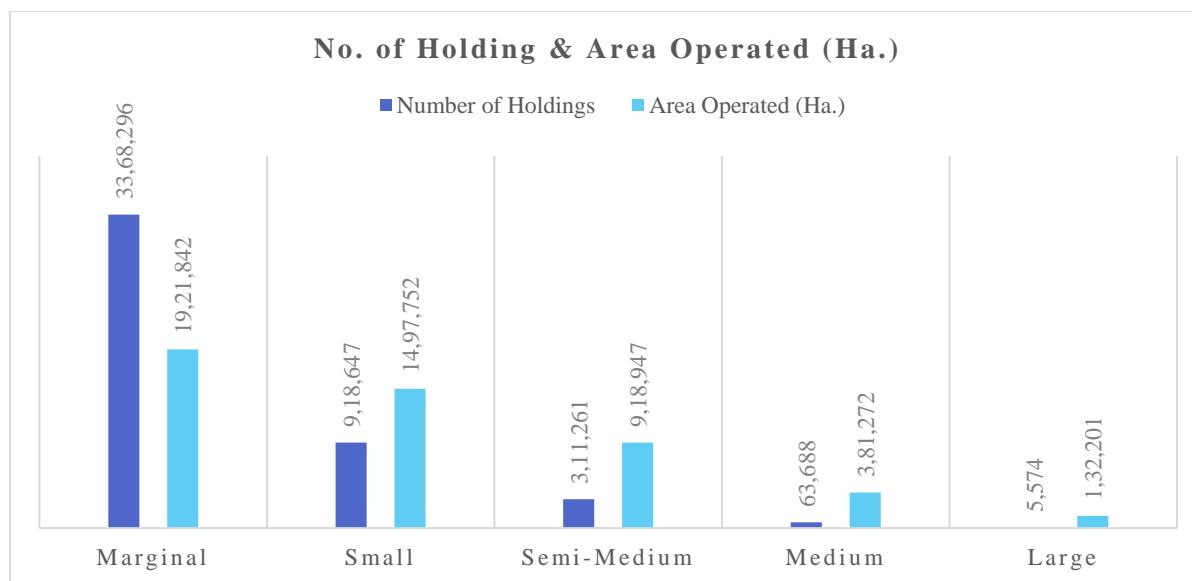


Figure 14: No. of Holding & Area Operated by Holding Group

Table 26: Trend in Average land Holding

Year	Number of Holdings	Area Operated (Ha.)	Average Size of Holding (Ha.)
1	2	3	4
1970-71	34,07,418	64,48,715	1.89
1976-77	35,16,078	57,31,433	1.60
1980-81	33,28,150	52,77,512	1.59
1985-86	35,85,528	52,60,818	1.47
1990-91*	39,47,947	52,95,782	1.34
1995-96	39,66,489	51,43,866	1.30
2000-01*	40,67,135	50,81,033	1.25
2005-06*	43,56,392	50,19,476	1.15
2010-11*	46,67,466	48,52,014	1.04

Source: Agriculture Census, 2010-11;

Note: *: Includes Urban Holdings

The operated area of the State was 64.49 lakh ha. in 1970-71 and shows a declining trend up to 1985-86, wherein the operated area was 52.61 lakh ha. But in 1990-91, the total operated area was marginally increased to 52.96 lakh ha. The marginal increase was attributed to inclusion of urban holdings. Then the area was declined and reached a level of 48.52 lakh ha. in 2010-11. The rate of decrease in operated area works out to 24.76% over 1970-71.

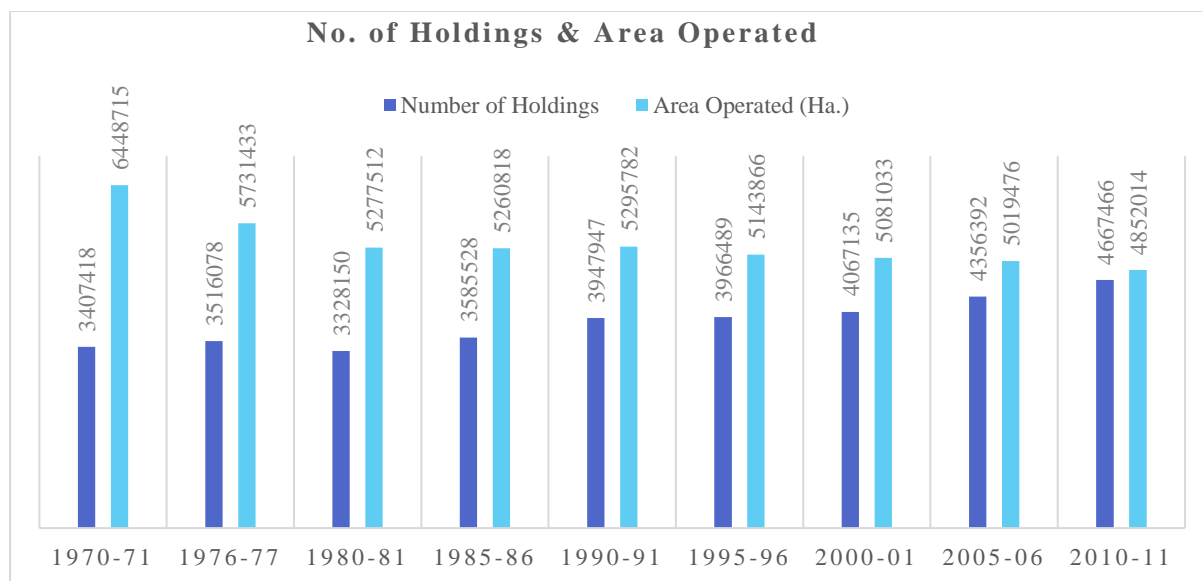


Figure 15: Trend in Number of Holdings and Area Operated in the State

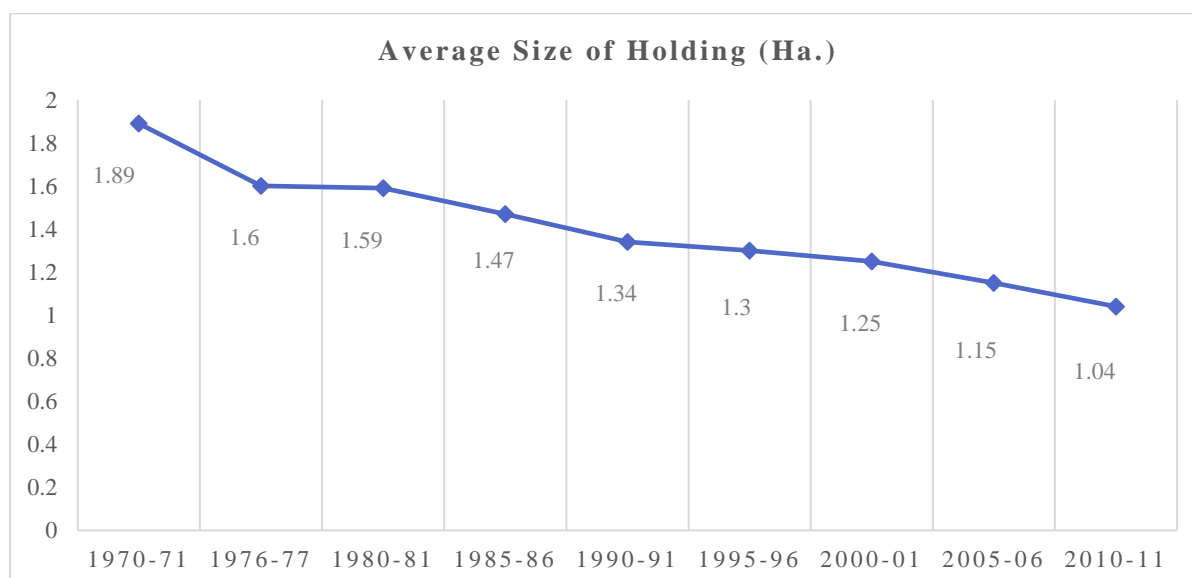


Figure 16: Trend in Average Size of Holdings

3.4.3 Status of Operational Holdings by Social Groups:

The total number of holdings of Scheduled Caste (SC) and Scheduled Tribe (ST) in the state was estimated as 7.02 lakh and 14.26 lakh respectively which shows an increase of 11.30 percent and 1.29 percent over 2005-06. The increase in number of holdings may be attributed to division of families as well as cultivation of lands of Other Caste (OC) by SC and ST families. The SC female holdings and ST female holdings constituted 3.05 percent and 4.66 percent respectively of the total SC/ST holdings.

The share of SC and ST holdings in the operated area had increased from 10.50 percent to 11.65 percent in case of SC and decreased from 34.83 percent to 33.28 percent in case of ST holdings. In case of OC, the percentage share had marginally increased from 54.67 percent to 55.07 percent.

Table 27: Land Holding by Scheduled Castes and Scheduled Tribes

Social Groups	2005-06		2010-11		% to Total of 2010-11	
	Number	Area	Number	Area	Number	Area

	(lakh)	(lakh ha)	(lakh)	(lakh ha)	(lakh)	(lakh ha)
1	2	3	4	5	6	7
Scheduled Caste (SC)	6.31	5.27	7.02	5.65	15.05	11.65
Scheduled Tribe (ST)	14.07	17.48	14.26	16.15	30.54	33.28
Other Caste (OC)	23.18	27.44	25.39	26.72	54.41	55.07
Total	43.56	50.19	46.67	48.52	100.00	100.00

*OC includes Institutional holdings.

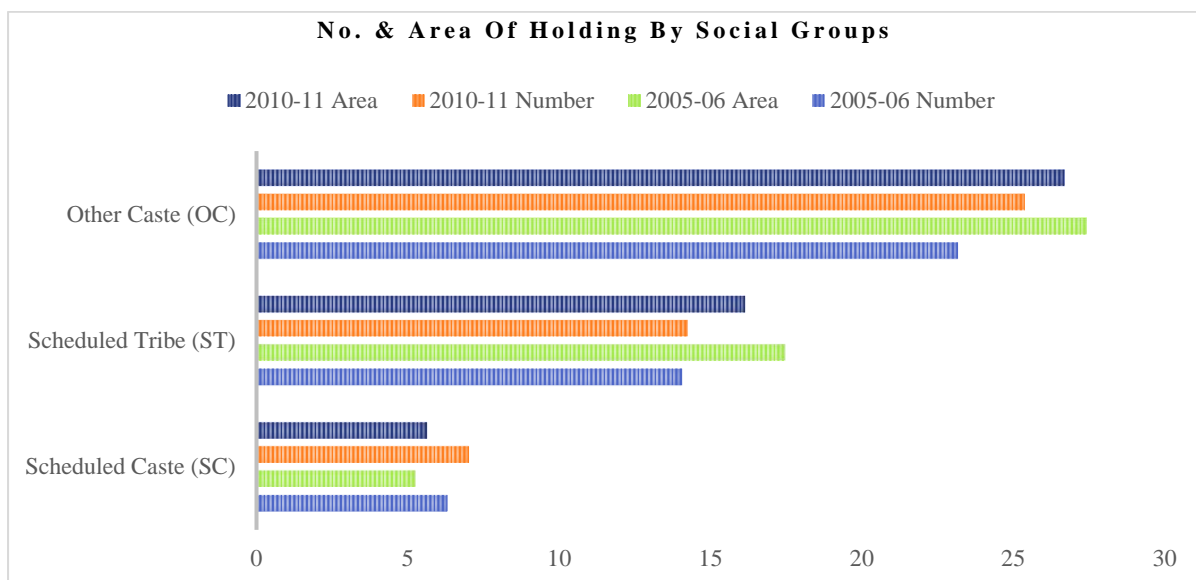


Figure 17: No. & Area of Holding by Social Groups

At the project district level, the average holding size of Scheduled Tribes (1.07 Ha.) is higher than Scheduled Castes (0.81 Ha.), whereas Overall average holding of all social group is 1.04 Ha. (refer Table 28)

Table 28: Social Group Wise No. of Operational Holding by Project District.

District Name	Scheduled Caste			Scheduled Tribe			All Social Group		
	No	Area	Average	No	Area	Average	No	Area	Average
1	2	3	4	5	6	7	8	9	10
Balasore	61328	41492	0.68	28887	20144	0.70	285759	221581	0.78
Baragarh	28660	23938	0.84	44146	52801	1.20	193336	259515	1.34
Bhadrak	49189	37758	0.77	1752	1130	0.64	190915	170349	0.89
Bolangir	40567	35430	0.87	58154	67592	1.16	249605	277289	1.11
Boudh	14958	10834	0.72	9963	13375	1.34	75922	80266	1.06
Gajapati	1905	1129	0.59	51255	40879	0.80	69343	56414	0.81
Ganjam	41036	31150	0.76	14511	15984	1.10	295389	273919	0.93
Jajpur	34399	34092	0.99	8865	11093	1.25	125411	147883	1.18
Kalahandi	31576	33344	1.06	61182	93791	1.53	184310	255684	1.39
Kandhamal	14672	9532	0.65	61707	71184	1.15	91512	92801	1.01
Keonjhar	23740	17742	0.75	123950	116651	0.94	256477	253167	0.99
Mayurbhanj	22294	14401	0.65	246790	229630	0.93	389981	357627	0.92
Nawarangpur	21674	24933	1.15	86666	113451	1.31	146456	187942	1.28
Nuapara	12569	12382	0.99	37097	46993	1.27	98750	120502	1.22
Sonepur	19632	11837	0.60	10678	9356	0.88	95721	91701	0.96
State Total	702478	565464	0.80	1425507	1614693	1.13	4667466	4852014	1.04

Source: Agriculture Census, 2010-2011; Area in Ha.

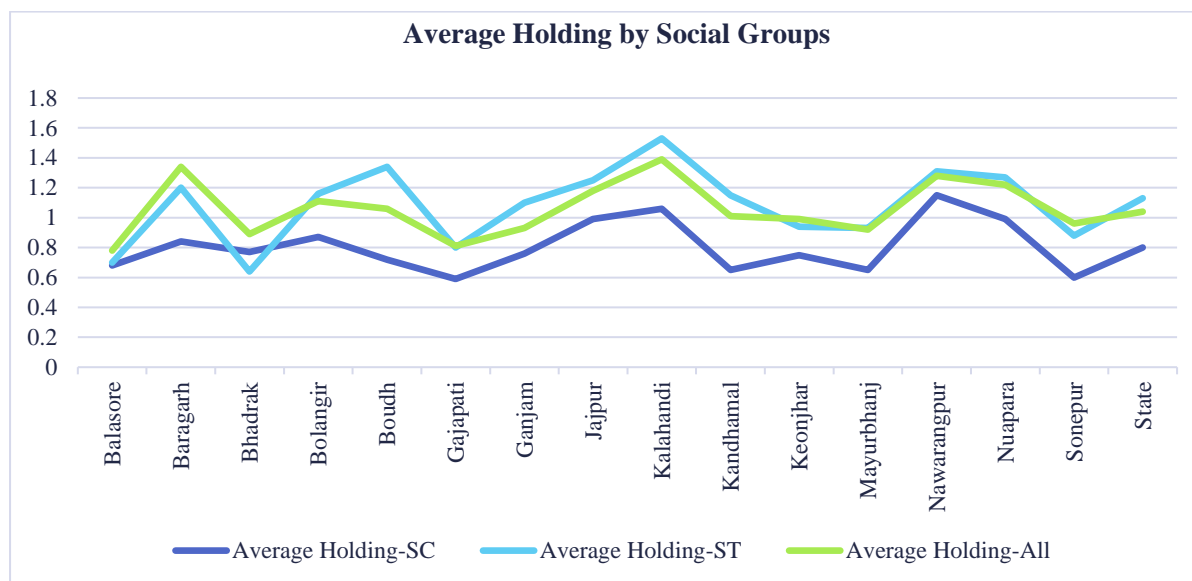


Figure 18: Average Holding (in Ha.) by Social Groups

Table 29: Average Size of Holding by Sex and Social Class

Size Groups		Scheduled Castes			Scheduled Tribes			All Social Groups		
		No.	Area (in Ha.)	Average	No.	Area (in Ha.)	Average	No.	Area (in Ha.)	Average
		2	3	4	5	6	7	8	9	10
Marginal	M	547144	287594	0.53	902444	557403	0.62	3253094	1860313	0.57
	F	17729	8525	0.48	47060	27233	0.58	114837	61416	0.53
	T	564873	296118	0.52	949504	584636	0.62	3368296	1921842	0.57
Small	M	104931	167468	1.60	321890	521582	1.62	891105	1453305	1.63
	F	2938	4458	1.52	13842	22270	1.61	27429	44309	1.62
	T	107869	171927	1.59	335732	543852	1.62	918647	1497752	1.63
Semi Medium	M	25691	74479	2.90	113586	331334	2.92	301816	891402	2.95
	F	665	1922	2.89	4662	13558	2.91	9273	27120	2.92
	T	26356	76401	2.90	118248	344892	2.92	311261	918947	2.95
Medium	M	3138	18165	5.79	20050	117388	5.85	61557	368476	5.99
	F	92	536	5.83	817	4782	5.85	1946	11709	6.02
	T	3230	18702	5.79	20867	122170	5.85	63688	381272	5.99
Large	M	140	2176	15.54	1098	18117	16.50	4316	77231	17.89
	F	10	141	14.08	58	1025	17.67	195	3326	17.05
	T	150	2316	15.44	1156	19143	16.56	5574	132201	23.72
All Group	M	681044	549881	0.81	1359068	1545824	1.14	4511888	4650727	1.03
	F	21434	15583	0.73	66439	68868	1.04	153680	147879	0.96
	T	702478	565464	0.81	1425507	1614693	1.13	4667466	4852013.7	1.04

Source: Agricultural Census, 2010-11; Note: M: Male, F: Female, T: Total

3.5 Status of MIPs and Tank Management

The State is having 4.152 number of MIPs of which 67.85 percent MIPs are in project districts. Distribution of tanks by its classification in project districts (all 15 project districts) reflects that 60.31 percent MIPs are completed and operational (State: 59.27 percent), 17.89 percent are partially derelict (State: 17.17 percent) and 6.28 percent are completely derelict (State: 7.73 percent). The total MIPs in the project districts are having a designed ayacut of 3.76 Lakh ha. and certified ayacut of 2.78 lakh ha. in Kharif. Designed Rabi Ayacut is about 0.47 lakh ha. and certified Rabi Ayacut is 0.16 lakh ha. Designed Rabi Ayacut is 12.51 percent of the designed Kharif Ayacut and 5.82 percent of the certified

Ayacut. Overall, certified ayacut is Kharif is 73.97 percent of the designed ayacut for Kharif (State: 70.46 percent) and certified Rabi Ayacut is 34.39 percent of the designed ayacut for Rabi (State: 31.25 percent). Further, total designed ayacut of the project districts is 62.83 percent of the designed ayacut under MIPs of the State in Kharif and 56.76 percent in Rabi. Certified Ayacut area in Kharif is 65.95 percent of the total certified ayacut area of the State in Kharif and 62.46 percent in Rabi¹² (refer Table 30).

Table 30: Minor Irrigation Tanks in Project Districts

Project Districts	Number of MIPs							Total of all MIPs (Ayacut in Ha.)			
	CO	PD	CD	RP	OP	TS	Total	Designed Ayacut in ha.		Certified Ayacut in ha.	
								Kharif	Rabi	Kharif	Rabi
Balangir	99	28	4	34	34	2	201	28,028.00	3,301.00	18,162.25	1,838.19
Balasore	48	1	1	1	1	0	52	10,457.00	3,198.00	8,350.38	2,024.57
Baragarh	98	42	12	22	30	0	204	31,989.00	3,572.00	19,464.66	1,092.37
Bhadrak	14	0	0	1	0	0	15	2,606.00	860	2,548.48	214.5
Boudh	56	4	6	1	7	0	74	15,567.00	1,649.00	13,728.58	557.29
Gajapati	88	52	3	3	8	0	154	22,556.00	2,724.00	15,771.70	-
Ganjam	773	196	76	108	28	0	1,181	1,17,604.25	7,659.00	94,897.88	-
Jajpur	49	31	42	1	10	0	133	15,169.00	2,428.00	6,159.76	491.4
Kalahandi	100	28	1	5	39	0	173	28,563.00	4,827.00	22,872.00	4,796.00
Kandhamal	50	1	1	1	6	0	59	9,424.00	3,423.00	5,885.49	507.17
Keonjhar	118	7	9	4	19	1	158	27,876.00	5,535.30	22,411.09	2,551.02
Mayurbhanj	119	73	20	5	22	0	239	36,005.70	3,942.00	28,492.74	684.99
Nabaranagpur	28	14	1	0	30	0	73	11,203.30	861	5,678.35	158.72
Nuapada	34	2	0	0	7	0	43	11,205.00	2,756.00	8,075.29	1,169.00
Subarnapur	25	25	1	0	7	0	58	7,449.00	266	5,390.40	76.85
Total	1,699	504	177	186	248	3	2,817	3,75,702.25	47,001.30	2,77,889.05	16,162.07
Odisha Total	2,461	713	321	276	361	20	4,152	5,98,011.54	82,803.44	4,21,368.57	25,877.53

Source: MI Census, 2015, Department of Water Resources, Govt. of Odisha

Note: CO: Completed & Operational, PD: Partially Derelict, CD: Complete Derelict, RP: Renovation under Progress, OP: Ongoing Project (New), TS: Technically Sanctioned Project

It is evident that the irrigation potential of the MIPs is much less in Rabi (5.82 percent of the certified Ayacut of Kharif) in comparison to Kharif. Further certified ayacut for Rabi is 65.61 percent less than the design Ayacut for Rabi. So, area irrigated in Rabi by these MIPs normally remains low especially when irrigation becomes an utmost necessity for the farmers. In this context, the project envisages to improve the irrigation potential of the MIPs, focusing on meeting the irrigation requirement during Rabi season.

Achievement of agricultural operation and the ensuing agrarian economy are identified with the availability of water and its ideal utilisation. In an irrigation system, the Operation and Maintenance (O&M) is the key for availability of irrigation water and its appropriate utilisation by the water users. Tanks, in general, have an important impact on the groundwater resources in their influence zone including the command area. The magnitude of the impact on groundwater potential depends largely upon the volume of the water stored in the tanks for a given period. The recharge varies from tank to tank depending upon the geology, geo-morphology, tank design, storage capacity, etc. Utilization patterns and consumer profiles are also not uniform in all circumstances and are location and region specific. Some tanks, either by design or because of their location in a specific hydro-geological setting, do not show their influence on the aquifer system in the immediate vicinity. The overall efficiency of the tank system depends on the utilization of groundwater resource both in the command and the influence zone of the tank necessitating wise groundwater management in that given unit.

The rapid spread of groundwater irrigation through bore-wells is resulting in a depletion of aquifers. In addition, the decline in tank irrigation and having no recourse to groundwater in the medium term would pose a serious threat to the fragile agricultural economy. Poorer farmers, often found at the tail-end of

¹² With reference to MI Census 2015, Department of Water Resources, Govt. of Odisha

dilapidated tank systems and lacking resources to access groundwater irrigation amidst low and falling water tables, are the most vulnerable in this scenario.

Reasons for decline in tank irrigation are summarized below:

1. Reduction in inflows to the tank due to
 - i. Insufficient rainfall
 - ii. Upstream abstractions (watershed development and other water harvesting structures)
 - iii. Improper condition of feeder channel
2. Failure of physical system
 - i. Crack in bund
 - ii. Improper condition of the bund with unstable side slopes not to standards and non-uniform Top Bund Level (TBL)
 - iii. Poor condition of surplus system which needs repairs to the masonry structures
 - iv. Inadequate functioning of sluice because of absence of shutters, leakages from shutter or masonry structure
 - v. Reduction in the storage of the tank due to silting, encroachments into the tank bed
3. Poor canal system
 - i. Improper design main canal with disfigured cross sections and disturbed bed slope
 - ii. Poor condition of cross masonry and cross drainage structures that increase the distribution losses
 - iii. Improper maintenance of the field channels
4. Poor water use efficiency due to
 - i. Mono cropping of water intensive crops like paddy
 - ii. Inequitable distribution of water
 - iii. Improper scheduling of water

The national framework for water resource management is driven by the Prime Minister Krishi Sinchai Yojna (PMKSY). The major objective of PMKSY is to achieve convergence of investments in irrigation at the field level, expand cultivable area under assured irrigation, improve on-farm water use efficiency to reduce wastage of water, enhance the adoption of precision-irrigation and other water saving technologies ('more crop per drop'), enhance recharge of aquifers and introduce sustainable water conservation practices.

Government of Odisha in partnership with the Government of India had initiated the Odisha Community Tank Management Project, with funding support from the World Bank. The project aimed at repairing and rehabilitating of irrigation tanks, achieving sustainability of restored minor irrigation systems through community participation, and institutional strengthening and empowerment to develop self-owned, self-managed and self-sustenance of Pani Panchayats.

Tank Irrigation Systems in Odisha are centuries old. Tank system structures are mostly constructed under the aegis of Kingship (Gadajata system) to support the basic human needs of drinking, bathing, irrigation and especially as a hedging mechanism against drought.

Table 31: Tanks / Ponds in Project Districts, 2013-14

RESOURCES OF TANKS/ POND IN THE STATE UP TO 2013-14 (Area in ha)									
Sl. No.	Districts	GP Tanks		Revenue tanks		Private tanks		Total	
		No	Area	No	Area	No	Area	No	Area
1	Jajpur	1823	835.88	608	205.86	5768	1411.29	8199	2453.03

2	Balasore	3045	1248.76	712	261.31	33202	4678.65	36959	6188.72
3	Bhadrak	2004	533.61	293	101.48	14276	2134.24	16573	2769.33
4	Mayurbhanja	4862	2350.78	1328	4697.75	11725	2446.5	17915	9495.03
5	Boudh	1236	1350.22	150	288.9	972	580.79	2358	2219.91
6	Gajapati	723	1120	145	3698.56	466	175.07	1334	4993.63
7	Ganjam	5949	8365.34	1380	17416	4122	2652.02	11451	28433.33
8	Kalahandi	3730	3938.11	71	1113.51	2686	962.89	6487	6014.51
9	Kandhamal	315	337.07	273	198.15	629	436.76	1217	971.98
10	Nabarangpur	1117	673.01	524	530.61	2652	561.27	4293	1764.89
11	Nuapada	952	655.97	315	1629.77	1436	700.5	2703	2986.24
12	Bolangir	5417	4705.77	61	152.24	923	360.01	6401	5218.02
13	Baragarh	3693	4824.71	122	217.54	3085	1409.99	6900	6452.24
14	Keonjhar	3447	1624.7	788	391.55	7024	1353.88	11259	3370.13
15	Sonepur	2771	3818.09	328	327.22	616	490.24	3715	4635.55
Odisha Total		63292	50309.7	13362	35933.4	162655	37934	239309	124177.2

Source: Disaster Management Plan of Fisheries Department 2014-15, Directorate of Fisheries Odisha, 2014

The State is having 63, 292 of GP Tanks, 13, 362 of Revenue Tanks and 1, 62, 655 of Private Tanks. From the table, it can be observed that the district Balasore has highest number of Private Tanks in the State and it also secures the first rank for having highest number of total tanks. Similarly districts like Kendrapara, Bhadrak and Puri also have more number of private tanks. More numbers of GP tanks are present in Ganjam, Kalahandi, Boudh, Gajapati, Bargarh, Jharsuguda, Sambalpur and Sonepur districts. Districts like Ganjam, Mayurbhanj, Kendrapara, Khurda, Cuttack and Balasore have good numbers of Revenue tanks. Balasore is having 15.44% of total tank in the State whereas Kendrapara is having 7.71% of total tank in the State. District Deogarh, Kandhamal and Gajapati have lesser number of total tanks in the whole State.

Table 32: Tanks in the State up to 2014-15

Type of Tanks	Number	Area (Ha)
GP Tank	63292	50309.69
Revenue Tank	13362	35933.42
Private Tank	177729	44990.54
Total	254383	131233.65

Source: Odisha at a Glance, 2016

As noted above, the number of GP Tank and Revenue Tank is remaining the same in 2014-15 but the number of Private Tank has increased to 177,729 in 2014-15 as compared to 162,655 in 2013-14. Also, the area under private tank has increased to 44,990.54 Ha.

3.6 Occupation and Income

The economy of Odisha recorded an annual average growth rate of 4.2 percent during the period 1951-2011 against the all-India average of 4.9 percent at base price of 2004-05. This implies a gap of 0.7 percentage points for the State from national average. From 2003 onwards, the growth rate of the State accelerated and entered into a higher trajectory of above 8 percent as against the national average of 7.5 percent thus becoming one of the fast-growing economies of the country.

Table 33: Gross State Value Added by Economic Activity (% share) at Current Basic Prices

Sl. No.	Economic Activity	Percentage Share						
		2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18
1.	Agriculture, Forestry and Fishing	17.87	21.44	20.24	22.21	20.04	21.57	19.98
1.1	Crops	11.60	15.05	13.56	15.03	12.34	13.96	12.54
1.2	Livestock	2.45	2.56	2.60	2.72	2.81	2.92	3.00
1.3	Forestry and Logging	2.60	2.49	2.80	2.93	3.06	2.68	2.36
1.4	Fishing and Aquaculture	1.22	1.34	1.28	1.53	1.83	2.01	2.08
2.	Mining and Quarrying	12.03	10.70	10.23	9.16	9.47	8.26	7.72
	Primary	29.89	32.15	30.46	31.37	29.51	29.84	27.70
3.	Manufacturing	18.69	16.91	18.43	16.00	16.10	16.46	16.23
4.	Electricity, Gas, Water Supply & Other Utility Services	3.52	3.76	3.72	3.42	4.07	3.60	3.64
5.	Construction	9.35	8.32	8.25	8.11	7.80	7.39	7.18
	Secondary	31.57	28.99	30.41	27.53	27.98	27.45	27.05
6.	Trade, Repair, Hotels and Restaurants	9.24	9.78	9.88	10.26	10.08	10.14	10.37
6.1	Trade & Repair Services	8.35	8.91	9.03	9.43	9.19	9.24	9.46
6.2	Hotels & Restaurants	0.89	0.87	0.84	0.84	0.89	0.90	0.92
7.	Transport, Storage, Communication & Services related to Broadcasting	6.12	6.26	6.32	6.94	7.39	7.54	8.01
7.1	Railways	0.81	0.94	0.95	1.16	1.28	1.25	1.37
7.2	Transport by means other than Railways	3.72	3.77	3.71	3.89	4.03	4.14	4.36
7.2.1	Road transport	3.15	3.22	3.18	3.29	3.46	3.57	3.76
7.2.2	Water transport	0.19	0.17	0.15	0.16	0.13	0.13	0.13
7.2.3	Air transport	0.02	0.03	0.02	0.03	0.05	0.05	0.06
7.2.4	Services incidental to Transport	0.37	0.35	0.35	0.41	0.39	0.38	0.40
7.3	Storage	0.06	0.06	0.07	0.06	0.06	0.06	0.07
7.4	Communication & Services related to Broadcasting	1.52	1.49	1.59	1.82	2.01	2.09	2.21
8.	Financial Services	3.62	3.65	3.43	3.61	3.89	3.95	4.12
9.	Real estate, Ownership of Dwelling & Professional Services	7.75	7.63	7.65	7.87	8.12	7.76	7.81
10.	Public Administration and Defense	3.92	3.94	4.96	5.14	5.19	4.98	6.20
11.	Other Services	7.89	7.60	6.89	7.29	7.85	8.35	8.74
	Tertiary	38.54	38.86	39.13	41.10	42.52	42.72	45.25
12	Total GSVA at Basic Prices	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Source: Directorate of Economics and Statistics, Odisha

Table 34: Gross State Value Added by Economic Activity (Annual growth) at Current Basic Prices

Sl. No.	Economic Activity	Growth over previous year					
		2012-13	2013-14	2014-15	2015-16	2016-17	2017-18
1.	Agriculture, Forestry and Fishing	35.79	6.22	15.54	-6.33	22.26	1.64
1.1	Crops	46.79	1.37	16.68	-14.74	28.49	-1.46
1.2	Livestock	18.26	14.52	10.09	7.16	18.06	12.66
1.3	Forestry and Logging	8.33	26.63	10.08	8.58	-0.56	-3.32
1.4	Fishing and Aquaculture	24.88	6.88	26.51	23.66	24.87	13.78
2.	Mining and Quarrying	0.69	7.55	-5.76	7.39	-0.96	2.55
	Primary	21.67	6.66	8.39	-2.32	14.81	1.89
3.	Manufacturing	2.33	22.70	-8.60	4.50	16.04	8.26
4.	Electricity, Gas, Water Supply & Other Utility Services	20.83	11.44	-3.42	23.65	0.37	11.07
5.	Construction	0.71	11.60	3.43	-0.08	7.57	6.55
	Secondary	3.92	18.05	-4.70	5.53	11.39	8.17
6.	Trade, Repair, Hotels and Restaurants	19.66	13.69	9.41	1.95	14.26	12.26
6.1	Trade & Repair Services	20.67	14.17	9.83	1.20	14.26	12.27
6.2	Hotels & Restaurants	10.21	8.78	4.86	10.37	14.34	12.22
7.	Transport, Storage, Communication & Services related to Broadcasting	15.83	13.48	15.65	10.60	15.81	16.61

7.1	Railways	30.23	14.15	28.65	14.47	11.11	19.62
7.2	Transport by means other than Railways	14.77	10.52	10.57	7.57	16.42	15.77
7.2.1	Road transport	15.78	11.15	8.95	9.11	17.23	15.54
7.2.2	Water transport	1.51	0.62	11.96	-19.94	17.34	12.56
7.2.3	Air transport	111.39	-26.56	68.48	88.32	0.43	43.49
7.2.4	Services Incidental to Transport	8.91	12.62	21.54	0.08	11.27	15.49
7.3	Storage	10.14	18.52	3.01	4.77	10.49	15.76
7.4	Communication & Services related to Broadcasting	10.94	20.34	20.21	14.82	17.73	16.48
8.	Financial Services	14.32	5.71	10.68	11.96	15.25	14.41
9.	Real estate, Ownership of Dwelling & Professional Services	11.40	12.88	8.17	7.22	8.45	10.55
10.	Public Administration and Defense	13.64	41.79	9.12	4.86	8.96	36.52
11.	Other Services	8.89	2.11	11.31	11.79	20.80	14.92
	Tertiary	14.07	13.33	10.58	7.41	14.07	16.27
12	Total GSVA at Basic Prices	13.14	12.55	5.27	3.84	13.54	9.75
13	Gross State Domestic Product	13.30	13.29	6.00	5.28	14.00	10.28
14	Per capita GSDP	12.16	12.15	4.93	4.23	12.85	9.17

Source: Directorate of Economics and Statistics, Odisha

Odisha remains a better performer of economy among all major States in current decade. Both industries and services sectors, accounting for more than four-fifths of GSDP, continued to be the largest contributors to economic growth. However, the share of industries sector was 43.59 percent in 2011-12 and it declined to 34.77 percent in 2017-18. Services sector witnessed a continuous expansion with a share in total gross value-added rising from 38.54 percent in 2011-12 to 45.25 percent in 2017-18. Agriculture and allied sector, being still monsoon-dependent to some extent, showed a fluctuating trend. Its share increased from 17.9 percent in 2011-12 to 22.2 percent in 2014-15 and again declined to 20 percent in 2015-16 owing to deficient monsoon. It once again dropped to 20.0 percent in 2017-18 after rising to 21.6 percent in 2016-17.

Table 35: Gross State Value Added by Economic Activity (% share) at Constant Basic Prices

Sl. No.	Economic Activity	Percentage Share						
		2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18
1.	Agriculture, Forestry and Fishing	17.87	19.65	17.30	18.41	14.82	16.09	14.38
1.1	Crops	11.60	13.60	11.34	12.33	8.87	10.25	8.57
1.2	Livestock	2.45	2.37	2.39	2.27	2.19	2.08	2.08
1.3	Forestry and Logging	2.60	2.38	2.39	2.50	2.41	2.27	2.18
1.4	Fishing and Aquaculture	1.22	1.30	1.17	1.32	1.35	1.50	1.55
2.	Mining and Quarrying	12.03	11.20	12.27	11.15	13.55	13.52	13.28
	Primary	29.89	30.85	29.56	29.56	28.37	29.61	27.67
3.	Manufacturing	18.69	17.18	19.12	17.10	18.39	17.56	17.33
4.	Electricity, Gas, Water Supply & Other Utility Services	3.52	3.99	3.91	3.59	4.10	3.73	3.84
5.	Construction	9.35	8.67	8.49	8.36	7.52	7.25	7.05
	Secondary	31.57	29.84	31.53	29.05	30.01	28.54	28.22
6.	Trade, Repair, Hotels and Restaurants	9.24	9.81	9.72	10.37	10.23	10.42	10.66
6.1	Trade & Repair Services	8.35	8.93	8.89	9.52	9.32	9.50	9.72
6.2	Hotels & Restaurants	0.89	0.87	0.83	0.85	0.90	0.92	0.94
7.	Transport, Storage, Communication & Services related to Broadcasting	6.12	6.51	6.49	7.20	7.40	7.69	8.12
7.1	Railways	0.81	0.96	0.98	1.16	1.18	1.28	1.39
7.2	Transport by means other than Railways	3.72	3.94	3.83	4.09	4.13	4.22	4.42
7.2.1	Road transport	3.15	3.37	3.29	3.46	3.54	3.64	3.81
7.2.2	Water transport	0.19	0.18	0.16	0.17	0.13	0.13	0.13
7.2.3	Air transport	0.02	0.03	0.02	0.03	0.06	0.06	0.06
7.2.4	Services Incidental to Transport	0.37	0.37	0.36	0.43	0.40	0.39	0.41
7.3	Storage	0.06	0.06	0.06	0.05	0.06	0.06	0.07

7.4	Communication & Services related to Broadcasting	1.52	1.54	1.63	1.89	2.04	2.13	2.25
8.	Financial Services	3.62	3.87	3.68	3.98	4.04	4.03	4.18
9.	Real estate, Ownership of Dwelling & Professional Services	7.75	7.63	7.48	7.83	8.00	7.71	7.75
10.	Public Administration and Defense	3.92	3.98	4.95	5.24	5.27	5.13	6.38
11.	Other Services	7.89	7.51	6.59	6.78	6.68	6.87	7.03
	Tertiary	38.54	39.31	38.91	41.39	41.63	41.85	44.12
12	Total GSVA at Basic Prices	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Source: Directorate of Economics and Statistics, Odisha

The State's real growth rate averaged an impressive 7.02% as against 6.80 % at national level in last six years. 2016-17 was the year of macro buoyancy for Odisha with double digit real growth rate of 10.4%. During 2017-18, the state has registered a growth rate of 7.14% at 2011-12 prices, which surpassing all India growth rate of 6.5%. Services sector as a leading contributor to GSDP, has contributed 38.54 percent in 2011-12 which increases tremendously to 45.25 percent in 2017-18 and surpasses Agriculture and Industry sector over years. The consumer price inflation in the state exhibited a fluctuating trend and was the lowest level of 1.3% in 2017(up to Nov, 2017) as against all India level of 3.1 percent. The economic growth of the State in terms of GSDP at market prices was averaging 6.66 percent from 2012-13 to 2016-17 as against the all-India average of 6.84 percent. Compared to the all-India level in 2017-18, agriculture and allied sectors` share in Odisha is higher by 3.6 percentage points. The share of the industries sector is 6.3 percentage points higher than that for India as a whole. Share of services sector in Odisha is 9.9 percentage points less than the all-India figure.

During the fiscal period 2011 to 2017, while the economy expanded by 53 percent, its real per capita income increased by 42 percent to an estimated level of Rs. 92,727 in 2017-18. The per capita income at base year price of the State in terms of GSDP is estimated to be Rs 77, 193 in 2017-18, which experienced a 6.06 percent rise from Rs 72,780 in 2016-17. India`s per capita income at base year price rose by 5.1 percent with Rs. 98,673 in 2017-18 compared to Rs. 93,840 in the preceding year of 2016-17. During 2011-12, the per capita income of Odisha in base year prices stood at Rs. 54,109 and increased to Rs. 57,059 in 2012-13, Rs. 61,715 in 2013-14, Rs. 62,192 in 2014-15, and Rs. 66,600 in 2015-16. But the Per Capita Income of India in constant prices (same base year) was Rs. 88,706 in 2015-16. The per capita income of India appeared to be 1.27 times higher than Odisha.

3.6.1 Employment:

The State has a total workforce of 175.41 lakh, which is 41.8 percent of the total population as against 38.4 percent at the all-India level (Census 2011). The proportion of male and female workers has been 67.9 percent and 32.1 percent respectively. Of the total workers, the main workers constitute 61 percent, while the rest 39 percent belong to marginal workers. The total workers have registered a growth of 22.9 percent over 2001, which is higher than population growth rate of 14 percent during the decade.

Labour Force Participation Rate (LFPR) based on UPSS approach was estimated at 53.2 percent in Odisha while the corresponding figure at the all-India level was 52.4 percent during 2015-16. The gender-wise estimates show that 78.9 percent of males and 25.4 percent of females were either working or looking for work. Female participation was quite low compared to male counterparts in the State. Labour force participation at the all-India level for females was also at a lower level of 27.4 percent as against 75.5 percent for males. The LFPR in rural sector was 54.7 percent, whereas it was 44.7 percent in urban areas. The major reason for lower LFPR in urban area was the female participation rate, which was 14.2 percent only, while it was 27.4 percent in rural area.

It is observed that LFPR of the State was 53.5 percent in 2011-12 and it marginally decreased to 53.2 percent in 2015-16. The female participation remained the same at 25.4 percent in 2011-12 and 2015-16 after showing an increasing trend of 26.9 percent in 2012-13 and 30.1 percent in 2013-14. Female LFPR showed a fluctuating trend at the all-India level during this period. It declined to 26.9 percent in

2012-13 from 30 percent in 2011-12. But it again increased to 31.1 percent in 2013-14, but it fell to 27.4 percent in 2015-16.

The Worker Population Ratio (WPR) signifies the proportion of workers/ employed persons in the total population for a specific age group. It was estimated at 51.2 percent for Odisha during 2015-16 based on UPSS, which means 51.2 percent of persons aged 15 years and above were employed in the State. As regards rural-urban breakup, WPR was higher in rural Odisha (52.7 percent) than in urban Odisha (42.7 percent). The WPR status in Odisha registered an increase from 52.2 percent in 2011-12 to 54.0 percent in 2013-14, but decreased to 51.2 percent in 2015-16. Taking the male category, the pattern of WPR remained the same for different years, while in the female category, WPR increased by 4 percentage points during 2011-12 to 2013-14, but again dropped to 23.7 percent in 2015-16.

Unemployment¹³ rate was estimated at 3.8 percent in the State during 2015-16 compared to the all-India rate of 3.7 percent. The unemployment rate in the case of female category of urban India touched double digit 10.9 percent as against 9.4 percent in urban Odisha. Female unemployment rate is higher both in rural and urban areas in comparison to male counterparts in Odisha.

The trends in unemployment rate has been declining from 5.9 percent in 2012-13 to 3.8 percent in 2015-16 in Odisha. The decline was more pronounced in male category than female. During 2011-12, unemployment rate in the State was as low as 2.4 percent as against all India rate of 3.3 percent. But it increased to 5.1 percent in the State in 2012-13, which is 1.1 percentage point higher than all India rate of 4 percent.

Unemployment rate among male was 2.4 percent in 2011-12, but it increased to 2.9 percent in 2015-16. For the female category, the unemployment rate increased to 6.6 percent in 2015-16 from 2.4 percent in 2011-12.

As per NSS 2004-05, rural LFPR for male was estimated at 60.4 percent as against 60.6 percent in 2011-12. While the urban LFPR for male was lower at 55.3 percent in 2004-05, but it increased to 60.3 percent in 2011-12. With regard to rural female, it was 35.1 percent in 2004-05, but it declined to 25.1 in 2011-12. Similar pattern of decline was observed for urban female. The WPR for males increased both in rural and urban area in 2011-12, whereas it increased only for females in urban areas in 2011-12. But WPR for females in rural areas decreased to 24.6 percent in 2011-12 from 32.2 percent in 2004-05.

The unemployment rate was 3.1 percent for rural males in 2004-05, but it declined to 2.3 percent in 2011-12. Even for rural females, unemployment rate also declined in 2011-12. The decline in female unemployment rate was the highest (2.0 percent in 2011-12 from 26.6 percent in 2004-05).

The report of Sixth Economic Census, 2013 gives a comprehensive picture of employment in the State. There were 20.89 lakh establishments in the State engaged in different activities other than crop production, plantation, public administration, defence and compulsory social security services during 2013 by employing 43.18 lakh people. More importantly, the Compound Annual Growth Rate (CAGR) in total employment since 2005 is 1.93 percent. According to the previous census, the growth rate in employment between 1998 and 2005 was 1.81 percent.

3.7 Tribal Communities

Odisha is having sizeable number of tribal populations, which comprises 22.8 percent (census, 2011) of the total population of the state (22.1 percent during 2001 census). Of the total population of the state

¹³ Unemployment rate reflects the portion of the labour force which was available for work during the given reference period but did not get work.

(41.974 million), 9.59 million reported as Scheduled Tribe, of which 4.73 million are males (49.29 percent) and 4.86 million (50.71 percent) are females. The decadal change in tribal population in the State between two census periods, i.e., 2001 and 2011, remain to be 17.7 percent (India, 23.7 percent). The decadal change in tribal population in rural is less (16.8 percent) than that of urban (33.4 percent).

Tribal population in the State is mostly rural though there is an increasing trend of tribal population proportion in urban in comparison to total population. In the State of Odisha, the tribal population in rural was 24.6 percent and 8.1 percent in urban during 2001 of the total rural and urban population. The tribal population is rural increased to 25.7 percent and urban tribal population increased to 8.5 percent during 2011.

Table 36: Tribal Population Proportion in Odisha, 2001 and 2011

India/State/ Union Territory	Percentage of Scheduled Tribes 2001			Percentage of Scheduled Tribes 2011		
	Total	Rural	Urban	Total	Rural	Urban
Odisha	22.1	24.6	8.1	22.8	25.7	8.5
India	8.2	10.4	2.4	8.6	11.3	2.8

3.7.1 Tribal Population in Project Districts

As per the projected population for 2017-18, Schedule Tribe population is continued to be higher in five project districts i.e. Nabarangpur (56.34%), Keonjhar (46.14%), Mayurbhanj (60.26%), Gajapati (56.88%) and Kandhamal (54.75%) during year 2017-18. In some other project districts, tribal population is around or more than 25.0 percent such as in Subarnapur (27.09 percent), Boudh (25.21 percent) and Jajpur (24.24 percent). Scheduled Caste and Scheduled Tribe population as per the projected population for 2017-18 is presented in the Table 37.

Table 37: ST and SC Population (Projected for 2017-18)

District	ST population	SC population	% ST to total	% SC to total
Nabarangpur	776933	204608	56.34	14.84
Ganjam	143524	769503	3.76	20.18
Keonjhar	918378	231374	46.14	11.62
Mayurbhanj	1657090	195037	60.26	7.09
Balasore	314430	560981	12.32	21.98
Bhadrak	34777	373356	2.12	22.77
Jajpur	172241	480922	8.68	24.24
Gajapati	354478	39349	56.88	6.31
Kandhamal	437482	119968	54.75	15.01
Bolangir	407820	354699	21.36	18.58
Baragarh	296392	328683	18.72	20.76
Boudh	62502	125016	12.60	25.21
Subarnapur	60340	179598	9.10	27.09
Kalahandi	503116	328288	28.40	18.53
Nuapada	223361	89853	33.18	13.35
Odisha	10762592	8091589	23.39	17.59

*Above data is forecasted from census 2011 to year 2017-18 using CAGR method only for project districts

Among the project districts (census 2011), Mayurbhanj has the highest proportion of tribal population (58.72 percent), followed by Nabarangpur (55.79 percent), Gajapati (54.29 percent) and Kandhamal (53.58 percent). Lowest proportion of tribal population is in Bhadrak (2.02 percent) followed by Ganjam (3.37 percent), Jajpur (8.29 percent) and Sonapur (9.37 percent). Proportion of tribal population to total population of the project districts is presented in the Table.

Table 38: Tribal Population in Project Districts

Sl.	District	Total Population			Scheduled Tribe Population			ST Population Percentage to Total		
		Total	Male	Female	Total	Male	Female	Total	Male	Female
1	Balasore	2320529	1185787	1134742	275678	137748	137930	11.88	11.62	12.16
2	Bargarh	1481255	749161	732094	281135	140542	140593	18.98	18.76	19.20
3	Bhadrak	1506337	760260	746077	30428	15361	15067	2.02	2.02	2.02
4	Bolangir	1648997	830097	818900	347164	172489	174675	21.05	20.78	21.33
5	Boudh	441162	221625	219537	55364	27362	28002	12.55	12.35	12.76
6	Gajapati	577817	282882	294935	313714	151902	161812	54.29	53.70	54.86
7	Ganjam	3529031	1779218	1749813	118928	59172	59756	3.37	3.33	3.41
8	Jajpur	1827192	926034	901158	151432	76048	75384	8.29	8.21	8.37
9	Kalahandi	1576869	787101	789768	449456	221171	228285	28.50	28.10	28.91
10	Kandhamal	733110	359945	373165	392820	190506	202314	53.58	52.93	54.22
11	Keonjhar	1801733	906487	895246	818878	405927	412951	45.45	44.78	46.13
12	Mayurbhanja	2519738	1256213	1263525	1479576	730487	749089	58.72	58.15	59.29
13	Nawapara	610382	301962	308420	206327	100469	105858	33.80	33.27	34.32
14	Nawarangpur	1220946	604812	616134	681173	335028	346145	55.79	55.39	56.18
15	Sonepur	610183	311312	298871	57192	28794	28398	9.37	9.25	9.50
	Total State	41974218	21212136	20762082	9590756	4727732	4863024	22.85	22.29	23.42

Source: Census of India, 2011;

Table 39: ST Households and Population by Rural & Urban in Project Districts, 2011

SN	District	Total ST HH	% of State Total	Scheduled Tribe Population					
				Rural		Urban		Total	
				No.	%	No.	%	No.	%
1	2	3	4	5	6	7	8	9	10
1	Balasore	58,882	2.72	2,55,098	92.53	20,580	7.47	2,75,678	100.00
2	Bargarh	69,925	3.23	2,70,996	96.39	10,139	3.61	2,81,135	100.00
3	Bhadrak	6,192	0.29	24,347	80.02	6,081	19.98	30,428	100.00
4	Bolangir	87,697	4.05	3,34,672	96.40	12,492	3.60	3,47,164	100.00
5	Boudh	13,611	0.63	54,867	99.10	497	0.90	55,364	100.00
6	Gajapati	65,708	3.04	3,08,867	98.45	4,847	1.55	3,13,714	100.00
7	Ganjam	26,695	1.23	1,12,338	94.46	6,590	5.54	1,18,928	100.00
8	Jajpur	30,727	1.42	1,39,209	91.93	12,223	8.07	1,51,432	100.00
9	Kalahandi	1,12,518	5.20	4,40,775	98.07	8,681	1.93	4,49,456	100.00
10	Kandhamal	88,116	4.07	3,80,602	96.89	12,218	3.11	3,92,820	100.00
11	Keonjhar	1,74,692	8.08	7,59,937	92.80	58,941	7.20	8,18,878	100.00
12	Mayurbhanja	3,26,463	15.09	14,39,002	97.26	40,574	2.74	14,79,576	100.00
13	Nuapada	50,170	2.32	2,04,121	98.93	2,206	1.07	2,06,327	100.00
14	Nawarangpur	1,46,661	6.78	6,68,056	98.07	13,117	1.93	6,81,173	100.00
15	Subarnapur	13,730	0.63	55,256	96.61	1,936	3.39	57,192	100.00
	State Total	21,63,110	100.00	89,94,967	93.79	5,95,789	6.21	95,90,756	100.00

Source: Census of India, 2011;

In exercise of powers conferred by sub-paragraph 6 of the Fifth Schedule to the Constitution of India, the revised Presidential Order titled "The Scheduled Areas (states of Bihar, Gujarat, Madhya Pradesh & Odisha) Order 1977" has declared the full districts viz. Mayurbhanj, Sundargarh, Koraput (which now includes the districts of Koraput, Malkangiri, Nabarangapur and Rayagada), Kuchinda tahasil of Sambalpur district, Keonjhar, Telkoi, Champua, Barbil tahasils of Keonjhar district, Khondamal, Balliguda and G.Udayagiri tahasil of Khondamal district, R.Udaygiri tahasil, Gumma and Rayagada block of Parlekhemundi tahasil in Parlakhemundi Sub-division and Suruda tahasil (excluding Gazalbadi and Gochha Gram Panchayats), of Ghumsur sub-division in Ganjam district, Thuamul Rampur and Lanjigarh blocks of Kalahandi district and Nilagiri block of Balasore district as Scheduled Areas of the state. After reorganisation of districts in the state, 7 districts fully and 6 districts partly are covered under the Scheduled Areas of the state.

3.8 Fishery:

The State of Odisha is one of the major maritime States in the country, offering vast scope for development of inland, brackish water and marine fisheries. Freshwater resources of the State are estimated to be 6.76 lakh ha comprising 1.25 lakh ha of tanks/ponds, 2 lakh ha of reservoirs, 1.80 lakh ha of lakes, swamps & jheels and 1.71 lakh hectares of rivers and canals. The State's brackish water resources are of the order of 4.18 lakh ha with a breakup of 0.79 lakh ha of Chilika Lake, 2.98 lakh ha of estuaries, 32,587 ha of brackish water area and 8,100 ha of backwaters.

The total fish production of the State in 2013-14 was 4, 13,000 tonnes. The overall increase in fish production during the past five years from 2007-08 to 2012-13 was in the order of 63,660 tonnes, with an annual growth rate of about 3 percent. While the fish production from the inland fisheries (Freshwater and brackish water) resources has increased from 2, 18,716 tonnes to 2, 94,000 tonnes, the marine fish production declined from 1, 30,767 tonnes to 1, 20,000 tonnes during the corresponding period. The annual per capita fish consumption presently is 9.13 kg in Odisha as against the national per capita fish consumption of 9.8 kg.

Freshwater aquaculture in the State is being promoted through district level Fish Farmers Development Agencies (FFDAs). These FFDAs have so far brought under scientific fish farming in 62,167 ha in 30 districts with an average fish productivity of 2.13 tonnes/ha. Out of the total potential brackish water area of 38,575 ha, 32,587 ha has been found suitable for brackish water aquaculture. So far, 16,387 ha brackish water area has been developed, of which 10,174 ha has been brought under shrimp culture. The shrimp production during 2012-13 was 13,227 tonnes at the rate of 1,300 kg/ha/yr. There are 14 shrimp hatcheries with an installed annual capacity of 50.5 crore post larvae and about 73 percent (36.7 crore) of the total installed capacity is produced every year.

There are 3,878 fishermen villages of which 813 are marine and 3,065 are in-land. The total fishermen population in Odisha is 14,80,704 comprising 6,05,514 (CMFRI census 2010) are marine fishermen and the remaining 8,75,190 are inland fishermen. There are about 1,69,000 active marine and about 1,89,000 inland fishermen. The number of active fishermen cooperatives in the State is 638 (78 marine and 560 inland) with a total membership of 99,294 (19,651 marine and 79,643 in-land, source: CMFRI Census 2010). Findings of the baseline / assessment is presented below on fishery activities.

1. The very small ponds (<5 Ha.) are controlled by respective village development committee which undertakes, stocking @3-4000 advanced fry/Ha. Similarly, in larger ponds (> 10 Ha.) it was reported that, Stocking@ 2000-2250 fingerlings (>60mm)/Ha, were released during previous years, but irregular.
2. However, in both type of stocking and management, no / inadequate inputs were applied in terms of feed & aquaculture essentials, neither any other scientific inputs, as the water body are under multipurpose utility. Mostly, the harvesting is carried out once in a year aligning local traditional events. The species composition of the said harvest comprises various predator fish like Boal, Vaam, Striped & Snakehead Murrel, Flounders, Hump Back, and Sarana besides SIFS alongside IMC.
3. Some of the MIPs can be utilized for the promotion of fisheries with some restoration work, such as Bunds, inlet and outlet, community organization, deweeding and regular stocking. The stock thus recruited with various conservation majors can establish per capita return to supplement livelihood income by participation within a period of three years.
4. Benefit sharing in very small tanks (≥ 5 Ha.) is managed by the VDC, which represents the main village households (varying between 100-200 H/H). Whereas in larger endowments, PFCS is active and membership varies between (50-100 members) per PFCS. These member users

contribute for stocking and harvesting on annual basis in smaller endowments and in larger endowments same is managed through membership contributions.

5. There are 477 small public tanks across the total study command area of which, 53.45% were reported to be perineal & 46.54% were either seasonal or lying as derelict water bodies. Further 51.37% of perineal small tanks were reported to be managed by respective village committee and 28.62% were leased out either to individuals or self-help groups. The rest 22.74% remains not intervened due to reasons for not being auctioned, inter group conflicts, poor water quality and weed infestation etc.
6. The average variation in procurement to selling price varies between 10-30% as against procurement cost from the site of production on the basis of species wise demand and consumer preference. The local fresh fish had better demand than that of stock outsourced from Andhra Pradesh.
7. The retailers generally have 40-45 sittings in a year earning on an average Rs. 500-600/- per sitting. Normally the transactions are based on estimated per day turnover, otherwise the preservation becomes a liability as there is no ice factory available within 40-50kms and they have to manage by procuring ice from nearby traders from a distance of 10-12 Kms.
8. Presently there are 108 fish seed hatcheries in Odisha with the designed capacity for production of 67.35 crore fry, of which 27 are under the Fisheries Department, 5 under Odisha Pisciculture Development Corporation (OPDC), and 89 in the Private sector. In the context of fish seed production, it was observed that all the districts had either fish seed hatchery or seed rearing nurseries. These units are promoted by Govt. and private agencies.
9. The stakeholders across the study districts are not averse to adopt fishery, scientifically, in said MIPs, but majority of the infrastructure need rehabilitation and reconstruction (R&R) Intervention to facilitate feasibility for fishery promotion.
10. The R& R of ponds bearing ≤ 5 Ha's can be undertaken by respective Gram Panchayats adopting convergence with MGNREGS. Further, fisheries department may be coordinated for promotion of fisheries in the said tanks.
11. The self-help groups and other user community groups can be included in various ancillary activities like seed rearing, fish feed formulation, promotion of ornamental fish and fish input management centers across the command areas.
12. For further scientific input management, Collaboration with organization like FISHCOPFED may be considered to impact progressive supervision of fishery across the command area, lab to land facilities through ICT enabled Aqua one centers, knowledge exchange and institutional capacity building of cross cutting stakeholders.

3.8.1 Federation of Fishers in Odisha

The State of Odisha is having a federation of Primary Fishers Cooperative Societies, known as FISHFED. The federation is registered under the Odisha Cooperative Societies Act 1962 (O. C. S. Act 1962) as the Apex Fishermen's Cooperative Society of ODISHA. The federation has been functional from 1991, under the administrative control of F & ARD Dept. Govt. of Odisha. At present, 365 nos. of Primary Fishermen's Cooperative Societies are affiliated to FISHFED with more than 80,000 participating fishermen members from inland, marine and brackish water sectors. The overall objective of creating federation was to secure/ to act to secure the socio-economic interests & welfare of the poor

fishers of the State. FISHFED has been providing a number of services to secure socio-economic interest & welfare of PFCS. The services include;

1. Procuring fish & fish products from Primary Fishermen's Coop. Societies (PFCS);
2. Market fish & fish production hygienically;
3. Imparting training to fisher folk;
4. Undertaking extension work;
5. Raising funds required for business from financial institution / Govt.;
6. Supply fishing implements;
7. Conduct socio economic study of the PFCS;
8. Supporting affiliated societies with advance fund;
9. Acting as an agency of Govt. for the development of the PFCS;
10. Maintaining & manage Fish Harbour / Fish Landing Centres (FH/FLC) & Jetties of the Coastal area;
11. Providing hygienic fish & fishery product/s through hygienic kiosk & fish on wheel;

3.9 Inequality and Poverty:

The mean per capita expenditure of Scheduled Tribes has been less in comparison to Scheduled Caste and other social groups. However, among the social groups, the mean per capita expenditure of ST population experiences higher growth in rural areas, while SC group has higher growth in urban areas than other social groups. In rural Odisha, the mean per capita expenditure of ST group grew by 12.14 percent in 2011-12, while it increased by 11.2 percent for SC and 11.5 percent for 'others' groups. In urban Odisha, SC group registers higher growth with 14.1 percent followed by 'others' with 13.09 percent and ST with 12.4 percent

Table 40: Mean Per Capita Expenditure & Inequality by Social Groups

Social Group	Mean Per capita Expenditure			Gini Coefficient		
	2004-05	2011-12	Growth	2004-05	2011-12	Change
Rural						
ST	308	687	12.14	22.1	19.8	-2.3
SC	382	806	11.26	22.7	20.2	-2.5
Others	486	1041	11.50	25.7	23.3	-2.4
Urban						
ST	608	1379	12.41	33.0	36.7	3.7
SC	532	1339	14.10	29.9	29.8	-0.10
Others	856	2025	13.09	32.9	34.5	1.6

Source: Odisha Economic Survey, 2017-18

The level of consumption expenditure measured for various population groups (decile class¹⁴) shows that the poor 10 percent ST population (first decile) managed with per capita expenditure of Rs.159 in 2004-05 that increased to Rs.367 in 2011-12. Per capita expenditure of the rich 10 percent of ST (9th decile) population increased to Rs.920 in 2011-12 from Rs.412 in 2004-05, which was 2.5 times that of the poorest 10 percent population.

Table 41: Quantile Per Capita Expenditure (PCE) & Quantile Ratio of PCE

Social Group	10th	20th	80th	90th	90/10	80/20
Rural						
2004-05						
ST	158.87	197.86	346.73	412.02	159.35	75.24
SC	187.07	237.66	448.04	525.88	181.11	88.52
OC	222.43	286.31	568.82	696.52	213.14	98.67

¹⁴ The first decile class consists of poorest 10 percent of the population, while the 9th decile class consists of the richest 10 percent of the population.

2011-12						
ST	366.75	461.36	778.67	920.19	150.90	68.78
SC	441.19	523.59	925.49	1071.61	142.89	76.76
OC	521.73	645.50	1202.07	1431.02	174.28	86.22
Urban						
2004-05						
ST	247.16	280.30	770.30	1004.60	306.46	174.81
SC	222.67	278.47	583.41	769.88	245.76	109.51
OC	284.38	388.14	1116.02	1331.49	368.21	187.53
2011-12						
ST	543.79	659.47	1466.37	2277.14	318.75	122.36
SC	589.58	777.45	1515.90	2001.39	239.46	94.98
OC	681.09	914.61	2499.62	3213.21	371.77	173.30

Source: Odisha Economic Survey, 2017-18

Similarly, the per capita expenditure of rich 10 percent SC (9th decile) in 2011-12 was 2.4 times the per capita expenditure of the poorest 10 percent SC population in 2011-12. The bottom 10 percent of 'other' population lived with per capita expenditure of Rs.522 as compared to Rs.1431, which is the per capita expenditure at the 9th decile class. The bottom 20 percent of ST population (2nd decile class) had per capita expenditure of Rs.197 in 2004-05, rising to Rs.461 in 2011-12, i.e., 2.3 times of the former.

Inequality in economic status also prevails by region (NSS regions) of the State which is presented in the table. IN both rural and urban, per capita income in southern region is comparatively less than the northern and central region of the state. However, the mean per capita expenditure for southern region reflects the highest increase with annual growth of 13.8 percent. It increased from Rs.356 in 2004-05 to Rs.880 in 2011-12. Rural area of this region contributes more with 14.5 percent growth followed by Northern region with 12.74 percent and Central region with 11.99 percent.

Table 42: Mean Per Capita Expenditure, Growth & Gini Coefficient

	Mean (By NSS Regions)			Gini Coefficient (NSS Regions)		
	Central	Southern	Northern	Central	Southern	Northern
2004-05						
Rural	482	322	396	30.81	31.75	31.95
Urban	802	751	784	38.35	37.31	33.08
Total	529	356	455	33.40	35.01	34.82
2011-12						
Rural	983	831	886	21.25	24.77	25.03
Urban	2022	1266	1963	34.33	29.67	35.19
Total	1169	880	1053	28.96	26.49	31.97
Growth						
Rural	10.717	14.504	12.192	-9.56	-6.98	-6.92
Urban	14.123	7.745	14.010	-4.02	-7.64	2.12
Total	11.994	13.801	12.735	-4.43	-8.52	-2.85

Source: Odisha Economic Survey, 2017-18

3.10 Situational Analysis in Tank Command Villages:

Farm Household Size: The average household size in the project area is 6 persons per household. About 27.5 percent of the population is under 18 years age group and about 10.8 per cent of the population is in the age group of 60 and above.

Caste Composition: People from different social groups reside in the tank villages. The majority of the households are from Other Backward Classes (51.7 percent), followed by Scheduled Tribe (22.6 percent), Other Classes (14.7 percent) and Scheduled Caste (10.8 percent).

Women Headed Household: About 7.0 percent households are headed by women in the tank villages and remaining 93 percent households are headed by male members.

Economic Status of the Households: About 62.08 percent households in the project villages belong to the poor economic category (BPL family) as per the last enumeration of Government.

Worker Population: The average working population is 3 per household which is lower than the non-working population (the age group of below 18 and above 60 years of age).

Educational Status: The educational profiles of the members of the households show that about 7.9 percent male and 11.0 percent female, together 18.9 percent are illiterate. Around 34.0 percent of them only have primarily level of education. About 18 percent of the children studying at post graduate level courses. Nearly 80 percent of the households had at least one member from the family received formal education.

Table 43: Educational Qualification of Households

SN	Educational Category	Male	Female	Total
1	Illiterate	7.9	11.0	18.9
2	Primary	17.8	15.6	33.4
3	Matriculate	8.4	8.7	17.1
4	Intermediate	4.1	2.6	6.7
5	Under Graduate	3.3	1.8	5.1
6	Graduation & Above	10.4	8.3	18.7

Source: Baseline Study (Draft Report), OIIPCRA

Housing and Amenities: About 45.1 percent families have Pucca house, 27.2 percent have semi-pucca houses and remaining 27.7 percent have kutcha house. Government has provided assistance to targeted families to have pucca house under rural housing scheme.

Source of Drinking Water: Common village tube well has been the primary source of portable drinking water for 61.3 percent households in the project villages. Some households in the project villages also reported using pond / river / nala water for consumption purpose.

Electricity: Almost all the project villages are electrified. About 94.5 percent households have power connection. In the state average, it is reported that about 40 percent having no power connection.

Household Sanitation Facility: In-spite of massive initiative of the Government, household sanitation (toilet) facility is still remaining poor. Only 57 percent households are having toilet facility.

Table 44: Economic Status by Social Category

Social Category	Families Above Poverty Line (APL)				Families Below Poverty Line (BPL)			
	Pucca house	Having Electricity	Having Toilet	Drinking water from Village tube well	Pucca house	Having electricity	Having Toilet	Drinking water from Village tube well
SC	59.1	100.00	45.45	72.73	45.71	97.14	51.43	82.86
ST	9.09	90.91	72.73	72.73	9.17	88.07	45.87	64.22

OBC	58.96	94.78	58.96	49.25	47.86	96.43	57.14	60.00
Other / General	63.64	96.97	81.82	57.58	66.67	97.78	64.44	68.89
Total	57.21	95.52	62.19	54.23	37.39	93.92	53.80	65.05

Source: Baseline Study (Draft Report), OIIPCRA

Livelihood: Agriculture has been the major source of livelihood for the households in the project villages. About 83 percent households rely on agriculture for their livelihood. Of the total household income, contribution of agriculture has been 80.1 percent, followed by job in Government departments (6.6 percent) and working as agricultural labourer (5.0 percent). Income from horticulture, animal husbandry, fishery, trading and other sources is marginal.

Household Consumption Expenditure: The household consumption expenditure reflects that the families incur major expenditure on food items (48.9 percent) followed by health care (18.4 percent) and fuel and electricity (12.2 percent). In consumption expenditure incurred by the households, 25.1 percent is incurred towards cereals, 9.2 percent on pulses, 20.2 percent on non-veg items, 25.8 percent on vegetables and 19.7 percent on other food items.

Land Ownership: In the project villages, about 82 percent households are land owner of different holding categories and only 5 percent are tenant farmers. The average landholding size is 2.83 ha. in the project villages. The share of marginal and small holdings together account for 82.2 percent out of total landholdings. Female owned operational holdings constitutes only 3.29 percent of total holdings in project villages.

Table 45: Distribution of Households by Land Holding Categories in Project Districts

Row Labels	Marginal (<2.5)	Small (>=2.5<5)	Semi-Medium (>=5<10)	Medium (>=10<25)	Large (>25)	Total
Balangir	25.0	25.0	35.0	15.0	0.0	100.0
Bargarh	15.0	60.0	25.0	0.0	0.0	100.0
Bhadrak	60.0	40.0	0.0	0.0	0.0	100.0
Boudh	60.0	20.0	20.0	0.0	0.0	100.0
Ganjam	55.1	26.0	15.4	2.6	0.9	100.0
Jajpur	40.0	50.0	0.0	10.0	0.0	100.0
Kalahandi	45.0	30.0	20.0	5.0	0.0	100.0
Kandhamal	60.0	40.0	0.0	0.0	0.0	100.0
Keonjhar	55.1	28.6	14.3	2.0	0.0	100.0
Mayurbhanj	79.1	10.9	8.2	1.8	0.0	100.0
Total	56.7	25.5	14.4	3.0	0.4	100.0

Source: Draft Baseline Report, OIIPCRA

Table 46: Distribution of Households by Land Holding Categories

SN	Land Size Class	% of the farmers
1	Marginal (< 1.0 hectare)	57.36
2	Small (1-2 ha.)	24.91
3	Semi-Medium (2-4 ha)	14.34
4	Medium (4-10 ha.)	3.02
5	Large (> 10 ha.)	0.38
	Total	100.0

Source: Draft Baseline Report, OIIPCRA

The data (2016-17) at the state level shows that, the state has 46.47 lakh operational holdings of which marginal and small holdings are prominent (about 95 percent) in the operational landholdings. Average sizes of holding among various categories are 0.57 ha. (marginal), 1.63 ha (small), 2.95 ha (semi-medium), 5.99 ha (medium) and 5.99 ha for large holdings. The state has

7.02 lakh SC and 14.26 lakh ST holdings. Female owned operational holdings constitutes only 3.29 percent of the total holdings in the state (Economic Survey, 2017-18).

Paddy Productivity: Agricultural productivity in the project villages varies widely across project districts. Paddy as the major crop, having productivity ranging between 1824.4 Kg/Ha. (Bolangir) to 3753.3 Kg/Ha. (Keonjhar). Productivity of paddy by project district is presented in the Table.

Table 47: Productivity of Paddy in Project Districts

SN	Districts	Paddy Productivity (in Kg/Ha.)
1	Bargarh	2526.2
2	Bhadrak	2700.3
3	Bolangir	1824.4
4	Boudha	2378.5
5	Ganjam	2935.7
6	Jajpur	2345.8
7	Kalahandi	3748.8
8	Kandhamal	1890.8
9	Keonjhar	3753.3
10	Mayurbhanj	2277.2
	Sub Total	2745.0

Source: Draft Baseline Report, OIIPCRA

The baseline survey reveals that about 96 percent of the production of Paddy is in Kharif season. Non-availability of water has been a major factor that impact paddy cultivation.

Area Cultivated and Irrigation: About 87.73 percent of the total cultivable area is cultivated in Kharif season whereas only 12.30 percent area is covered under Rabi and 0.70 percent area in summer. Flood irrigation is highly used in cultivation of the crops. About 65 percent of paddy cultivation is relied on flood irrigation. In the case of Green Gram, flood irrigation contributes about 56.2 per cent for the total irrigated area.

In the project area, around 20 percent of MI tank are in operational use. In both Kharif and Rabi season, major source of irrigation is through canal, where ever it is available (37.5 percent) followed by irrigation from MI tanks (38.5 per cent in Kharif and 30.8 per cent in Rabi) in operational tank cases. Sources of irrigation by Kharif and Rabi is presented in the table.

Table 48: Sources of Irrigation in Kharif and Rabi

Irrigation	Kharif	Rabi
Canal	37.5	37.5
Bore well	1.9	9.2
Tube Well	0.9	0.8
Pond	1.7	1.7
Tank	8.8	10.8
Pipe	4.9	5
MI Tank	38.5	30.8
Others	5.8	4.2
Total	100	100

Source: Draft Baseline Report, OIIPCRA

3.11 Community Institutions in Project Locations:

The project locations, i.e., tank command villages have different institutions / organisations that are existing such as Pani Panchayats (for flow and lift), Farmer Producer Organisations, women Self-Help Groups, Primary Agriculture Cooperative Societies, Village Development Committees, Forest

Management Committees, Water and Sanitation Committees, Mother's Committees etc. These community-based organisations are mostly for development and social welfare of the local people with different degree of functionality. The state is having about 3056 Pani panchayats, 173 FPOs, 2703 Primary Agriculture Cooperative Societies (PACS) and more than 3.0 lakh SHGs (reference: different reports of govt. and research institutions).

3.12 Pani Panchayat and its Status:

Organisation & Promotion of Pani Panchayat: For the operation and management of the tanks, PPs are formed as per the Pani Panchayat Act and normally comprises the water users of the tank command area. Some MIPs are having more number of PPs, as per the ayacut area and based on operation and management requirements. As per the provision of the Act, many PPs have different sub-committees to look after the affairs of the PPs whereas some PP are either not having sub-committees or the sub-committees are defunct. Different committees that are formed at the PP level are works committee to look after tank system development activities, water management committee to look after water sharing / distribution and finance committee for financial matters. Normally the president and secretary are the signing authority on behalf of the PP. In some cases, cashier / treasurer also found signatory of the PP.

PP Meeting: Irregularities in organizing / conducting PP meeting is observed in many cases whereas in some PPs, meetings of the executing committee is organized on periodic interval. The executive committee meetings are organized to discuss on different functional aspects of the PP, including tank operation and management. Like EC, irregularity in GB meeting is also observed in some PPs. The attendance record of the PPs are not up to date to assess the actual attendance rate and regularity in attending meetings.

Record Keeping: The PPs have been maintaining different records to keep track of their financial and non-financial activities. Different records maintained are like resolution book, cash book, grievance register, notice register etc. It is observed that many records in most of the PPs are not up to date.

Election / Selection of Members in PP: While rotation of membership and leadership in the EC is important, it is observed that in most of the PPs, elections are less regular. In spite of elections, rotation of top leadership is relatively less.

Grievance Redressal & Conflict Resolution: The PPs are having democratic procedures for conflict resolution and grievance redressal. Any grievance that comes to the PP is discussed in the EC / GB meetings and attempt is made for its amicable settlement. Each member / farmer is allowed to raise their issues during meeting for discussion and solution.

Source of Revenue for the PPs: The current sources of revenue for the PPs have been basically from membership fee collected from the PP members and income from fishing groups that use tank for fish farming and catching fish. The average income of a PP, from all sources, remain to be around 10, 000. The current revenue base seems inadequate to meet the future expenditure requirements of the PPs, including minor maintenance requirements. The source of revenue, however differs by tank types.

Water Tax Collection: At present, local Revenue Inspector (RI) is responsible for collection of water tax from the farmers. As, PP as a local institution has come up in the course of implementation of the project, it is planned to delegate water tax collection to the respective PPs in their locality. Discussion with PP reveals that no PP is collecting water tax from the farmers in the tank command. Further, it is revealed that the amount of tariff to be collected annually may not be adequate to take up repair and maintenance work of the tank and the field channel. However, Department of Water Resources has agreed to take up major works in the tank like damage to the structure. The PPs will only be responsible for minor operation and minor maintenance works and head works. Crop specific water demand normally varies and has an impact on water availability and its use efficiency. But as no such specific

rule is in place to fix water tariff by crop type, farmers are less willing to pay higher tariff for crops that consume more water. Apart from that, apprehension remains that as PP is more localized, after devolution for collection of water tax, there will be no accountability of PP to Government and in such case, people may not be obliged to pay water tax on regular basis, as they have been paying to the Government directly.

3.13 Summary of Key Social Issues

The aforementioned discussion reveals that in some fronts of socio-economic development, the State has been performing well. However, in comparison to many other aspects, the state performance has been remaining low in comparison to some other States of the country. The baseline analysis points to the following key areas which are having implications for the project.

1. Reduction in growth rate of agriculture and allied activities (contribution to GSDP) where more than 60% are dependent for livelihood;
2. Reduction in average land holding size in different holding categories (medium, semi-medium and large);
3. Declining agriculture performance has been one of the major contributors for increasing distress of the farmers in the state;
4. Average land holding, including SC and ST has been inadequate to meet the livelihood and food security of the farming families and hence it demands for diversification in livelihood;
5. The project districts falling under scheduled area are having low per capita income in comparison to the coastal and other project districts (non-scheduled area);
6. Poor literacy / level of education among the rural women in general and tribal in particular has been one of the bottlenecks in attending desired socio-economic development;
7. Land holding by women is significantly low and hence their decision making and economic empowerment is restricted;
8. Literacy rate of female has been remaining low in comparison to their male counterpart in all the social categories, including tribal;
9. Incidence of poverty among scheduled tribes and scheduled castes remaining high in comparison to other social groups;
10. The gender gap in work participation is significant and association of women workforce is more prominent as agricultural labourer;

Based on the analysis, it becomes important to consider three critical aspects in the context of the project and for the social management framework, i.e., (1) strengthening agriculture and allied sector/s for livelihood improvement of marginal and small holders, (2) propagation of an inclusive approach where women and tribal have at least equal say and participation, and (3) capacity building and improving people's ability and empower them. Keeping in view the current scope of the project, engagement and employment will be more related to agriculture, horticulture and fishery, including off-farm engagement (agribusiness and value chain).

Gender development components can be taken up mostly in economic front focusing more on women farmers and fishers and their association in the value chain and supply chain management. Scope of development of tribal people can be based on their association in farm and allied sectors. As the project focus is on irrigation improvement, promotion of climate resilient agricultural practices and agribusiness aspects, it will benefit directly to the farming community of different social and economic groups and indirectly to all the communities of the project area.

Chapter IV: Stakeholder Consultations

4.1 Introduction

Stakeholder consultation is an integral part of the social assessment (SA) and provides inputs for the preparation of Social Management Framework (SMF). The overall objective of such consultations was to document the concerns of the stakeholders with specific reference to the project planned interventions. The consultation meetings were organized basically for two important purposes, i.e., (1) to share project objectives and proposed project interventions with the identified stakeholder groups and (2) to consult with the stakeholders and document their concern, with particular reference to social impacts of the proposed project interventions.

4.2 Stakeholder Identification and Analysis

The proposed project will influence a large section of the society in the project state and identified intervention districts. Stakeholders, identified in the process are either the individuals (farmers, water users, fishers etc.) or group/s of individuals or their institutions in the village / project area (FPOs, PP, PFCS, SHGs etc.) that will be influenced by the activities of the proposed project and vice versa. Different stakeholders were identified in the process who have different stake in the project and presented in Table 49.

Table 49: Identified Stakeholders in Different Execution Levels

Project Level	Stakeholders	
Village / Tank Command	<ol style="list-style-type: none"> 1. Farmers: Marginal and Small Farmers 2. Farmers cultivating land allotted under FRA 3. Scheduled Tribes (STs) 4. Farmers of other Marginalised Section (Scheduled Caste) 5. ST Women Farmers 6. Women Farmers in Other Social Categories 7. Women Involved in Agro-Enterprises 8. Persons having Processing & Value Addition Units 9. Farmers with Orchard / Horticultural Crops 10. Farmers involved in Organic Farming 11. Local Ag. Extension Worker/s 12. Farmer Producers Companies / Organisations 13. Members of FPCs 	<ol style="list-style-type: none"> 14. Medium, Semi-Medium and large farmers 15. Ag. Labourers 16. Daily Wage Labourers 17. Small Traders 18. Input Suppliers (Seeds Corporation, Pvt. Input Suppliers) 19. Ag. Extension Workers 20. Seed Growers (Farmers) 21. Local aggregators 22. Local Aggregators 23. Petty Contractors 24. Community Organisations (CBOs) 25. NGOs working in the locality 26. Financial Services providing entities 27. Families collecting NTFPs (seasonal) 28. Agricultural Women Workers (Landless families) 29. Tribal people 30. Common Villagers 31. Local Ward Member / PRI member
Gram Panchayat	<ol style="list-style-type: none"> 1. Sarpanch; 2. Deputy / Vice Sarpanch; 3. Ward Members; 	<ol style="list-style-type: none"> 4. Village Council / Gram Sabha; 5. Members of the FIG / FPO / FPCs; 6. SHGs / SHG Federations
Block	<ol style="list-style-type: none"> 1. Official of Ag. Department 2. Officials of Irrigation Dept. 3. Officials of AR & Fishery 4. Contractors 5. PRI members of Block Panchayat 6. Input Suppliers 7. Aggregators 8. Traders 9. FIG / FPO / FPC 	<ol style="list-style-type: none"> 10. Credit Institutions (formal/informal) 11. Weather Centre Officials 12. Insurance Agencies 13. APMC 14. NGOs / CBOs 15. Farmer's Associations 16. Officials of Forest Department 17. Fishers Cooperatives (PFCS)
Sub-Division	<ol style="list-style-type: none"> 1. Officials of Ag. Directorate; 	<ol style="list-style-type: none"> 7. APMC;

	2. Officials of Horticulture Directorate; 3. Research Institutions/KVKs/ATMA 4. Water Resources Dept.; 5. Marketing Agency; 6. Private Service Providers;	8. NGOs; 9. Input Suppliers; 10. Aggregators; 11. Traders; 12. Agro-processing units.
Project District	1. Directorate of Agriculture and Food Production; 2. Directorate of Horticulture; 3. Dept. of Water Resources; 4. Integrated Tribal Development Agency (ITDA); 5. Seeds Corporation; 6. Marketing Agency (Govt.); 7. Zilla Parishad / Dist. Administration; 8. FIG / FPO / FPC;	9. Fishers Cooperatives (PFCS); 10. Credit Institutions; 11. Insurance Agencies; 12. Weather Information Provider; 13. Traders; 14. Agro-Industries; 15. Farm Machinery Suppliers; 16. APMC; 17. Pvt. Input Suppliers; 18. Dept. of Forest and Environment.
State and National Level	1. State Project Unit of OIIPRA; 2. Department of Agriculture & Farmer's Empowerment; 3. Directorate of Agriculture and Food Production; 4. Directorate of Horticulture; 5. Department of Water Resources; 6. ST & SC Development, Minorities and Backward Class Welfare Department, GOO; 7. State Ag. Universities (OUAT); 8. Central Institute for Women in Agriculture (ICAR Institution); 9. Technical Service Providing Institutions (Govt. / Pvt.); 10. Seed Corporation; 11. Other Departments (for Convergence)	12. Indian Institute of Science (IISc) 13. Dept. of Economic Affairs, Govt. of India 14. ICAR and its Institutions 15. Ministry of Forest and Environment, Govt. of India 16. Ministry of Tribal Affairs, Govt. of India 17. Pvt. Input suppliers 18. Financial Service Providers 19. Weather Information Provider 20. Insurance Companies (Crop / Weather Insurance) 21. Agro-Processing Agencies 22. Marketing Agencies 23. OSAM Board 24. Different associations / organizations of farmers / traders etc.

At the village level, the beneficiary of the project will be basically the small and marginal farmers belonging to different social categories, fisher folk, women farmers, entrepreneurs etc. The local FPOs and members associated with the FPO will also be directly benefitted due to the agricultural value chain development and agri-business promotion. The project is having a number of stakeholders who can influence or can be influenced / benefitted by the project such as State Agriculture University (OUAT), input supplies, weather service providers, processing and marketing agencies / agents, credit institutions, insurance service providers etc.

4.3 Stakeholder's Concerns / Opinion

1. Pani Panchayats should be reorganised / reformed / revived to ensure that irrigation infrastrucutres are well maintained and water for irrigation is available to the farmers;
2. Conducting election of the PP where election is due and orienting the members on role and functions of the PP;
3. Increasing higher participation of marginal / small farmers and women farmers in PP by taking appropriate measures;
4. Inclusive targetting of the tribals for their representation in the community level institutions, more specifically in scheduled areas;
5. Organisation / association of farmers can be promoted for market access and value addition which will benefit to the small producers in fetching remunerative return;
6. Supportive livelihood mechanism can help the marginal farmers / share croppers and other vulnerable families;
7. Role of women in PP governance and other community level institutions has been passive;
8. Documentation and record keeping of the PPs should be strengthened for improving transparency and accountability;

9. In certain tanks, pisciculture could not be taken up due to limited water retaining capacity of the tank. Tank rehabilitation measures will help to the fishers;
10. Primary Fishers cooperative societies can be strengthened through capacity building to take up semi-intensive fish farming in suitable tanks / reservoirs;
11. Greater participation of people in the PP is to be ensured through awareness, sensitization and making them educated on role and functions of the PP, their stake in the irrigation management and importance of their association in water scheduling, irrigation system management etc.;
12. The PPs may support the farmers in accessing schematic provisions of government and should be a platform for highlighting issues of farmers;
13. Funds available with the local GP (MGNREGA / Finance Commission Funds) can be accessed and utilized for the improvement of irrigation system through appropriate convergence mechanism and planning;
14. Limited storage space at the household / community level. Farmers / producers cannot wait/withhold until favourable market condition is available as they need cash immediately after harvesting for making repayment to different individuals / suppliers etc.;
15. Shortage of inputs, more particularly seeds at the time of need;
16. Increasing use of fertiliser and pesticides, even in tribal districts / ITDA areas;
17. Storage and marketing of agricultural / horticultural produce is necessary. Weak link of marginal and small farmers with the government marketing entities;
18. Supportive livelihood options like animal husbandry / Goat rearing / poultry can be promoted individually or in group which can improve livelihood security and engagement of women;
19. Agriculture extension services have been poor in general and less accessible to farmers in less accessible and distant villages;
20. Farm machineries are primarily private owned and also numbers of required farm implements like tractor, thresher etc. are less. Farmers also do not have required capital base to invest in agricultural implements.
21. Limited formal institutional credit accessibility of small / marginal holders due to factors like outstanding of earlier credits, poor asset base and requirement of less amount of credit which bank feel not feasible;
22. Prevalence of informal credit system for agricultural activities, including credit-based purchase of inputs from input suppliers' costs high to the farmers;
23. Available weather information is less used by the farmers as there is no guidance on type of fertilizer and pesticides to be used for different crops in different conditions and during occurrence of different diseases;
24. Local cropping pattern is more influenced by lead farmers. Other farmers follow them as far as growing different crops during different seasons is concerned. It results with high production of a crop in the locality which reduces the market price of the produce.
25. Scarcity of water for irrigation remains a major constraint to meet the crop-water requirement during dry spell and post-monsoon farming (Rabi and summer);
26. No awareness regarding proper utilization of water in the agriculture field as a result there is wastage of water and remains unavailable during dry spell;
27. Due to pollution created from small husking mills, fruit bearing capacity of the plants have decreased.
28. People are engaged in their own agricultural activity or remain engaged in other works. This leads to shortage / non-availability of agricultural labour for which land remain fallow, even in agriculture season;
29. Due to unavailability of cold storage during high production people are selling their produce at a lower price;
30. Excessive production leads to decrease in market price as there is no storage facility available nearby. So, farmers are compelled to sell their produce at a very low price;
31. During drought period, crop yield reduces which poses threat to household food security and overall livelihood of the family;

32. Frequent occurrence of cyclone in recent days, increasing wind velocity and untimely rain damage the crops and affect the income of the farmers;
33. Some of the villagers leave their cattle free for grazing and in the process, the cattle destroy standing crops in the agricultural fields.
34. Many farmers do not have own water source (bore well) for irrigation. As a result, during dry spell and when water in the tank is not available, these farmers suffer from crop loss;

Table 50: Key Issues / Concerns and Expectations of the Stakeholders

Stakeholders	Issues / Concerns	Expectations
Farmers (all Categories)	<ol style="list-style-type: none"> 1. Inadequate availability of water for irrigation during Rabi and dry spells; 2. Agricultural land in the tail end normally remain dry as availability of tank water is inadequate and many farmers do not have other irrigation options; 3. Storage capacity of the MIPs is not enough to supply water to total command area; 4. Irrigation structures are not in good condition, outlet is broken, distributaries are in dilapidated condition, the head regulator and gate are not working properly, seepage loss is a regular phenomenon; 5. The minor irrigation tank is very old and the maintenance and renovation work is not taking place; 6. Other issues are fall of immature fruit / flower, increased pest attack, damage to root due to prolonged flooding, etc. 7. Damage of agriculture crops by wild animals especially wild bore (Barha) & elephant; 8. Increasing cost of cultivation, primarily due to input cost, including labour; 9. Unscientific application of fertilizer and pesticides is usually by looking at other farmers of better holding size, lack of timely availability of advisory on the application of inputs and aspiration of getting higher yield by applying higher fertilizer doses; 10. Application of organic manure is less practiced as it is time and labour intensive; 11. Immediate requirement of funds coupled with limited storage capacity pushes farmers to sell their produces immediately after harvesting; 12. Available weather information is less used by the farmers as there is no guidance on type of fertilizer and pesticides to be used for different crops in different conditions and 	<ol style="list-style-type: none"> 1. Tank rehabilitation will be helpful to enhance water holding potential. 2. Repair and maintenance of all dilapidated structures; 3. Create awareness about optimizing fertilizers and pesticides; 4. Shifting focus to usage of bio fertilizer and pesticides. 5. Vermicompost units may be promoted with scale of production to meet the demand of the farmers; 6. Timely supply of quality agricultural inputs in a subsidized rate; 7. Strengthening the functioning of PP to manage irrigation and support farmers in establishing linkages with other government bodies; 8. Provision of institutional credit facility for the farmers, including share croppers; 9. Market linkage of agricultural commodities for remunerative return; 10. Provision for protective irrigation, mostly during dry spells; 11. Training to farmers on modern farming system for higher production and yield; 12. Storage infrastructure for food grains at local level; 13. Availability of farm machinery to save time, reduce cost and addressing labour unavailability situation;

Stakeholders	Issues / Concerns	Expectations
	<p>during occurrence of different diseases;</p> <ol style="list-style-type: none"> 13. Limited formal institutional credit available for farmers due to various factors like outstanding of earlier credits, poor asset base, and requirement of less amount of credit which bank feel not feasible; 14. Availability of credit from other sources remain inadequate for which credit is taken from the input supplier; 15. Poor capital base to invest in agricultural implements by marginal and small farmers; 16. Scarcity of water for irrigation remains a major constraint to meet the crop-water requirement during dry spell and post-monsoon farming. 17. Local cropping pattern is more influenced by lead farmers. Other farmers follow them as far as growing different crops during different seasons is concerned. It results with high production of a crop in the locality which reduces the market price of the produce; 18. Unavailability of seeds on time compel the farmers to purchase seeds on higher cost from private seed companies which increases cost of cultivation; 19. Due to lack of irrigation facility the crops are getting damaged nearer to the harvesting period which has a greater impact on the yield; 	
<p>Tribal Farmers (in Scheduled / non-Scheduled Areas)</p>	<ol style="list-style-type: none"> 1. Situated in elevated hilly area where water is very scarce and in un electrified area use of water pump is not possible 2. Most farmers are doing agriculture in their own field. This leads to shortage of agricultural labours and it's difficult to do intensive agriculture; 3. Non-avaialbility of agricultural labourer and farm machineries affect agricultural activities; 4. Shortage of inputs at the time of need; 5. Poor agriculture extension services for which there is less awareness among the tribal farmers on package of practices to be followed; 6. Less use of synthetic fertilsier and pesticides do not produce a good yield; 	<ol style="list-style-type: none"> 1. Provision of supportive irrigation for Rabi crops and meeting crop demand during dry spells; 2. Storage facility for agricultural commodities and its marketing with remunerative price is necessary; 3. Agriculture supportive livelihood activities like livestock rearing, small primary processing units will be helpful; 4. Requirement of local storage facility, especially for inputs (seeds, fertilizer and pesticides) so that farmers can get the inputs on time with less cost; 5. Promotion of farmer's collectives in tribal areas that are at a distance from the main market places; 6. Current agricultural practices of people need to be changed and it should be more production oriented;

Stakeholders	Issues / Concerns	Expectations
	<ol style="list-style-type: none"> 7. There is an increment in use of fertiliser and pesticides in recent years; 8. Tribal Development Corporation is not delivering effectively for marketing of commodities; 9. Required amount of credit is not available; Credit accessibility of small / marginal holders has difficult; 10. Poor capital base to invest in agricultural implements. 11. Scarcity of water for irrigation remains a major constraint during dry spell and post-monsoon farming; 12. Increasing amount of crop loss due to frequent occurrence of cyclonic storm; 13. Free grazing leading to destruction of standing crops and economic loss for the farmers; 14. Lack of required community level storage facility compel for immediate sell of commodities; 	<ol style="list-style-type: none"> 7. Land development / levelling work will help the farmers; 8. Improvement in market accessibility is highly desirable as local market is not having enough scope for getting a better price; 9. Availability of water can reduce the crop loss in dry spells
Women Farmers	<ol style="list-style-type: none"> 1. Though, number of women farmers are less, they should be supported with subsidized provisions of the Govt.; 2. Less wage rate of women workers / ag. Labourers; 3. Challenges of marketing of agricultural commodities by women farmers; 4. Reducing NTFPs has been impacting upon the family livelihood; 5. Requirement of improving the land quality, especially lands given under FRA; 6. Many farmers do not have farm machinery which is increasing the cost of cultivation as they hire from others with a high cost. 	<ol style="list-style-type: none"> 1. Participation of women is essential in improvement of household's income. For that they may be engaged in household income generative activities; 2. Goat rearing and poultry can be promoted for women in general to support their current livelihoods; 3. Awareness on precautions to be taken to avoid adverse effects of pesticides; 4. Promotion of small equipment for farm operations can help women; 5. Women farmers may be given higher subsidy in agricultural inputs an related other facilities of the Govt.
Pani Panchayat	<ol style="list-style-type: none"> 1. Pani Panchayat members are influenced by political leader; 2. Non-availability of enough fund with PP for O & M / renovation work; 3. Sub-committees are less functional; 4. Scheduling for water discharge for irrigation is less observed; 5. Poor record keeping and documentation due to shortage of human resources; 6. Poor functional capacity of the PPs; 7. Less involvement of women / women farmers / women fishers in the PP activities; 	<ol style="list-style-type: none"> 1. Supporting PP with required capital base for regular operation and maintenance of irrigation systems; 2. Strengthening PP with training / exposure / human resource support; 3. Educating / awareness of the member farmers on the importance of the PP, its role and functions; 4. Revival / strengthening the PPs by selection of appropriate members and giving representation to the marginal / small holders in the Executive Committee;

Stakeholders	Issues / Concerns	Expectations
	PPs are not involved in collection of water tariff and farmers are less interested to pay water tariff to the PPs;	
Fishers / Fishery Cooperatives	<ol style="list-style-type: none"> 1. Generally, Pisciculture practice is not adopted due to less availability of water in most of the tanks; 2. Presence of huge aquatic weeds in the tank water restricts sunlight to pass which causes fish mortality; 3. Conflict between farmers and lease holder on water use. If farmers use water for irrigation, enough water will not be available in the tank for fishing activity and vice-versa; 4. Less water retention capacity of the tanks; 5. There is no such mechanism to restrict fish to pass out from MI tank to field channel; 6. Due to lack of awareness on financial benefit of fishery, people have not adopted fishery at large scale or for income purpose; 7. Fish and fingerlings swims away with the flow of water to river water especially during increase in water volume in tank; 8. Female are not involved in pisciculture at large scale and only restricted to fish drying, processing and selling; 9. Fishermen are not getting good quality of fingerlings and fish feeds from the local suppliers; 	<ol style="list-style-type: none"> 1. Tank renovation is to be done to promote fish farming; 2. Financial support and training is needed to promote pisciculture; 3. Weed must be removed from the tank; 4. Water capacity of the tank should be augmented and there should be a mutual agreement between both parties so that conflict may be minimized; 5. The tank should be closed from every end which would be suitable for the fishery activity. 6. Capacity building and awareness campaign need to be done for the fisher community; 7. They can be trained to involve in fish drying, fish processing and selling; 8. Cold storage and transport facility is required to supply fish feed and fish finger lings. 9. Measures need to be taken to maintain water quality parameters at desirable level
FPO	<ol style="list-style-type: none"> 1. Non-availability of operating capital to carry out planned activities; 2. Low accessibility to Government schemes / programmes / subsidies; 3. Unwillingness of banks for financial support; Banks not providing working capital; 4. Challenges related to transportation, storing, cold storage and branding of products; 5. Fund support from external sources not available; 	<ol style="list-style-type: none"> 1. Providing fixed asset and working capital; 2. Government facilitation and capacity building; 3. Guidance and support for marketing and credit access; 4. ROC compliance through easily filing process; 5. Buy back arrangement along with finance support; 6. Giving priority to FPCs in agriculture and other activities; 7. Equity shares to FPCs; 8. Supporting in preparation of bankable project plan & linking with banks for credit.
Input Suppliers	<ol style="list-style-type: none"> 1. Farmers always face shortage of seed supply; 	<ol style="list-style-type: none"> 1. Seed village is a possibility which can help in producing different seed varieties and ensure better availability at farmers end;

Stakeholders	Issues / Concerns	Expectations
	<ol style="list-style-type: none"> 2. Many farmers do not keep their own seeds and every year they procure seeds from market; 3. Though soil testing for fertilizer application is essential, still it is less done by the farmers; 4. Input dealers are the major influencers in terms of application of different fertilizer and pesticides and its doses; 5. Cost of cultivation increases as high fertilizer application is done; 6. Villages are situated in remote area, and regular and on time supply of seeds, fertilisers, pesticides is difficult. 	<ol style="list-style-type: none"> 2. Farmers may be motivated to use their own seeds; 3. Motivating farmers for appropriate application of fertilizer through soil testing; 4. Input suppliers may be involved in supply of climate resilient seed varieties; 5. Necessary transportation facility should be provided to ensure timely supply of inputs to the farmers.
APMCs	<ol style="list-style-type: none"> 1. Selling vegetables only at local market/ within village. Proper market linkage facility is not there; 2. Income from agriculture is very less and hence they have to indulge as labourer in construction work which affect agricultural production; 3. Majority of farmers prefer to sell their produce immediately after harvesting to meet cash requirement; 4. Village is situated in remote area, it's not cost effective for them to transport crop/vegetable to the APMC / other remunerative markets; 5. Sometimes, storage in the APMC yard becomes problem, especially during peak selling season; 6. No active community organization or Pani Panchayat or SHG take up agri business activity. 	<ol style="list-style-type: none"> 1. Creating awareness about MSP and improving market linkage, Cold storage / transport facility could be improved; 2. APMC is having its own infrastructure for storage which can be enhanced further; 3. Strengthening of the Pani Panchayat or promotion of FPO which can support agribusiness.
Govt. Dept.	<ol style="list-style-type: none"> 1. The FPOs are facing working capital shortage which is hindering their performance; 2. Scope can be created for value addition of agricultural commodities; 3. Custom hiring model will be beneficial to tribal farmers for farm mechanization; 4. Undulating land in tribal areas not suitable for intensive farming; 5. Grading system of agricultural commodities is not available with the tribal farmers in interior pockets which could have been beneficial for them; 6. Inadequate facility for primary processing of agricultural commodities; 	<ol style="list-style-type: none"> 1. Value addition can be taken up with potential agricultural commodities based on assessment; 2. Custom hiring model will be beneficial to farmers for farm mechanization; 3. Land levelling is a requirement in tribal areas which can be done using machinery; 4. Primary processing units can be established to benefit the farmers in scheduled and non-scheduled areas; 5. For marketing of agricultural commodities, there is no FPO in interior pockets which can be promoted; 6. Scope of promoting organic produce and its certification in tribal pockets;

Stakeholders	Issues / Concerns	Expectations
	<ol style="list-style-type: none"> 7. Grading system of agricultural commodities is not available with the tribal farmers in interior pockets which could have been beneficial for them; 8. For marketing of agricultural commodities, there is no FPO in interior pockets; 9. Benefit of protective cultivation yet to reach to majority of the farmers; 10. Current supply chain and value chain is not adequate to meet the requirement of the farmers; 11. Local scope and preferences to be taken care during promoting specific cropping patters; 12. Other supportive livelihood areas can be focused in tribal areas; 13. Farmers less acquainted with agricultural technologies; 14. In some of the areas, Pani Panchayat is not active or not functioning; 15. Culture of mono cropping, mainly paddy leads to less income and more dependable on one crop; 16. Increase in temperature leads to more pest attack on crops; 17. Yield rate is low because of traditional practice of cultivation; 18. Vegetable and fruit cultivation during Rabi and Summer season is very less mainly due to non-availability of water in MI tank and other water bodies; 19. Vegetable and fruit cultivation is very less quantity. But villagers are interested to do it in backyard garden; 20. Very less scope of fishery at MI tank, as water level during Rabi and Summer season is very low; 21. Lack of awareness among the community about benefit of fishery; 22. Lack of awareness on skill and livelihood development programs; 23. People are not taking proper care of the planted horticulture saplings provided by the government. (watering, fencing, restriction of cattle grazing); 24. Most of the time irrigation facility is not available in tribal areas; 	<ol style="list-style-type: none"> 7. Poly house / shed net can be promoted with the support of farmers having sizeable land holding; 8. Goat and poultry will be helpful for tribal to support their livelihood; 9. In horticulture, there is scope for putting more area under vegetable and fruit crops; 10. Special measures can be taken for the promotion of vegetables in the tribal areas; 11. Project specific convergence policy may be through of, if so required. 12. Alternate marketing channel for agriculture produce can be planned; 13. Capacity building of farmers on agricultural technologies; 14. Special guard need to be appointed from govt. or proper care need to be taken by appointing the local people on employment basis so that plant survival rate should increase; 15. MI need to be repaired and personal lift and meter facility is also required for which loan need to be granted to the tribal farmers;

4.4 Opportunity and Challenges

The agriculture sector in the State of Odisha having its own strengths and weaknesses which are more related to irrigation infrastructure and facilities, post-harvest management, processing and value

addition of the agricultural / horticultural produces, poor fish farming practices, associated climatic factors like drought, flood and cyclone; practices adopted by farmers, consumption of synthetic fertilizer and pesticides and overall sector growth strategy taken up by the State. The externalities like Opportunities and Threats are also have bearing to a large extent to the aforementioned aspects, but also linked to implementation strategies, agricultural policy and the gaps in perspective that required to be bridged.

4.4.1 Turning Opportunities to Strength

4.4.1.1 Strengthening PP:

The PPs have been an organisation of the local community / farmers mandated with water regulation and management. Improving irrigation coverage, bringing in water use efficiency and taking up operation and maintenance of the irrigation system at the tank level are the primary responsibilities of the PPs. As functioning of majority of the PPs are below the expected level, it gives rise the potential to strengthen their capacity, through training, exposure and other suitable means so that they can evolve as a vibrant people's institution. The project support can further strengthen the governance system of the PPs by which larger section of the people, more particularly the marginal and small farmers and women farmers will have better participation in the institutional governance process.

4.4.1.2 Promotion / Strengthening PFCS:

Primary Fishers Cooperative Society (PFCS) is the institution / organisation of fishers who are directly and/or indirectly engaged in fishery related activities, including post-harvest and marketing. Promotional measures to support in formation of new PFCS in areas where such institution does not exist will be helpful to streamline the fishery related interventions. Promotion of such institutions will create a platform for the poor fishers to access different schemes / programmes which will support them in improving their socio-economic condition. Further, role of women fishers has been important, especially in post-harvest management and market linkage. Association of women fishers in the PFCS will support in strengthening the post-harvest and market linkage and bringing more gender equity in schematic accessibility.

4.4.1.3 Involving Women SHGs in Post-Harvest Management and Agribusiness:

Government of Odisha has been taking different measures for socio-economic and political empowerment of women in the State. In this regard, Mission SHAKTI and Odisha Livelihood Mission has been promoting / strengthening women SHGs, as vehicle of change and federating them at the cluster / block level. Both financial and non-financial support has been rendered to the SHGs through different institutions. The women members, as individual or as SHG are involved in different income generating activities. This platform of women can be strengthened to take up post-harvest and agribusiness activities as they are more localised and in a suitably positioned. Special capacity building measures will be supportive for their greater involvement in the agribusiness activities.

4.4.1.4 Promotion of Women Entrepreneurs:

Apart from group-based approach, individual women entrepreneurship development and association in post-harvest management and fishery promotion would further strengthen the economic empowerment of women. As many women, associated with the SHGs are involved in agriculture-based activities, they can be further promoted / supported as entrepreneurs for business promotion.

4.4.1.5 Strengthening Farmer Producer Organisation:

The project districts are having Farmer Producer Organisations (FPO) (15 project districts are having a total of 78 FPOs promoted under SFAC), who have been promoted primarily under different schemes of the Government of India, Govt. of Odisha and NABARD. These producer organisations have on an average the farmer base of 500 to 700 members and in some cases around 1000 farmers (SFAC supported FPOs under NVIUC) of which about 80.0 percent are marginal and small holders. These FPOs are in a most suitable position to take up post-harvest management and agribusiness activities.

However, their capacity needs to be strengthened with the support for financial capital which will enable them to involve in supply chain management and agribusiness activities. Strengthening of FPOs and their engagement in agribusiness and post-harvest activities will have a direct impact on marginal and small farmers. They can have better return of their produces by accessing different markets and minimised occurrence of distress sale. Further, these FPOs also create a base for the greater involvement of the women farmers in participating agribusiness related decision making and accessing remunerative markets.

4.4.1.6 Capacity Building:

It is an essential component in developing human resources and strengthening people's institutions at the tank command and other project locations. Need based capacity development measure is an essentiality for institutional development and building human potentials. The capacity building measures will be vital for farmers in general and tribal / women farmers in particular to ensure their greater participation and involvement in project activities. Further, need based capacity building will be supportive to realise the project objectives in a more qualitative manner with the increased adoption of climate resilient technologies and practices for improved production and productivity. With the adoption of improved practices, the small holders can have a better yield, more scientific management of resources, able to reduce the cost of production and have a remunerative return on their produce. Capacity building of institutions is an utmost importance to strengthen participation of marginalised sections, improve governance system and bringing in transparency and accountability in institutional operations.

4.4.1.7 Strengthening Participatory Local Planning Process:

The government of Odisha has initiated local level planning process, known as Gram Panchayat Development Plan (GPDP). The GPs have been mandated for the preparation of Gram Panchayat Development Plan (GPDP) for economic development and social justice, utilizing the resources available to them. The GPDP guidelines stipulates to make the planning process comprehensive and participatory. Secondly, decentralised planning is also made a part for the interventions to be made under SCA to TSP in scheduled areas. Hence, as the project envisages to prepare DIAP and tank / cascade-based plans, it is having high potential to get aligned with the GPDP. It will help in bringing convergence among the related schemes / programs and improve the investment outcomes.

4.4.1.8 Community Mobilisation and Involvement:

In any development intervention, local community play an important role and success of the project depends upon community ownership and association. In the context of the project, the local PP is well positioned to ensure mobilisation of the local community and ensuring their greater association in the overall implementation process. For the purpose, effectiveness of the PP remains vital with regard to educating people on the project, taking their feedback from time to time on project implemented activities, motivating people to take up measures that are required for improving agricultural productivity and economic benefit to the farmers etc. Under institutional strengthening measures, PPs may be capacitated to ensure grater participation of the local community in the implementation of the project. Along with this, additional measures may be taken under the project to educate / aware the local community.

4.4.1.9 Governance of PP, Transparency and Accountability:

The PP is the key institution at the tank level to look after the irrigation management. It is the institution of local community (farmers / fishers) which is owned by them and managed by them. So, the governance of the PP is of high importance and its strengthening will facilitate in addressing key social issues like inclusion and equity. Secondly, as PP is one of the major stakeholders and participant of the project, improved transparency and accountability will pose higher degree of acceptance among its members. So, it becomes important to strengthen institutional governance system of the PP and bringing in transparency and accountability in their operation and management.

4.4.1.10 Promoting Climate Resilient Seed Varieties:

Some of the project districts suffer from climate variability more frequently which impacts on agricultural activities. The seed varieties adopted by the majority of the farmers are less resilient / less adaptive capacity. Hence, there is scope to promote such crop varieties which can withstand such climate variabilities and provide return to the farmers. The SAU and research institutions have already developed such varieties which can be promoted in different project districts falling under different agro-climatic zones.

4.4.1.11 Agricultural Technology and Farm Practices:

Adoption of appropriate agricultural technology and farm practices can further help the farmers, more particularly marginal and small farmers to cope with the changing situation. It will help to minimize the cost of production and enhance the value of production and overall yield of crops. Technology transformation can be done through demonstration, capacity building of farmers and strengthening extension services.

4.4.1.12 Crop Diversification:

Crop diversification is a well-recognized strategy to cope with the changing climatic conditions. As Paddy is the dominating crop in Kharif in Odisha, scope of diversifying in Kharif, putting more area in to diversified crop seems less possible. However, attempt can be made for diversification in Rabi and emphasizing for diversification in Kharif taking up land and medium land in to account. Farmers can be sensitized on importance of crop diversification and its economic benefit.

4.4.1.13 Scope of Increasing Horticulture Crops and its Processing

Selected project districts provide adequate potential to promote vegetables and fruit crops in different villages. The trend also reflects that farmers are gradually taking up such crops in their fields. Assessment reveals that opportunities for improvement exists and many farmers are interested to adopt horticultural crops, including vegetable and fruit crops if the critical gaps are filled and promotional inputs are provided.

4.4.1.14 Supportive Livelihood:

Along with agriculture, there is emerging scope for promotion of specific horticultural crops like lemon grass, floriculture and mushroom farming. Women farmers can be well engaged and they can have good return from such activities. However, initial technology and input support seems essential along with capacity building of farmers / women farmers / women groups to take up such activities. Capacity building measures will help them to better understand the economic side of such activities.

4.4.1.15 Scope for Agro-Processing Units

Some of the project districts provide tremendous scope for establishing agro-processing units for value addition. Tapping this scope will help to small producers to improve their share of market price. It can be promoted through individual enterprising mode or involving local community organizations, such as Pani Panchayat, FPO and women SHGs. However, feasibility assessment is essential an cluster approach would be more beneficial.

4.4.1.16 Promotion and Strengthening of Farmers Collectives (FPO)

The project districts are having a number of FPOs (more than 70 FPOs). They have been involved in different agribusiness and agri-processing activities and have been supporting to farmers. This create a scope to replicate this institutional model in other places and equip them with required management and marketing skills to improve market share of small and marginal farmers. As promotion of new FPOs is time consuming, still it seems essential to have a better control over the bargaining power of the farmers. It will also be supportive to attain a scale through product aggregation and effective market linkage.

4.4.1.17 Promotion of Agricultural Technologies and Agronomic Practices

The State has demonstrated positive impacts of different agricultural technologies and benefits of adoption of recommended package of practices. Such practices not only help improve better production but also minimizes cost of production. It is important that such practices are promoted in large scale and tested practices are to be popularized among the farmers for adoption.

4.4.1.18 Farm Mechanization

Increasing shortage in the availability of agricultural labour force demands adoption of mechanical options to perform different agricultural functions. While demand for farm mechanization is improving, low investment capacity of small and marginal farmers keeps them away from availing the benefits of mechanization. It requires a systematic intervention whereby the small and marginal holders have better access to farm machineries. The Custom Hiring Centre (CHC) model seems a viable option whereby small holders can access farm machineries with a payment of minimum rental fee.

4.4.1.19 INM / IPM and Organic Farming System

Increasing use of synthetic fertilizer and pesticides is observed in many project districts which are not in accordance to the prescribed norms. Secondly, such applications increase the cost of cultivation and reduce price recovery. This creates scope for promotion of INM / IPM and its improve adoption by the farmers. Organic farming is another opportunity which can be explored in a large scale. It will minimize the cost of cultivation and improved return to the farmers due to increased demand in the market for organic food products.

4.4.1.20 Fish Farming

As the project will take up tank system improvement measures, it may create scope for promotion of fishery activities. While intensive / semi-intensive fish farming can be taken up in currently feasible tanks, other tanks can be added to the list for fishery activities.

4.4.1.21 Fishery Value Chain Improvement

Consultation with different stakeholders, including local fishers reveals that there is increasing potential for value addition and producing fish-based products like fish pickle, looking at the increasing market potential. Hence, processing and value addition measures will be helpful for producing different fish-based products.

4.4.2 Challenges

4.4.2.1 Adoption of Climate Resilient Seed Varieties

Climate resilient seed varieties are having a number of beneficial dimensions. But, initially its adoption rate may remain low as farmers are not aware of its production dimensions, disease and pest infestation ability, Hence, it is required to take up large scale demonstrations in project villages / district and make farmer witness the difference through Farmer Field Schools (FFS). The training / orientation of farmers along with exposure to demonstration sites will also be helpful.

4.4.2.2 Agronomic Practices

Leaving current practices and adopting scientific agronomic practices by marginal and small farmers may require repeated follow-up, extension services, exposure visits and periodic knowledge-based inputs.

4.4.2.3 Institutional Aspects

Key institutional challenges that the project may encounter are like (1) fostering convergence by bringing in interdepartmental coordination, (2) bringing equitable and inclusiveness in the local institutional structures such as PP, FPO and PFCSs (3) building project perspective across different institutions that have significant stake in the project (directorate of agriculture, directorate of

horticulture, directorate of fisheries, SAU, KVK, ATMA etc.) (4) improving project governance in a decentralized manner and making it accountable

4.4.2.4 Sustainability

Ensuring sustainability of the project inputs beyond the life of the project by making necessary institutional and financial arrangements and making the operation self-sustaining.

4.5 Issues of Significance for the Project

4.5.1 Issues in Specificity

Need Prioritization and Inclusion of need of Marginal and Small farmers: As the project, will benefit directly to the farmers, it may happen that interest of big farmers may impact upon the small and marginal farmers. Their accessibility to the project created resources may be limited.

Accessibility to farm machinery by share croppers / lease holders: The project intends to promote farm mechanization by establishing Custom Hiring Centres (CHC). It is apprehended that share croppers / lease holders may not be given due importance to hire / access farm machinery. Secondly, if it is not scheduled appropriately, some farmers may take advantage of the facility while some other may not able to access on time.

Protective Farming System: The backend subsidy provision may not be of interest of small and marginal farmers in incurring upfront investment and any delay in direct benefit transfer may impact them negatively.

Adoption of INM / IPM: Farmers with low level of operational holdings may not be interested to adopt the INM / IPM due to time and cost factors (it is perceived that such scientific practices will enhance farm level engagement period and may cost them high).

Adoption of water use efficiency enhancing instruments: Accessibility of small and marginal farmers to micro irrigation systems may be limited due to initial investment requirement and fragmented land parcel.

Existence of FPO: Assessment reveals that many project area and less accessible pockets are not having FPO which may limit / delay execution of certain project activities like agro-processing and value addition activities.

Establishment of Post-Harvest Infrastructure / Processing Units: Establishment of such units in interior / less accessible pockets will remain an issue and may require additional investment. However, it is suggested to have a feasibility assessment before establishment of post-harvest infrastructure and value addition units.

Market Linkage: Initially, direct market linkage through establishment of rural market and marketing through web portals will remain a challenge. However, appropriate orientation of farmers and their organization will be helpful.

4.5.2 Tribal and Women Participation / Inclusion

Protective Farming: The backend subsidy provision may not be of interest for small and marginal tribal farmers in incurring upfront investment and any delay in direct benefit transfer may impact them negatively. In a dispersed tribal community, their inclusion may remain a challenge.

Promotion of micro irrigation system: Accessibility of small and marginal tribal farmers to micro irrigation systems may be limited due to initial investment requirement.

Establishment of aggregation / Grading and packing units: Establishment of such units in interior / inaccessible tribal villages / scattered tribal hamlets may remain a challenge with regard to operational feasibility.

Coverage of farmers with Land under FRA: As per the opinion of farmers, some tribal farmers are yet to be issued ROR for the land allotted under FRA and land development work is still to be taken up. In such cases, their coverage under different project provisions may be limited.

Establishment of Godowns /warehouse: Establishment of such units in interior / inaccessible tribal villages / scattered tribal hamlets may remain a challenge from operational point of view.

Mapping women farmer's preferences / needs: Capturing needs of women farmers and their seed preferences

Women membership in FPO and their active involvement: Active involvement of women farmers in FPOs may be constraints due to current nature of engagement in different economic / non-economic activities.

Engagement of women in post-harvest and value addition activities: Involvement of women farmers in processing and value chain development and management may be limited.

Section V: Social Management Framework (SMF)

5.1 Introduction

The expected social benefits of the project, in comparison to no-project scenario is discussed in this section. Assessment reveals that the project is not having potential to disturb the current social structure at the intervention localities / villages. The project can influence and expedite some of the existing interventions in agriculture and allied sectors to improve the entitlement obligations of the current schemes. The inclusion and equity approach of the project will be beneficial to the marginalized segment and to the marginal and small farmers of the intervention villages, including tribal farmers and women. Overall, the project will be helpful to augment the economic condition of the farmers through forward and backward linkages. The assessment finds the potentials within the scope of the project to involve women farmers and improving the current farming practices of tribal communities. While the existing schemes in agriculture, horticulture and fishery will continue to operate, the project will create a scope for outcome oriented schematic convergence in suitable and feasible areas. However, the apprehension of inclusion of marginal and small farmers is planned to be managed through focused intervention.

The Social Management Framework (EMF) is prepared taking in to account the key concerns of different stakeholders and their suggestions on different project components. While designing the framework, the project has taken a holistic view to deal with the concerns and ensure the outcomes of the project is realized in order to benefit the small holders and marginalized sections of the project locations.

5.2 Analysis of “No Project” Scenario

In case, the project (OIIPCR) is not taken-up, the irrigation scenario in the tank command and more particularly in the tail end of the command will not change substantially in recent years. Climate resilience in the farming system may not be attended in a short span of time where farmers are trained / skilled to adopt more efficiently to the climate variabilities. The situation of small and marginal farmers, including women and tribal farmers may not change positively in technology transformation and desired change in adoption of package of practices, which may take a longer time. The current “as-is” situation may prevail and agricultural practices will continue the way it has been for years. A minimal change in positive direction is expected to happen in due course due to intervention of other government schemes and programmes. But accessing the available benefits by farmers of less holding category may continue to be a concern. Their current practices, which are less aligned with ecosystem friendly farming system may further affect the local environment. Based on field consultations and interaction with different stakeholder, the social aspects, with project and without project scenario is presented in the Table 51.

Table 51: With and Without Project Scenario

Particulars	“No Project” Scenario	“With Project” Scenario
Component 1: Climate Smart Intensification and Diversification of Agriculture		
Component 1.1: Support to Improve Productivity and Resilience		
Production of Certified Seeds	Availability of climate resilient seeds would remain a problem and adequate availability of climate resilient seed varieties and its adoption by the farmers may remain an issue	Climate resilient seed varieties will be produced in association of farmers. There will be enhancement in production of seeds and hence better availability at farmer’s end for adoption.
Alternate Energy System for Agriculture: Solar Pump	Farmers will continue to depend upon the grid based power supply for running their pump sets.	Provision of solar pumps using renewal energy will reduce the cost of cultivation. Farmers can irrigate using

	Secondly as quality of power remains poor in many areas, farmers may not able to irrigate their land on time. Thirdly, the cost of cultivation will remain high with the use of diesel generator or grid-based power for irrigation.	solar power by which GHG emission will be reduced and dependency on grid power will be minimized.
Establishment of Custom Hiring Centre (CHC)	Current demand of SF / MF and women in farming may remain unattended as existing provisions may not adequate to address it.	More accessibility of such farmers to farm machinery due to Custom Hiring Centre. It will meet the demand of small and marginal farmers and will improve area under farm mechanization, reduce their drudgery and help to save their time.
Area Expansion under Horticultural Crops	Farmers will continue to depend upon principal crop (paddy) and area suitable for horticultural crops will also be under field crops. Secondly, income level from field crops may not increase as it is expected from horticultural crops.	A climate resilience approach whereby farmers will have both field crops and horticultural crops. Additional income can be generated by the marginal and small farmers through horticultural activities like mushroom cultivation, lemongrass cultivation, floriculture, backyard nutritional garden etc. as envisaged under the project.
Soil Health Management: Vermi Composting	Assessment finds that in many project areas, there is an increment in use of synthetic fertilizer which in due course degrade the soil health. Secondly, application of fertilizer more than the prescribed doses also possesses threat to health and environment.	Vermi compost will reduce the quantum of synthetic fertilizer application, minimize the cost of production, improve soil health and will be supportive in crop production qualitatively.
Promotion of Micro Irrigation	While micro irrigation system is having greater potential for improving water use efficiency, less accessibility of small holders due to poor investment capacity may affect the overall objective.	Improved coverage of SF & MF with micro irrigation system and hence increased water efficiency in the project locations. It will help to minimize water loss and improve water productivity.
Protected Cultivation (Bamboo Poly Green House)	Restricted access of SF/MF and farmers belonging to tribal communities due to cost factor. Secondly growing of seedlings / planting materials will continue to be in exposed environment which will trigger higher mortality of plants.	Focused intervention will improve coverage of small holders and their land under protective cultivation. It will enhance their farm return. Loss in planting materials / seedlings during unfavourable climatic condition will reduce and would be supportive to floriculture.
Fish Seed Production	Non-availability of quality seeds on time will continue to affect the level of production	Availability of quality fish seeds will improve at fisher's level which will help in improved production. Secondly, transportation mechanism will support timely availability of fish seeds.
Fish Feed Production	Use of feed in tank-based fish farming is less common due to poor understanding of fishers and less availability	Production of fish feed will enhance thereby availability of fish feed at fisher's level. Secondly, fishers will be trained on application of feed for fish rearing in the tanks for improved production.
Fish Production	Current level of production will continue and some tanks may not	Fishers will be acquainted with semi-intensive and intensive farming system

	have fishery activity. Farmers may not be oriented on intensive and semi-intensive fish farming system to augment production	(pen / cage culture) through demonstration, capacity building inputs. Periodic Disease surveillance and protection measures will further help to reduce fish mortality.
Component 1.2: Support to Diversification and Produce Marketing		
Crop Diversification and Demonstration	Current cropping system will continue which is less diversified, primarily monocropping in nature and less resilient to climate variability; Accessibility to learn from such demo may be limited as less or no focus on integrated approach.	There will more diversification, more area under different crops, and hence less crop loss and better return to the farmers even in unfavourable situation. It will also supportive in enhancing soil fertility. Demonstrations and FFS will further support the farmers in enhancing their understanding on importance of crop diversification and its economic and environmental benefits; Farmer Field School (FFS) approach will be beneficial for small holders for learning and replication / adoption of learning.
Post-Harvest Management and Agribusiness; Pack House and Storage Structure Establishment; Establishment of Processing Units for Horticultural Crops	Distress sale of commodities will continue and farmers may not fetch a better price due to sell of unprocessed commodities. Secondly, forward linkage prospect will not be trapped which could have benefitted the farmers. Involvement of small producers in the value chain development process will remain restricted; Limited or no involvement of small producers in the value chain development process.	Post-harvest management and agribusiness will reduce the wastage, improve shelf life of the commodities, create opportunity to access national market and improving entrepreneurship in agribusiness. Product aggregation strategy and supportive infrastructure will improve market potential for marginal and small farmers, including tribal farmers and women farmers. They can sell their produces remuneratively and participate in the overall process; Product aggregation strategy and supportive infrastructure will improve inclusion. Small holders can sell their produces remuneratively and participate in the overall process.
Fish Processing and Value Addition	Selling of unprocessed fish and selling of fish in an unhygienic condition does not fetch good price to the economically poor fisher / fish vendor.	Establishment of fish processing and value addition unit, support to fishers in transportation and hygienic handling of fish, capacity building inputs and other supports will help them to earn a better income from fishery activity.
Component 2: Improving Access to Irrigation and Water Productivity		
Component 2.1: Irrigation Modernization		
Tank System Improvement and Automation	Water availability during Rabi season will continue to remain scarce and hence farmers may not able to take up crops. Inefficient use of water during Kharif will continue leaving no water in the tank for Rabi crop. Suffering of marginal and small farmer will continue due to less availability of other sources of irrigation.	Water availability in the tank will improve in Rabi with efficient use of water in Kharif and improved water retaining capacity of the tanks. Tank automation will further support in scheduled discharge of water as per the crop requirement. Water saving will further helpful to put additional area under irrigation in Rabi, particularly in the tail end of the tank command.

Improvement in Irrigation Coverage	Farmers in the tail end of the tank command will continue to suffer due to less availability of water in the tank. Further current less efficient use of water will continue as a result on time water availability for irrigation will remain scare for may farmers, affecting farming system.	Pressurized irrigation will improve water productivity, optimize water use efficiency, bringing more agricultural area under irrigation and there will be increment in gross cropped area. Farmers will have remunerative return from agricultural activities.
Component 2.2: Irrigation Management		
Strengthening PPs through capacity building and other support provisions	Current level of functioning of PPs will continue which is less effective in water governance and management.	The PPs will be functionally more efficient, more inclusive in composition, improved governance in water distribution and management and taking up O & M activities more effectively.
Improving Water Productivity and Efficiency	Current level of inefficient water use may continue with less water productivity. Due to inefficient water use, farmers in the tail end of the tank command may continue to remain deprived of tank irrigation.	Improved water use efficiency measures will be supportive to improve water productivity. It will support to bring additional farmers under irrigation fold, including marginal and small farmers in the tank command.
Component 3: Institutional Development and Capacity Building		
Promotion / Strengthening of FPO	Areas not having any FPOs may remain excluded from the emerging scope; Small shareholders / women farmers may remain out of getting benefits that farmer's collective in shape of FPO provides; existing FPOs may continue doing activities that are generic in nature which gives less return to farmers.	Project area will have FPOs for product aggregation and marketing of produces; Project will promote better integration of small shareholders and management role to women shareholders in the organization. Small and marginal farmers will have a better say for their produces and they can be better integrated with bigger markets at state and national level. Through aggregation, the FPOs can attain a scale to have bargaining capacity in the market for better price.
Promotion / Strengthening of PFCS	Area not having PFCS will continue to have less organized effort of fishers to access their entitlement and market access.	The fishing community will have their own organization to access institutional benefits. It will improve their collective approach to production and marketing. They can take up issues of fishers in a more comprehensive manner and its amicable solution.
Capacity Building of Community Institutions / Primary Stakeholders	The institutions and facilitating entities will operate with current level of understanding with limited scope for acquiring improved skill and knowledge base; Current approach may not focus more on small holders and also not in an integrated manner from climate resilient perspectives.	Capacity building inputs will improve their efficiency in service delivery by which they can facilitate different project activities in a more productive manner. They will able to extend qualitative inputs that will benefit farmers and other stakeholders; Focused capacity building will support small holders, tribal and women farmers and also economically poor fishers for adoption of climate smart practices.

The main social advantages of the project would be improving irrigation coverage and bringing more area under irrigation in the tank command through various means. The project also intends to improve accessibility of small and marginal land holders to irrigation and modern scientific climate resilient agricultural practices. Reduced cost of cultivation, promotion of INM / IPM, improved agricultural practices, using climate resilient seed varieties to improve return during climate variability etc. will have direct impact on the small holders.

5.3 Key Issues to be Considered by the Project

5.3.1 Inclusion and Equity

Designing the project with the principles of inclusion and equity remains important. It becomes necessary to foster an approach that address the needs of small and marginal farmers and support them in ensuring sustainable income, even during adverse climatic conditions. Apart from this, it also becomes imperative that the project, in its life cycle, does not leave out marginalized sections such as tribes, women farmers and similar other sections of the society. The project, within its scope, will adopt appropriate strategy that involved the identified vulnerable families in accessing project benefits. The project will also facilitate inclusion of LGBT people, if they found residing in the project villages.

5.3.2 Active Participation and Ownership

Participation of community in general and their associations remains important for the project for its sustainability. However, experience reveals that in general, people with better social and economic standing influence the local planning and decision-making process and take a larger share of the benefits in community oriented and community driven interventions. Active participation of people from lower strata of the society, whose number is much higher than people with better social standing, normally remain passive in overall development process. So, it becomes an historically endowed challenge for the project to ensure that people from the lower part of the pyramid involve themselves actively in the process and use the scope which is created by the project for improving social and economic status of the identified vulnerable. Their active participation will bring a sense of ownership, better say in the execution process, ensuring association in monitoring and quality improvement and overall resolving local issues in a more constructive manner.

5.3.3 Transparency and Accountability

Transparency in project operation / execution and accountability to the stakeholders is the most desirable condition. Building and integrating transparency and accountability norms in all the stages and levels of operation and its adherence will remain significant for the project. The project shall take up adequate required measures ensuring that required level of transparency and accountability norms are followed. The PPs, FPOs, PFCSs and other community level institutions will adhere to these principles along with project implementing entities. In order to attain transparency and accountability, suo moto disclosure principle will be followed by the project associated institutions.

5.3.4 Scheduled Area and Tribal Development

The constitution of India has made exclusive provisions for the Scheduled Areas (here 5th schedule area) and tribals living in those areas. The constitution provides both protective and promotional safeguards to the tribals. The local governance mechanism of such areas is guided by PESA Act, in adherence to customary law. As the project will cover scheduled areas, it becomes imperative to follow the constitutional prescriptions and ensure safeguard of tribals from exploitation and keeping their socio-cultural identity and ethos intact. On the other hand, it also becomes important to mainstream them in the development process so that they can stand at par with other social groups / communities. The inclusive strategy of the project will ensure the interest of the tribals with preferential treatment and discriminatory targeting approach in scheduled areas.

5.3.5 Gender Concerns

On an average, more than half of the farm activities are performed by women, from planting to harvesting. Holding of land by women normally remain low and hence their involvement in farm level decision making is normally remain low or having less important. Hence, involving women farmers, based on their land holding, will be helpful. Secondly, in fisher community, women are mostly remaining engaged in selling of fishes in the nearby market / locality. As the project is having the plan for fishery promotion, concerns of women and their better participation will be ensured through appropriate strategies.

5.3.6 Capacity Development

The project, is a unique initiative of the Water Resources Department, Government of Odisha which is designed contextually, considering irrigation improvement and addressing climate variability and its impact on the farmers, more exclusively marginal and small farmers. While the overall objective of the project is to improve irrigation efficiency and productivity along with making agriculture climate resilient, it becomes important for the project to ensure that the farmers, fishers, community organizations and other associated stakeholders / service providers are having required skill and knowledge base to adopt / facilitate scientific agriculture and irrigation management practices. To make agriculture climate resilient, different package of practices will be introduced by the project with which farmers may not be acquainted adequately. So, developing their capacity in such scientific practices and agricultural technologies is desirable for the realization of the expected outcomes. Such measures required large scale capacity development interventions at different levels of the project and ensuring that such learnings are cascaded down to practices. Secondly, the community institutions, such as PPs, FPOs, PFCSSs, women SHGs and related other community organization also need to be capacitated adequately to sustain the change process that will be initiated by the project.

5.3.7 Collaboration and Convergence

The project is planned to be executed with the association of different government departments, non-government organizations / community-based organizations and other entities. With the support of state and central government, different schemes / programs are under implementation which gives potential to the project for benefiting from such schemes. For example, Department of Agriculture and Farmers Empowerment is having a number of schemes that can contribute to the project initiatives. Similarly, ST & SC Development, Minorities and Backward Class Welfare Department having various development / welfare schemes for the tribals which can be converged with the project activities in scheduled areas. While convergence of different schemes will improve beneficiary coverage, bridge the gap and drive the project towards achieving a higher order outcome, bringing all such departments to a common platform will remain a challenge for the project. Through appropriate coordination mechanism it can be achieved. As the district administration, headed by the collector and DM, is associated in the project execution, planning for schematic convergence, resource dovetailing and its execution will be supportive to the tribal families, women farmers, women fishers and other marginalized sections.

5.3.8 Sustainability of Project Inputs

It is always desirable that the project approach and its inputs rendered during the lifetime of the project sustains beyond the life of the project. Sustainability of any project depends upon many factors, such as relevance of the project inputs and its alignment with the need of the community, people's ownership, financial sustainability of the promoted institutions to carry forward the operation beyond the life of the project etc. The project proposed measures will strengthen the institutional mechanism and establish system and procedures that will support the sustainability of the project inputs beyond the life of the project.

5.4 Assessment Findings and its Implications for SMF

The assessment concludes that the project will not exert any negative social impact. The inclusion strategy will help to involve the marginalized section and small land holders in the process and deriving benefits out of the project activities. The assessment did not find any requirement for displacement and hence Rehabilitation and Resettlement (R&R) is not expected from the project execution. As a part of inclusion strategy, the project also ensures the involvement of tribal community in the process by implementing the project in scheduled areas and secondly, involving dispersed tribal families in the project activities in other areas. Gender sensitive and inclusive planning will be the principle to be followed by the project along with tribal inclusion for their development.

5.5 Social Management Framework (SMF)

Table 52: Social Management Framework by Social Dimensions

SN	Social Dimensions	Project Approach and Strategy
1	Inclusion and Equity	<ol style="list-style-type: none"> 1. Conducting local level planning and identification of Poor / Vulnerable families through local planning process; 2. Consultation with identified vulnerable sections to map their key expectations and linking it with project provisions for wider coverage; 3. Appropriate targeting for inclusion and equity; 4. Additional support provision under the project as per the schemes / program guidelines (schematic support / subsidy); 5. Monitoring / tracking of project benefits accessed by the identified marginalised / vulnerable sections; 6. Encouraging participation of such sections in different community level institutions / organisations;
2	Participation and Ownership	<ol style="list-style-type: none"> 1. Sensitisation / awareness creation on project objectives, activities and its expected outcome; 2. Special drive for participation of marginal & small farmers, women farmers and tribals in the meetings, trainings etc.; 3. Facilitate representation in different community organisations for their participation in decision making; 4. Consultation from time to time during implementation of activities and addressing their needs within the project frame; 5. Involving them in local level benefit monitoring and supervision;
3	Transparency and Accountability	<ol style="list-style-type: none"> 1. Wall writing / display of key activities, target mass and its benefits; 2. Proactive disclosure of information to the local people through display and sharing of information; 3. Providing information to people asking for information; Sharing information in EC meeting and GB meeting of the PP / FPO / PFCS; 4. Conducting audit on annual basis and appraising the audit findings with the members;
4	Strengthening People's Institutions	<ol style="list-style-type: none"> 1. Assessment of local institutions, such as PP, FPO, PFCS, SHGs etc. and identification of areas that have the potential to improve their functioning; 2. Facilitate in making people's institutions representative in nature from different social groups and economic backgrounds (marginal / small farmers, women farmers, tribal etc.); 3. Capacity building of the institutions to strengthen their functioning (training, exposure, demonstration); 4. Hand holding support to the institutions as per the requirement; 5. Periodic assessment of their functioning, identification of gaps and organising refreshers from time to time.
5	Tribal Development	<ol style="list-style-type: none"> 1. Consultation with tribals in general and particularly with tribal farmers, tribal women and fishers from tribal community; 2. Adequate consultation with tribals in scheduled area; 3. Facilitation and support to local planning for tribal inclusion; 4. Collaboration and convergence with tribal development schemes, where ever feasible, in scheduled areas;

		<ol style="list-style-type: none"> 5. Representation of tribal in local level institutions like PP, FPO, PFCS etc. including dispersed tribals in non-scheduled areas; 6. Adherence to schematic and constitutional provisions stipulated for tribal welfare and development; 7. <u>Inclusive targeting for greater inclusion and accessing project benefits;</u>
6	Participation of Women	<ol style="list-style-type: none"> 1. Consultation with women farmers, women groups (SHG and their federations) and other stakeholders like women fishers, traders, entrepreneurs etc. from different economic and social groups; 2. Preparation of local plan covering women component and their greater participation in different project activities; 3. Collaboration and convergence with women development schemes, where ever feasible; 4. Facilitation for higher representation of women in local level institutions like PP/WUA, FPO, PFCS etc.; 5. Prevention of girl child involvement in civil / construction works. 6. Adherence to women safety and security principles in work places; 7. Application of equal wage for equal work norm in all project activities; 8. Promotion of women friendly farm machineries (in CHC) and agricultural technologies; 9. Appropriate targeting for greater inclusion of women in accessing project benefits; 10. Special livelihood promotion drives for women groups / individual women entrepreneurs in shape of nutritional garden, mushroom culture, lemon grass cultivation, establishment of small / mini processing units etc.
7	Capacity Development	<ol style="list-style-type: none"> 1. Capacity need identification of different stakeholders (Marginal farmers, small farmers, women farmers, tribal farmers etc.), including local level institutions (PP, FPO, PFCS, women SHGs etc.); 2. Designing capacity building plan, considering the identified needs of different stakeholders; 3. Preparing training modules / manuals and imparting training; 4. Exposure visit to demonstrated successful ventures for learning, adoption and replication; 5. Handholding support to individuals, community institutions / organisations for effective functioning; 6. <u>Periodic assessment and organising refresher training / workshops;</u>
8	Collaboration and Convergence	<ol style="list-style-type: none"> 1. Need based collaboration with related line departments / private institutions / ICAR institutions / NGOs etc. as per the requirement of the project; 2. Fostering convergence with related schemes for wider coverage and outcome.

Table 53: Social Management Framework by Project Components

Components / Activities	Key Challenges	Proposed Project Measures	Project Stage		Responsibility		
			Planning	Imp.	Primary	Secondary	Tertiary
COM A: Sub COM A.1							
Agriculture							
Preparation of IIAP	Inclusion of interest of marginal and small farmers having their land in the unirrigated areas, especially for irrigation during Rabi season.	<ol style="list-style-type: none"> 1. Consultation with farmers of different holding categories and mapping their irrigation requirements during cropping seasons; 2. Planning capturing irrigation need of marginal and small farmers, especially during Rabi season; 3. Exploring alternative irrigation possibilities like use of ground water for irrigation and making it provisioned for unirrigated areas. 	√		SPMU	DOA&FW ATMA	DoWR
Crop Diversification and Demonstrations	<ol style="list-style-type: none"> 1. Involvement of marginal and small farmers in demonstration; 2. Poor adoption of climate resilient varieties due to less knowledge and understanding; 3. Technical knowhow on IFS / Inter cropping; 4. Adoption of package of practices during different stages of crop growth; 5. Unscientific use of fertilizer / pesticides and hence higher cost of cultivation; 6. Demo. in inaccessible areas; 7. Adoption / Learning Replication. 	<ol style="list-style-type: none"> 1. Awareness and sensitization on cost & benefit of climate resilient technologies; 2. Special orientation drive on crop diversification and its importance from climate resilient perspective; 3. Capacity building through training, exposure, hand holding and technical extension services; 4. Understanding current practices and educating the farmers on benefit of changing practices; 5. Exclusive demonstration and training on ICM / INM / IPM and follow-up; 6. Exposure visit of other farmers to demonstration sites for training and learning. 		√	DOA	Sub-SPU (DOA)	SPMU

Components / Activities	Key Challenges	Proposed Project Measures	Project Stage		Responsibility		
			Planning	Imp.	Primary	Secondary	Tertiary
Water Lifting Using Renewable Energy (Solar Pump)	<ol style="list-style-type: none"> Poor financial / paying capacity of farmers, especially, marginal and small land holders; Knowhow on operation and maintenance of solar pumps; 	<ol style="list-style-type: none"> Giving priority to farmers of low holding categories who have water sources for irrigation; The supplying agency should provide maintenance services as a part of the procurement contract; The project should bear part of the expenses apart from schematic convergence, wherever feasible; Provisioning and linking available subsidy of Govt. for marginal / small farmers / women farmers. 		√	DOA	OREDA	SPMU & Sub-SPU (DOA)
Crop Residue Management through Organic Waste Converter	Knowhow on the use, operation and maintenance of organic waste converter.	<ol style="list-style-type: none"> Ensuring accessibility of marginal / small holders to organic waste converter; Provisioning organic waste convertor in scheduled areas; Orientation / training to farmers on the use of organic waste converters and application of converted organic waste to minimize cost of cultivation. 		√	DOA	Sub-SPU (DOA)	SPMU
Installation of Moisture Meter	<ol style="list-style-type: none"> Coverage of fragmented small patch of cultivated land; Taking measures as per the moisture meter reading by the farmers 	<ol style="list-style-type: none"> Selection of sites and use of moisture meter in cultivated lands as per the guidance of the extension service providers ensuring coverage of non-irrigated / tail end areas; Orientation of farmers on application of moisture meter and measures to be taken as per the reading (irrigating land); Time to time monitoring and guidance to the farmers 		√	DOA	Sub-SPU (DOA)	SPMU
Installation of Farm Guard	Knowhow of farmers on uses of farm guard and its relevance	Orientation of farmers, particularly marginal and small farmers on farm guard and on-field guidance		√	DOA	Sub-SPU (DOA)	SPMU
Farm Mechanization	1. Availability of farm machineries / equipment	1. Land available with local GP / Govt. / FPOs will be utilized, after due scrutiny and verification;		√	DOA	Sub-SPU (DOA)	SPMU

Components / Activities	Key Challenges	Proposed Project Measures	Project Stage		Responsibility		
			Planning	Imp.	Primary	Secondary	Tertiary
	at the time of need of marginal and small farmers 2. Limited use of big farm machineries due to fragmented and small land size 3. Availability of land for establishing CHC; 4. Establishment of CHCs in less accessible / scheduled areas; 5. Accessibility of MF, SF, tribal farming families and women farmers to the farm machinery; 6. Availability of women friendly farm machinery / equipment in CHCs	2. Establishment of CHCs in less accessible and less farm mechanized areas, based on the identified requirement during planning process and after due verification of the feasibility; 3. Devising guiding principles / procedures of effective operation of CHCs for equal opportunity accessibility; 4. Women farmer friendly farm equipment in the CHCs (developed by ICAR institution/s)					
Capacity Building of Farmers through Farmer Field School (FFS) and Training on Climate Resilient Agriculture	1. Association of marginal / small farmers / women farmers in FFS; 2. Organizing FFS in less accessible areas; 3. Participation of women farmers in training / capacity building measures	1. Organizing FFS in feasible locations, including less accessible pockets for practical learning of farmers; 2. Identifying need of the women farmers and designing curriculum to address their needs on climate resilient agriculture; 3. Involving share croppers, women farmers and small holders in FFS learning seasons;		√	DOA	Sub-SPU (DOA)	SPMU

Components / Activities	Key Challenges	Proposed Project Measures	Project Stage		Responsibility		
			Planning	Imp.	Primary	Secondary	Tertiary
Post-Harvest Management & Agribusiness Promotion	<ol style="list-style-type: none"> Limited knowhow on the post-harvest management practices of different crops Participation of marginal and small holders in the agribusiness / supply and value chain improvement Limited or no access to processing units / other market infrastructures by small producers; Negligible involvement of women producers in agribusiness 	<ol style="list-style-type: none"> Training / orientation of farmers on post-harvest management practices for different crops; Assessment of marketable surplus by crop, involving marginal and small holders and orienting them on benefits of collective marketing and product aggregation; Spatial planning for establishment of processing units / market infrastructure taking in to account production, market surplus and commodity inflow routes; Coverage of scheduled areas / tribal dominated pockets in establishing processing units and market infrastructure as per the feasibility assessment. Special emphasis by ABSO for promotion of agribusiness in scheduled areas through orientation, training, value addition and market linkage; Ensuring increased involvement of women and their groups (SHGs) in agribusiness activities by providing required support as per the project provisions; Adoption of convergence approach for agribusiness, especially when women SHGs / women entrepreneurs are involved. 		√	DOA	Sub-SPU (DOA)	SPMU
Horticulture							
Area Expansion Under Horticultural Crops (Hybrid Vegetable Cultivation and Floriculture)	<ol style="list-style-type: none"> Greater involvement of marginal and small holders under hybrid vegetable cultivation; Participation of women / women groups in floriculture; 	<ol style="list-style-type: none"> Consultation and identification of needs of marginal and small farmers, including women farmers with regard to cultivation of hybrid vegetables and floriculture; Providing input and technology support through the project provisions and convergence with other schemes; Engaging women in area expansion, basically in floriculture; 		√	DOH	Sub-SPU (DOA)	SPMU

Components / Activities	Key Challenges	Proposed Project Measures	Project Stage		Responsibility		
			Planning	Imp.	Primary	Secondary	Tertiary
	3. Provision of irrigation for expansion of horticultural crops.	4. Orientation to farmers in general and women in particular on package of practices;					
Horticultural Support to Vulnerable Households (Backyard Nutritional Garden, Lemon Grass Cultivation and Mushroom Cultivation)	<ol style="list-style-type: none"> 1. Identification of vulnerable households based on socio-economic criteria; 2. Involvement of landless, marginal land holders and women / women groups; 3. Lack of knowledge base on lemon grass and mushroom farming; 4. Market mechanism for mushroom and lemon grass. 	<ol style="list-style-type: none"> 1. Exploring scope of engaging women groups (SHGs) in floriculture and mushroom cultivation; 2. Training on lemon grass and mushroom cultivation and its economic benefit, especially to women groups; 3. Extension of technical support for mushroom farming. 4. Facilitate forward and backward linkage for marketing of produces, i.e., lemon grass and mushroom; 5. Ensuring greater involvement of women and their groups in nutritional garden promotion through training, input support and on-field guidance. 		√	DOH	Sub-SPU (DOA)	SPMU
Micro Irrigation System Promotion (Drip / Sprinkler)	<ol style="list-style-type: none"> 1. Involvement of SF / MF / WF from ST / SC communities in procuring and applying drip irrigation system; 2. Non-availability of water sources and overhead tank for adoption of drip irrigation system; 3. Knowledge on operation and maintenance of drip irrigation system. 	<ol style="list-style-type: none"> 1. Educating and motivating farmers of different holding categories for adoption of drip irrigation; 2. Convergence with existing government scheme/s for wider coverage; 3. Use of Existing individual / community water resources for drip irrigation. Project may provide support for overhead tank system for drip irrigation; 4. Focusing on small patch of lands of tribal having less land holding (MF / SM), based on economic feasibility; 5. Inclusion of SF/MF/WF, and farmers from ST/SC community as per the tank / cascade level plan; 6. Facilitate credit accessibility through appropriate institutional arrangement (like SHG / FPO); 		√	DOH	Sub-SPU (DOA)	SPMU

Components / Activities	Key Challenges	Proposed Project Measures	Project Stage		Responsibility		
			Planning	Imp.	Primary	Secondary	Tertiary
		7. Facilitate convergence with schemes of Tribal Development Dept. for improved coverage of tribal farmers under micro irrigation; 8. Training on operation and maintenance of drip system; 9. Periodic monitoring and follow-up of adoption and use of drip system.					
Protected Cultivation	1. Accessibility of marginal and small holders & women farmers to poly greenhouse / shed net; 2. Availability of suitable patch of land for constructing poly green house.	1. Coverage of small patch of land, as per technical specification, and designing the shed net / poly house accordingly for marginal and small land holders. Adoption of community approach would be explored; 2. Coverage of women farmers and households from ST/SC community, as per the village / cluster level plans, by which they can access the benefit; 3. Fostering convergence and rendering project support for marginal farmer, small farmers, women farmers and tribal farmers, adhering to the prescribed norms; 4. Facilitate credit accessibility of marginal and small farmers, women farmers and farmers from ST/SC community through appropriate institutional arrangement and mechanism for greater access of benefit.		√	DOH	Sub-SPU (DOA)	SPMU
Promotion of Vermicompost	1. Involvement of small holders / share croppers in vermicomposting; 2. Knowhow / knowledge base on vermicomposting 3. Continuity of practice by tribal farmers and its sustained adoption;	1. Awareness on vermicompost especially from economic and environmental point of view; 2. Rendering project support and facilitating convergence with existing schemes to wider adoption; 3. Orientation / training to farmers on vermicomposting and application of vermicompost; 4. Follow-up with farmers and making it part of INM and soil health management practices;		√	DOH	Sub-SPU (DOA)	SPMU

Components / Activities	Key Challenges	Proposed Project Measures	Project Stage		Responsibility		
			Planning	Imp.	Primary	Secondary	Tertiary
	4. Need Vs quantum of production and application.	5. Based on the cultivated area, assessment of vermi compost requirement and educating / motivating farmers for additional production and its application. 6. Coverage of use of vermi-compost / NADEP unit in demonstrations (FFS) for learning and adoption; 7. Capacity building of farmers on organic farming / natural farming systems;					
Establishment of Functional Pack House and Solar Cold Room and Post-Harvest Management and Value Addition (Horticulture)	1. Availability of suitable land for pack house / cold room; 2. Coverage of less accessible areas under such provisions; 3. FPO may not have required capital base to invest in pack house / solar cold room.	1. Use of existing GP / Govt. land or land available with FPO for construction of pack house / cold room: No acquisition of land; 2. Land should be free from encroachers / squatters and without any litigation; 3. Spatial planning taking note of production, marketable surplus and current supply chain system of different commodities; 4. Facilitate business planning of FPOs and its linkage with banks / financial institutions / existing schemes; 5. Feasibility of pack house / storage structures to be assessed in scheduled areas in its construction based on feasibility; 6. Training to tribals on primary processing and product packaging; 7. Involvement of private entrepreneurs / women SHGs in establishment and management of such structures with project support and convergence.		√	DOH	Sub-SPU (DOA)	SPMU
Capacity Building (Training / Exposure)	1. Capacity building as per the practical need of the	1. Identifying capacity requirements of farmers belonging to different holding categories, more particularly capturing need of women and tribal farmers;		√	DOH	Sub-SPU (DOA)	SPMU

Components / Activities	Key Challenges	Proposed Project Measures	Project Stage		Responsibility		
			Planning	Imp.	Primary	Secondary	Tertiary
	farmers of holding categories; 2. Participation of women farmers in capacity building initiatives;	2. Designing training modules / manuals / curriculum as per the identified needs; 3. In case of needs, local level trainings will be organized to ensure greater participation of women and farmers in general; 4. Participatory and interactive sessions to be planned for improved understanding with the use of Odia language; 5. Learning materials will be developed in local Odia language and distributed to the trainees for ready reference.					
COM A: Sub COM A.2							
Fishery							
Fish Seed Production	Accessibility of fish seed by fishers / cooperatives in less accessible areas.	1. Devising mechanisms to ensure that fishers / PFCS access fish seeds of required quantity in less accessible areas through transportation mechanism; 2. Fish seed transportation system would be designed to cater to the need of fishers of such areas.		√	F&ARD	SPMU	
Fish Feed Production	Availability of suitable land for establishing fish feed mill.	Available Govt. land / existing set-up would be utilized for establishment of mini fish feed mills;		√	F&ARD	SPMU	
Fish Production	1. Conflict may arise between PP and PFCS / Fishers on use of tank for fishery activities, specifically when water availability is less during less rainfall condition;	1. Special training to fishers / women / women groups on fish farming / ornamental fish cultivation; 2. Linking ornamental fish farming with the market for remunerative return to women; 3. Demonstration of integrated farming system, cage culture and climate resilient aquaculture production models in suitable tanks in scheduled areas for learning of tribal and its adoption;		√	F&ARD	SPMU	

Components / Activities	Key Challenges	Proposed Project Measures	Project Stage		Responsibility		
			Planning	Imp.	Primary	Secondary	Tertiary
	<ol style="list-style-type: none"> Coverage of tanks under different fish production system in interior areas; Lack of knowhow on ornamental fish culture by women and their groups. 	<ol style="list-style-type: none"> Piloting ornamental fish farming with women groups in general and tribal women in particular and linking it with the market. 					
Fish Processing and Value Addition	<ol style="list-style-type: none"> Active involvement of fishers and their cooperatives in processing value addition activities; Knowhow of fishers / women fishers on fish value addition and process; Feasibility of establishing marketing infrastructure and related units in interior / less accessible pockets; 	<ol style="list-style-type: none"> Adoption of inclusion strategy in providing bicycle / ice box to women fish vendors / members of the cooperatives; Training / orientation of fishers on fish processing / value addition; Establishing value chain infrastructures in interior / less accessible pockets based on feasibility assessment; Involving local women fishers groups in fish processing and value addition; Identifying and involving interested women entrepreneurs in fish value addition activities. Interested women SHGs will be given emphasis for involvement in fish vending kiosks / mobile kiosks. 		√	F&ARDD	SPMU	
COM B: Sub-COM B.1&2							
Improvement in Irrigation Coverage; Water Productivity and Efficiency	Accessibility of tail end farmers to irrigation, especially during Rabi	<ol style="list-style-type: none"> Provision of water availability to each Ha., including tail end through pressurized irrigation system; Extraction and use of ground water in cases of non-availability of surface water for irrigation; Irrigation scheduling for equitable distribution of water and making water available to tail end; Improved water use efficiency for bring additional area under irrigation. 		√	DOWR	SPMU	

Components / Activities	Key Challenges	Proposed Project Measures	Project Stage		Responsibility		
			Planning	Imp.	Primary	Secondary	Tertiary
		5. Engagement of local labour, more particularly interested women labourer in civil works and provision of equal wage for equal work; 6. Prevention of harassment of women at work sites through community monitoring and vigil system (by PP)					
Project Component C							
Promotion of New PFCS	Participation of women involved in fish processing	1. Promotion of new PFCS in areas where PFCS does not exist so that available schematic and project benefits can be accessed by them; 2. Measures for inclusion of women fisher folk involved in different fishery related activities in the new PFCS; 3. Representation of women fisher folk in the managing committee of the PFCS.		√	F&ARDD	SPMU	
Capacity Building / Strengthening of PP / FPO / PFCS / SHG Etc.	1. Participation of women in general and women from ST/SC community; 2. Participation of small / marginal holders from ST/SC community; 3. Gap between need of the members and impacted themes / topics in training sessions 4. Uniform capacity building plan may not help to all the primary stakeholders at the community level	1. Capacity building need assessment of women fishers / farmers and others from ST/SC community along with others in general; 2. Designing training module keeping the needs of different stakeholder categories, their educational level etc.; 3. Ensuring their involvement in capacity building measures like training / exposure as per the identified needs; 4. Organizing trainings at local level to ensure participation of women farmers; 5. In case of requirement, organizing exclusive training of women stakeholders, based on their number, at village / cluster level; 6. Preparing training session plan taking women engagement in to account and based on their identified needs;		√	DOWR / DOA / DOH / F&ARDD	Sub-SPU	SPMU

Components / Activities	Key Challenges	Proposed Project Measures	Project Stage		Responsibility		
			Planning	Imp.	Primary	Secondary	Tertiary
		7. Organising exposure visit to different learning centres;					
		8. Follow up of application of capacity building inputs by different stakeholder categories.					

5.6 Agricultural Infrastructure and Land Availability

Land is required for the purpose of creation of infrastructure such as (1) Custom Hiring Centre (CHC), (2) Agro-processing units, (3) pack house, (4) godowns / storage infrastructures, (5) cold storage etc. However, the project will not cause any involuntary displacement for creation of agribusiness infrastructure or any infrastructure that are supportive to agriculture promotion. As it is proposed that the PP/FPO will be the owner of such facilities and managing it, PP/FPOs should have their own land for the establishment of such infrastructures. The PP/FPOs having suitable land can only apply for such infrastructure-based support. In case of requirement, project may engage private entrepreneurs for the establishment of such structures in a PPP mode or with the adoption of BOO / BOOT model. In all such models, the principles to be followed are;

1. No activities under the project components will be taken-up if it involves physical displacement of local people, either from their residences and/or commercial places;
2. Before taking up infrastructural activity, a screening process will be followed to understand involvement of any land acquisition or forceful eviction because of the activity. If execution of any of the project activities involves acquisition of land, which is involuntary in nature, project will take conscious decision to explore alternatives;
3. In cases, if encroachment is observed and the encroached land is proposed for infrastructure development by any of the PP/FPO/Pvt. entrepreneur, the project will not take up any such activity in the encroached land that is expected to upset the livelihood of the family depending upon that patch of land.

Following rules shall govern securing of lands for the project. The local appropriate authority should take required measures accordingly.

1. The land must be free of squatters, encroachers, share cropping or other claims or encumbrances;
2. The facilities requiring land should not be site specific (exploration of alternative);
3. This should not result in any physical relocation;
4. This should not result in restrictions on accesses and transit;
5. In case of voluntary donation of land, required legal process should be followed with verification by appropriate authority. Under no circumstances, the land user will be subjected to any pressure, directly or indirectly, to part with the land;
6. It is to be ensured that there shall be no significant adverse impacts on the livelihood of the household donating / selling the land.
7. Provision shall be made for redressal of grievances, if any.

5.7 Tribal People’s Planning Framework (TPPF)

The project will have exclusive strategic focus for greater inclusion of tribal and their active association in project interventions in scheduled areas. The strategy proposed for inclusion of tribal communities is discussed in Table 54 (*refer TPPF for details*).

Table 54: Project Approach and Strategy for Tribal Development

Project Stages	Project Approach and Strategy	Expected Outcome
1	2	3
Preparatory / Planning Phase	<ol style="list-style-type: none"> 1. Discussion with tribal families / farmers of the project area in general and exclusively in scheduled areas on project component and activities; 2. Identifying key issues in the way of their greater involvement and benefitting from the project intervention; 	<ol style="list-style-type: none"> 1. Key intervention areas are identified and guidelines / action plan prepared for improved participation of tribal in general and tribal farmers, in particular.

	<ol style="list-style-type: none"> 3. Preparing a priority list of actions, based on the identified issues and interest of tribal farmers / families of the project area. 4. Preparing village specific plan (tank command villages) of action for better inclusion of tribal in different activities that are feasible for their greater participation. 	<ol style="list-style-type: none"> 2. List of actions finalized for implementation to ensure greater involvement and participation of tribal by project activity.
Implementation Phase	<ol style="list-style-type: none"> 1. Implementing priority actions that are finalized during preparatory / planning phase; 2. Initiatives for possible convergence with tribal development schemes of Government at the village / GP level; 3. Priority action in inaccessible scheduled areas (project villages) for establishment of infrastructures that are planned under the project, based on feasibility; 4. Equal opportunity to dispersed tribal (living in a mixed community) for accessing project benefits, as per the plan for beneficiary coverage; 5. Ensuring greater participation of tribal community in activities taken up under each component / sub-components of the project; 6. Taking measures, adhering to the scope of the project, to build the capacity of tribal farmers in agricultural technologies, marketing, institution management etc., as per the project requirements; 7. Taking measures that are aligned to PESA Act; 8. Monitoring of actions taken under the project for inclusion of tribal by project component / sub-components and initiating corrective measures accordingly; 9. Documenting success and learning from different initiatives undertaken by the project that ensures greater participation of tribal; 10. Effective grievance redressal system to address the grievances related to the project activities of the tribal people of the project area. 	<ol style="list-style-type: none"> 1. Participation of tribal / tribal farmers in different activities implemented under the project; 2. Project supported infrastructure and services in less accessible scheduled areas / tribal dominated areas; 3. Inclusion of tribes and their active involvement ensured with better operational and management capabilities; 4. Adoption of improved farming technologies by the tribal farmers and hence better yield from the available land; 5. Emerging good practices in tribal inclusion, participation and execution benefits are documented, shared and replication measures taken; 6. Grievances of tribal families are well addressed, ensuring their active and fruitful association in the project.

Note: Refer the TPPF Annexed to this document for Details

5.8 Gender Action Plan (GAP)

5.8.1 Introduction

The principle of gender equality is enshrined in the Indian Constitution in its Preamble, Fundamental Rights, Fundamental Duties and Directive Principles. The Constitution not only grants equality to women, but also empowers the State to adopt measures of positive discrimination in favour of women. In recent years, the empowerment of women has been recognized as the central issue in determining the status of women. The National Commission for Women was set up by an Act of Parliament in 1990 to safeguard the rights and legal entitlements of women. The 73rd and 74th Amendments (1993) to the Constitution of India have provided for reservation of seats in the local bodies of Panchayats and

Municipalities for women, laying a strong foundation for their participation in decision making at the local levels.

5.8.2 Objective and Contextual Relevance of GAP:

In the state agriculture and fishery scenario, role of women has been of significant importance. In spite of that, their role in decision making and their association in different spheres of engagement is limited. Their efforts are less recognised and admired, especially when community level development processes are initiated. Their role in household and rural economies is less recognised. Though women comprise of about 49 percent of the state population, their access to entitlement and rights is limited due to various factors. In terms of education, skill base, exposure and engagement, they lag behind their male counterparts. Their work participation rate has been less than that of male and their involvement in various livelihood and other activities are also limited. In institutional governance, either they do not participate / allowed to participate or they remain passive in most of the cases. Their role in local development process / community affairs is less heard and recognised.

In this context, it becomes important to ensure their greater participation in any development discourse and provide them equal opportunity to access development benefits. Pro-women approach with certain degree of inclusive targeting will help in bringing a balance among both men and women. Further, as women section are more marginalised, a gender biased approach, favouring women section would bring more inclusive development. The rural women, in general, have the same characteristics, irrespective of their social and economic background. As they do not form a homogeneous group, their needs and expectations differ to certain degree. Their expectations are different in different cases, determined by their social belongingness, economic class, engagement sphere, age, marital status, ethnic background and religion. To understand the situation of rural women, it is necessary to examine the full diversity of their experiences in the context of the project and also in the context of changing rural social and economic landscape. This will have paramount importance to plan for greater inclusion of women in the development activities.

The Gender Action Plan (GAP) objectively looks at improving the status of women and foster more gender balance through inclusion and equity. Taking in to account the current situation, it supports the planners and executing entities to take a pro-gender / pro-women approach by which potential of women is utilised to the fullest extent and they participate and benefitted from project specific measures. The major objectives of the Gender Action Plan include increased participation by women in project activities; equitable access to project resources including trainings, technology and other services; improved practical benefits such as increased income, greater financial security and more livelihood opportunities; and progress towards gender equality, including changing household decision making patterns, membership or leadership in community- based organisations and increased mobility. It is in this context that a Gender Action Plan has been developed for the OIIPCRA project in a consultative approach. The GAP provides a road map for project planning, execution, monitoring and evaluation in a gender balanced manner. However, while designing the GAP, care is taken to ensure that the gender development measures are in line and in conformity to national acts and policies and adheres to overall national and state mandate of women empowerment.

5.8.3 Status of Women in Odisha:

5.8.3.1 Sex Ratio:

Women in Odisha constitute nearly half (49.5 %) of the State's total population (census 2011). The Sex Ratio in the state which was 972 in 2001, has increased by 7 points to 979 in 2011, favouring women. In rural areas the sex ratio has increased from 987 to 989. The corresponding increase in urban areas has been of 37 points from 895 to 932. Rayagada has recorded the highest sex ratio in respect of total population (1051), Rural population (1064) and Gajapati has recorded the highest sex ratio in Urban population (1006). The lowest sex ratio in rural areas has been recorded in Nayagarh (915). The

corresponding value in urban areas has been returned in Anugul (889).11 districts, viz., Debagarh, Kendrapara, Jagatsinghapur, Cuttack, Dhenkanal, Anugul, Nayagarh, Khordha, Puri, Ganjam and Subarnapur show fall in the sex ratio in rural areas compared to 2001 Census. There is no change in sex ratio in rural areas of two districts, viz., Bargarh and Baleshwar. In urban areas decreasing trend is noticed only in Malkangiri district during the decade.

Census 2011 marks a considerable fall in child sex ratio (0-6 years) from 953 to 941 (-12 points) during 2001-2011. This is the lowest child sex ratio since 1961. In rural areas, the fall has been to the tune of 9 points (955 to 946) and in urban areas the decline has been to an extent of 20 points (933 to 913) over the last decade. Highest sex ratio has been recorded both in rural (999) and urban (971) areas in Nabarangapur district whereas, lowest child sex ratio has been recorded in Nayagarh district both in rural (857) and urban (835) areas.

The sex ratio among Scheduled Caste population has increased from 979 in 2001 Census to 987 in 2011 Census registering an increase of 8 points. The sex ratio among Scheduled Tribe population has increased from 1003 in 2001 Census to 1029 in 2011 Census registering an increase of 26 points.

5.8.3.2 Education and Literacy Level

Education has a direct bearing on human development. It supports in building human capability and thereby sustaining employability, faster income generation, poverty reduction, and higher economic growth. By the end of June 2014 (as per estimated literacy rate of Odisha by 71st round NSS January-June 2014), the literacy rate of Odisha was 75.5 percent as against all India literacy rate of 75.4 percent. Whereas the male literacy has increased 2.99 times from 27.32 percent in 1951 to 81.6 percent in 2011, the female literacy has grown much faster (i.e., 14.16 times) from a low level of 4.52 percent in 1951 to 64.0 percent in 2011. By the end of June 2014, the male and female literacy rates of Odisha increased to 83.2 and 67.8 percent as against national literacy rates of 83.2 and 67.1 percent respectively. Odisha achieved higher female literacy rate than that of All India. The gender gap in literacy in Odisha reduced to 15.4 percent in June 2014 as compared to 17.6 percent in 2011 census. The female literacy of Odisha, as per 2011 Census was 64% which was at par with national averages. But gender gap in literacy as per 2011 Census was the highest in Nuapada district and lowest in Khordha district.

Female literacy rate of ST and SC communities in particular, in Odisha remain an area of concern. Substantial social, regional and gender disparities in literacy exist in the State. Scheduled Tribe communities have low levels of literacy in comparison to other social groups. With increasing literacy rate among SCs and STs, the gap in literacy between male and female has also increased. The literacy gap among the STs was 18.51 percentage point during 1981 when male literacy rate was 23.27 percent and female literacy rate was only 4.76 percent. By 2001, literacy rate of female increased to 23.27 percent and literacy gap between both the sexes increased to 28.21 percentage point. In 2011, literacy gap between male and female marginally reduced to 22.5 percentage point when male literacy rate increased to 63.7 percent and female literacy to 41.2 percent.

Table 55: Gender Gap in Literacy Rate of Scheduled Caste and Tribe

Year	Scheduled Tribes				Scheduled Castes			
	Total	Male	Female	Gap (% Point)	Total	Male	Female	Gap (% Point)
1981	13.96	23.27	4.76	18.51	22.41	35.26	9.4	25.86
1991	22.31	34.44	10.21	24.23	36.77	52.41	20.74	31.67
2001	37.37	51.48	23.27	28.21	55.53	70.47	40.33	30.14
2011	52.24	63.7	41.2	22.5	69.02	79.21	58.76	20.45

The gap between rural and urban male literacy has however, been decreasing. Gross enrolment ratio in schools in Odisha is encouraging. The gross enrolment ratio in primary and secondary education level

in Odisha was 104 and 100 per thousand students as compared to 100 and 87 at all India level respectively as on June 2014 (estimated result of 71st round NSS).

Among the project districts, gap in literacy rate between male and female observed to be highest in Nuapada (21.99 percentage point) followed by Kalahandi (21.92 percentage point) and lowest in Jajpur (11.11 percentage point) and Bhadrak (12.01 percentage point). Gender gap in rural literacy rate is having more or less same pattern. Gap in urban literacy rate between male and female is lower than the gap in rural literacy rate. Gap in literacy rate between male and female by rural and urban is presented in Table 56.

Table 56: Gap in Literacy Rate in Project Blocks by District

SN	Districts	Gender Gap in Literacy (Percentage Point)		
		Total	Rural	Urban
1	Balasore	12.8	12.96	7.68
2	Bargarh	17.96	17.96	-
3	Bhadrak	12.01	12.06	10.05
4	Bolangir	19.63	19.72	15.01
5	Boudh	19.34	19.34	-
6	Gajapati	18.34	18.5	10.28
7	Ganjam	17.92	18.1	13.55
8	Jajpur	11.11	11.16	7.57
9	Kalahandi	21.92	21.98	11.2
10	Kandhamal	20.6	21.2	13.05
11	Keonjhar	17.16	17.18	15.59
12	Mayurbhanj	17.94	17.93	16.83
13	Nawarangpur	19.32	19.37	12.73
14	Nuapada	21.99	21.99	-
15	Subarnapur	17.86	17.86	-

Source: Census 2011

Note: Data of project blocks only in project districts, not the entire district.

5.8.3.3 Work Participation:

The percentage of women workers in Urban and Rural areas stood at 29.7 and 14.1 % respectively in the total workforce has been consistently increasing except 1981. The proportion of women in total main workers has increased from 16.18 % in 1981 to 17.87 % in 2011, while the proportion of women marginal workers as compared to total marginal workers has declined from 85.80 % in 1981 to 54.52 % in 2011. This appears to be the outcome of increased literacy among women and higher participation of women in the Service Sector.

Table 57: Female Workers and Their Involvement in Agriculture

Census Year	Female Workers (in Lakh)			Female Workers in Agriculture (in Lakh)			% of Female workers in agriculture to total female workers		
	Total	Rural	Urban	Total	Rural	Urban	Total	Rural	Urban
1981	25.87	24.51	1.36	11.06	10.8	0.26	42.75	44	19.12
1991	32.42	30.82	1.59	15.26	14.94	0.32	47.07	48.48	20.13
2001	44.75	42.13	2.61	9.59	9.45	0.14	21.43	22.43	5.36
2011	56.39	51.62	4.77	39.87	39.32	0.55	70.70	76.17	11.52

Source: Census of different years; Odisha Economic Survey, 2017-18

The proportion of women employees in the total workforce in the organized sector was 14.03 % by the end of December 2013. Their proportion in the public sector increased from 0.96 % in 2004 to 1.00 % in 2013, in case of private sector it increased from 0.11 to 0.12 during the same period.

The work participation rate of project blocks (aggregated) in project districts is more than 50.0 percent in all the project districts and highest in Bargarh (62.26 percent) in case of male and highest in case of

female in Gajapati (48.45 percent). In the overall work participation, female work participation is less than male work participation in almost all the project districts. In the main worker segment, female work participation is less than male work participation in project area whereas in marginal worker segment, female work participation is higher than male work participation in most of the project area. Work participation by male and female is presented in Table 58.

Table 58: Work Participation Rate in Project Blocks by District

SN	District	Work Participation Rate		Main Worker (%)		Marginal Worker (%)	
		Male	Female	Male	Female	Male	Female
1	Balangir	56.58	31.94	38.92	8.48	17.66	23.47
2	Balasore	56.67	21.04	44.28	8.14	12.38	12.91
3	Bargarh	62.26	48.39	43.65	11.71	18.61	36.68
4	Bhadrak	53.85	8.07	38.96	3.25	14.9	4.82
5	Boudh	56.13	43.06	40.58	9.91	15.55	33.15
6	Gajapati	51.78	48.45	33.3	17.1	18.47	31.36
7	Ganjam	56.24	31.75	38.51	10.05	17.73	21.7
8	Jajpur	52.54	6.81	39.1	3.2	13.44	3.6
9	Kalahandi	56.67	39.81	36.69	9.22	19.98	30.59
10	Kandhamal	53.51	45.12	35.86	13.76	17.65	31.36
11	Keonjhar	54.99	30.89	39.1	8.79	15.89	22.1
12	Mayurbhanj	55.82	43.18	32.02	11.32	23.8	31.86
13	Nabarangpur	56.72	45.33	39.68	8.24	17.05	37.08
14	Nuapada	57.3	44.28	38.85	9.73	18.45	34.55
15	Subarnapur	58.11	40.17	36.42	8.45	21.68	31.72

Source: Census 2011

Note: Data of project blocks only in project districts, not the entire district.

Male worker participation rate (main and marginal) observed to be highest as cultivator and agricultural labourer. Engagement of male worker in household industries is very less in project area. More or less similar trend is observed in case of female worker where their participation is higher as agricultural labourer in comparison to cultivator. Work participation rate of male and female worker in four engagement areas is presented in Table 59 and Table 60.

Table 59: Male Worker Participation Rate (Main & Marginal)

SN	District	Cultivator (%)	Agricultural Labourer (%)	HH Industrial Worker (%)	Other Worker (%)	% of Odisha
1	Balasore	32.57	32.52	3.29	31.62	1.98
2	Bargarh	39.2	44.16	3.57	13.07	1.06
3	Bhadrak	38.28	33.82	2.82	25.08	2.2
4	Bolangir	33.24	36.18	3.71	26.88	2.43
5	Boudh	43.42	35.62	4.1	16.86	0.35
6	Gajapati	39.76	38.39	2.07	19.79	0.28
7	Ganjam	28.35	30.59	4.33	36.73	5.95
8	Jajpur	24.35	38.16	3.32	34.17	1.09
9	Kalahandi	28.26	47.52	2.34	21.88	2.9
10	Kandhamal	31.65	37.3	2.58	28.47	0.63
11	Keonjhar	37.25	29.03	2.33	31.38	3.19
12	Mayurbhanj	28.8	39.79	4.77	26.64	4.33
13	Nawarangpur	57.5	31.07	1.75	9.68	0.99
14	Nuapada	42.23	33.77	3.25	20.76	0.59
15	Subarnapur	34.17	46.09	3.02	16.72	0.21

Source: Census 2011

Note: Data of project blocks only in project districts, not the entire district.

Table 60: Female Worker Participation Rate (Main & Marginal)

SN	District	Cultivator (%)	Agricultural Labourer (%)	HH Industrial Worker (%)	Other Worker (%)	% of Odisha
1	Balasore	13.28	56.13	6.33	24.27	1.51

2	Bargarh	15.89	74.67	3.36	6.08	1.75
3	Bhadrak	15.57	38.63	6.92	38.89	0.69
4	Bolangir	11.48	66.62	4.5	17.4	2.87
5	Boudh	9.33	77.09	5.29	8.28	0.57
6	Gajapati	17.27	66.34	2.48	13.92	0.59
7	Ganjam	11.93	67.26	2.52	18.29	7.03
8	Jajpur	9.35	40.03	5.63	44.98	0.29
9	Kalahandi	9.33	76.36	2.62	11.69	4.32
10	Kandhamal	16.17	60.21	6.2	17.42	1.18
11	Keonjhar	12.69	67.94	3.51	15.86	3.77
12	Mayurbhanj	8.02	60.93	14.23	16.82	7.13
13	Nawarangpur	15.08	76.67	2.16	6.09	1.68
14	Nuapada	19.11	68.23	3.35	9.3	0.98
15	Subarnapur	10.25	76.18	3.16	10.42	0.3

Source: Census 2011

Note: Data of project blocks only in project districts, not the entire district.

Gap in work participation between male and female is lowest in Gajapati (3.32 percentage point) and highest in Jajpur (45.73 percentage point). In main worker participation, highest gap is in Balasore (36.14 percentage point) and lowest is in Gajapati (16.2 percentage point). Whereas, in case of marginal workers, gap is favouring women in most of the project areas. Gap between male and female in worker participation is presented in Table 61.

Table 61: Gender Gap in Work Participation in Project Blocks

SN	District	Gender Gap in Work Participation (Percentage Point)		
		Work Participation	Main Worker	Marginal Worker
1	Balangir	24.64	30.45	-5.81
2	Balasore	35.62	36.14	-0.52
3	Bargarh	13.87	31.95	-18.07
4	Bhadrak	45.78	35.7	10.07
5	Boudh	13.07	30.67	-17.6
6	Gajapati	3.32	16.2	-12.88
7	Ganjam	24.49	28.46	-3.97
8	Jajpur	45.73	35.89	9.84
9	Kalahandi	16.86	27.47	-10.61
10	Kandhamal	8.39	22.1	-13.71
11	Keonjhar	24.1	30.31	-6.21
12	Mayurbhanj	12.64	20.7	-8.06
13	Nabarangpur	11.4	31.43	-20.03
14	Nuapada	13.02	29.13	-16.11
15	Subarnapur	17.94	27.98	-10.04

Source: Census 2011

Note: Data of project blocks only in project districts, not the entire district.

5.8.3.4 Health Conditions

The demographic & health sector indicators for Odisha exhibits a mixed trend. Odisha performed remarkably by reducing IMR to 40 in 2015-16 as per NFHS-IV findings. As per SRS Report, IMR of Odisha reduced sharply from 77 in 2004 to 47 in 2015. The SRS survey reveals that the rates of reduction in IMR in both rural and urban areas in Odisha were better than the national averages and could be achieved largely through increase in institutional delivery and pre/post-natal care. The life expectancy at birth (projected) expected to be 71.6 years during 2021-25 as against 69.6 in 2016-20 (Table 63). Odisha has launched an IMR Mission with a view to expediting faster reduction in IMR and MMR.

Table 62: Infant Mortality Rate

State	Infant Mortality Rate (Year)		
	2004	2010	2015
Odisha	77	61	47

India	58	47	37
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Table 63: Life Expectancy at Birth

State	2016-20*		2021-25*	
	Male	Female	Male	Female
Odisha	66.3	69.6	67.8	71.6
India	68.8	71.1	69.8	72.3

*Projected figures,

Source: Health & Family Welfare Statistics, India

5.8.3.5 Maternal Mortality:

Maternal mortality in India accounts for the largest number in the world. India's MMR stands at 254 with Odisha at a much higher 303 (SRS, 2009). The NFHS 3 survey reveals that the 62.7% of the ever-married women in the age group of 15 to 49 years have anemia which is one of the main causes of maternal mortality besides having low Body Mass Index (BMI). The National Rural Health Mission set up to reduce maternal mortality as one of its goals is too medical and misses out on the social component which is so important to women's health which continues to be below any normal standard of acceptance. The Janani Surakshya Yojana (JSY) under the National Rural Health Mission (2005) has been introduced to decrease MMR and IMR and increase institutional deliveries.

There has been some improvement in the health provisions for women in Odisha. Antenatal care has increased from 65% found in NFHS 1 to 87% in NFHS 3. Institutional deliveries however remain low though there has been an increase from 14% (NFHS 1) to 39% (NFHS 3). Reproductive health care is linked to hospitals and service provision and policy needs to look into the interlinkages with women's working conditions such as in agriculture.

Odisha has launched an IMR Mission with a view to expediting faster reduction in IMR and MMR. Verbal autopsy has been made mandatory for each infant and child death. There is, however, some improvement in recent years. Table 7.13 compares results of the reports of National Family Health Surveys - NFHS-I, NFHS-II, NFHS-III and NHFS-IV conducted by the International Institute for Population Sciences (IIPS) and shows that there has been remarkable improvement in all health indicators of the State from 1992-93 to 2015-16.

Table 64: Health Indicators; National Family Health Survey, Odisha

Sl. No.	Particulars	NFHS-I (1992-93)	NFHS-II (1998-99)	NFHS-III (2005-06)	NHFS IV (2015-16)
1	Total Fertility Rate (TFR)	2.92	2.45	2.4	2.1
2	Current use of any family planning method (%)	36.3	46.8	50.07	57.3
3	Female sterilisation (%)	28.3	33.9	33.1	28.3
4	Male sterilisation (%)	3.4	1.7	1.0	0.2
5	Spacing method (%)	12.7	8.7	6.9	4.7
6	Institutional delivery (%)	14.1	22.9	39.0	85.4
7	Children fully vaccinated (%)	36.1	43.7	51.8	78.6
	BCG	63.3	84.7	83.6	94.1
	DPT	56.3	61.9	67.9	89.2
	Polio	56.7	68.4	65.1	82.8
	Measles	40.2	54.0	66.5	87.9

Source: NFHS, Odisha

5.8.3.6 Women in Agriculture:

The economy of the state of Odisha is primarily agrarian based. A major proportion of women in the labour force work in agriculture. About 60.0 percent of the total workforce in Odisha is directly dependent on agriculture. According to 2001 census, out of the total male work force 34.15% were male cultivators and 26.39% were agricultural labourers, whereas, the female cultivators and agricultural

labourers accounted for 20.11% and 53.90% of the total female workforce in Odisha respectively. But in 2011 census the percentage of female cultivators reduced to 13 percent and the percentage of agricultural labourer became 57.8 percent of the total female work force. There has been an increasing trend in women agricultural labour force both in India and Odisha. They are employed on small and medium sized farms as well as large industrialized farms and plantations. One of the major characteristics of these women agricultural labour is that most of them being marginal workers i.e. they work for less than 6 months a year. They do not get regular employment. Majority of them are employed on a seasonal and often a casual or temporary basis. Most of these women workers do not receive any form of social security or unemployment benefit. A study conducted by Das. L highlights that women participate in various agricultural activities to meet the basic family needs, low family income, to meet additional family requirements, absence of male earning members and to meet personal needs¹⁵.

The National Centre for Women in Agriculture and Krishi Vigyan Kendras has taken up different studies. The findings of some of the studies are highlighted below.

1. The studies under *Identification and improvement of farming systems suited to farmwomen in Eastern India* project revealed that there is intense involvement of farmwomen in vegetable cultivation necessitating to take follow up supportive activities and interventions in the area of vermicomposting, natural plant pesticides, biological control and IPM.
2. Study under the project *Standardization of women specific field practices in rice in Orissa* reveals that women of family contributes highest hours per season (61.66) in harvesting and post harvesting operations and participated lowest in land preparation. Same pattern was observed from the paid women and total women (family + paid labour).
3. Under project on *Occupational health hazards of farm women in coastal Orissa* the health hazards faced by women in household activities, farm activities, post-harvest activities and livestock management were assessed. Type of health hazard faced by women are presented in the table.

Table 65: Types of health hazards faced by farm women

Activities	Health Hazards Reported (in %)
Farm Activities	
Transplanting	50.0
Harvesting	26.5
Post-harvest Activities	
Threshing	50.0
Drying	33.0
Parboiling	67.0
Livestock Management	
Shed cleaning	47.0
Fodder collection	23.0
Milching	27.5

4. Under the project on *Reducing drudgery of women in agricultural operations through use of improved equipment*, several developments were made in design refinement of specific farm implements.

¹⁵ Das L., Work Participation of Women in Agriculture in Odisha, IOSR Journal of Humanities and Social Science (IOSR-JHSS), Volume 20, Issue 7, Ver. III (July 2015), PP 66-78 e-ISSN: 2279-0837, p-ISSN: 2279-0845. www.iosrjournals.org

LANSAs (Leveraging Agriculture for Nutrition in South Asia) and MSSRF (MS Swaminathan Research Foundation), based on their research in Koraput, Odisha, suggests certain policy measures for the women in agriculture¹⁶. Key recommendations include;

1. Prioritise SC/ST women and households
2. Extension state-package for women tribal farmers to include upland crops, technical and material support for millets
3. Women-managed crops and vegetables to have systems for procurement and adequate pricing
4. Secure access to common property resources central to women's livelihoods
5. Secure prices for food and other non-timber forest products
6. Provision of eggs and/or promotion of poultry in homesteads
7. Ensure access to clean fuel and drinking water
8. Integrate water supply with Swachh Bharat Abhiyan to encourage use of toilets
9. Reliable, quality day-care with nutritional input for children at Anganwadis
10. Community-based contextual nutrition awareness programmes

5.8.4 Act, Policies and Schemes:

National Policy for the Empowerment of Women, 2001:

There has been a marked shift in the approach to women's issues from welfare to development from the Fifth Five Year Plan (1974-78) onwards. India has also ratified various international conventions and human rights instruments committing to secure equal rights of women. For the development of women and their empowerment, the National Policy for the Empowerment of Women, 2001 was formulated. The goal of the Policy is "to bring about the advancement, development and empowerment of women". Specifically, the objectives of this Policy include

1. Creating an environment through positive economic and social policies for full development of women to enable them to realize their full potential;
2. The de-jure and de-facto enjoyment of all human rights and fundamental freedom by women on equal basis with men in all spheres – political, economic, social, cultural and civil;
3. Equal access to participation and decision making of women in social, political and economic life of the nation;
4. Equal access to women to health care, quality education at all levels, career and vocational guidance, employment, equal remuneration, occupational health and safety, social security and public office etc.;
5. Strengthening legal systems aimed at elimination of all forms of discrimination against women;
6. Changing societal attitudes and community practices by active participation and involvement of both men and women;
7. Mainstreaming a gender perspective in the development process;
8. Elimination of discrimination and all forms of violence against women and the girl child; and
9. Building and strengthening partnerships with civil society, particularly women's organizations.

National Policy for Women, 2016:

Again, the National Policy for Women, 2016 (draft) was formulated with the vision of "A society in which women attain their full potential and able to participate as equal partners in all spheres of life and influence the process of social change". The policy is having the Mission "to create an effective framework to enable the process of developing policies, programmes and practices which will ensure equal rights and opportunities for women in the family, community, work place and in governance. The policy objectives look at;

¹⁶ Policy Brief 9, Women In Agriculture and Nutrition in Odisha, India, August 2017

1. Crating a conducive socio-cultural, economic and political environment to enable women enjoy de jure and de facto fundamental rights and realise their full potential;
2. Mainstreaming gender in all-round development process / programmes / projects / actions;
3. A holistic and lifecycle approach to women's health for appropriate, affordable and quality health care;
4. Improving and incentivising access of women / girls to universal and quality education;
5. Increasing and incentivising workforce participation of women in the economy;
6. Equal participation in the social, political and economic spheres including the institutions of governance and decision making;
7. Transforming discriminatory societal attitudes, mindsets with community involvement and engagement of men and boys;
8. Developing a gender sensitive legal-judicial system;
9. Elimination of all forms of violence against women, through strengthening of policies, legislations, programmes, institutions and community engagement;
10. Development and empowerment of women belonging to vulnerable and marginalised groups;
11. Building and strengthening stakeholder participation and partnership for women empowerment;
12. Strengthen monitoring, evaluation, audit and data systems to bridge gender gap.

Odisha State Policy for Girls and Women, 2014:

Apart from national policies, the Government of Odisha is its own policy, known as "Odisha State Policy for Girls and Women, 2014". The policy is having the Vision of "A State where girls and women are enabled to lead a life of dignity and worth; enjoy health and well-being; have equal opportunities in all spheres of life; participate in social, political and economic spheres and take on leadership and decision-making roles; are safe, secure and self-reliant; and are equal partners in development". The mission statement of the policy looks at "creating an enabling environment for girls and women that promotes equal opportunities, eliminates discrimination, ensures holistic development and empowerment and enhances capacities".

Guiding Principles of the Policy:

The policy aims to ensure that girls and women in the State enjoy equal access to rights and entitlements that enable them to lead a life of dignity. The guiding principles will serve as the framework for implementation of the policy.

Equity and Equality: The policy is based on the principle of non-discrimination where girls and women are treated fairly and as equals. Further, the policy adopts special measures to ensure equality in outcomes.

Affirmative Action: The policy lays out processes and goals for social, political and economic empowerment of girls and women to achieve gender equality through affirmative action.

Life Cycle Approach: The policy directives are molded by specific concerns of different life stages of girls and women, at birth, childhood, adolescence, adulthood and old age.

Inclusion: The policy is committed to include all girls and women who are vulnerable and have been historically marginalized.

Participation: The policy engages with and elicits the participation of girls, boys, women and men to translate the vision into reality. It draws and leverages the knowledge, expertise and resources of civil society organizations and other stakeholders including public, private and the corporate sector on issues pertaining to girls and women.

Regional and Cultural Diversity: The policy recognizes the regional diversity based on caste, class, ethnicity and geographical locations. Further, the policy values the social norms and practices that celebrate womanhood.

Table 66: Acts and Policies

SN	Policy / Scheme	Policy / Scheme Description
1	National Policy for Empowerment of Women, 2001	The goal of the Policy is “to bring about the advancement, development and empowerment of women”. Specifically, the objectives of this Policy include (1) creating an environment through positive economic and social policies, (2) equal access to participation and decision making, (3) equal access to women to health care, quality education at all levels, career and vocational guidance, employment, equal remuneration, occupational health and safety, social security and public office etc., (4) strengthening legal systems aimed at elimination of all forms of discrimination against women; etc.
2	National Policy for Women (Draft), 2016	The policy looks at “A society in which women attain their full potential and able to participate as equal partners in all spheres of life and influence the process of social change”. The policy is “to create an effective framework to enable the process of developing policies, programmes and practices which will ensure equal rights and opportunities for women in the family, community, work place and in governance.
3	The Immoral Traffic (Prevention) Act, 1956	The Act is for the prevention of immoral traffic of women / girls, which stipulates (1) punishment for keeping a brothel or allowing premises to be used as a brothel, (2) Procuring, inducing or taking person for the sake of prostitution, (3) Detaining a person in premises where prostitution is carried whether with or without his consent, (4) carrying prostitution in or in the vicinity of public place etc.
4	The Dowry Prohibition Act, 1961	The act protects the interest of women by stipulating punishment in case (1) if any person, gives or takes or abets the giving or taking of dowry, (2) demanding dowry, (3) advertising for the marriage by giving share in property or giving money or both as a share in any business or other interest as consideration for the marriage, (4) Agreement for giving or taking dowry etc.
5	The Protection of Women from Domestic Violence Act, 2005	The Act provides for effective protection of the rights of women guaranteed under the Constitution who are victims of violence of any kind occurring within the family and for matters connected therewith or incidental thereto. The act mention about physical abuse, sexual abuse, verbal and emotional abuse and economic abuse as different forms of domestic violence.
6	The Equal Remuneration Act, 1976	The equal remuneration act of 1976 (Act 25) amended by Act 49 of 1987 directs for payment of remuneration at equal rates to men and women workers and other matters. It further describes that it is the duty of the employer to pay equal remuneration to men and women workers for same work or work of similar nature. The law makes it mandatory to have no discrimination to be made while recruiting men and women workers.
7	The Sexual Harassment of Women at Work Place (Prevention, Protection and redressal) Act, 2013	Sexual harassment results in violation of the fundamental rights of a woman to equality under articles 14 and 15 of the Constitution of India and her right to life and to live with dignity under article 21 of the Constitution and right to practice any profession or to carry on any occupation, trade or business with includes a right to a safe environment free from sexual harassment. The protection against sexual harassment and the right to work with dignity are universally recognised human rights by international conventions and instruments such as Convention on the Elimination of all Forms of Discrimination against Women, which has been ratified on the 25th June, 1993 by the Government of India; The Act provides protection against sexual harassment of women at workplace and for the prevention and redressal of complaints of sexual harassment and for matters connected therewith or incidental thereto.

8	The Criminal Law (amendment) Act, 2013	An Act is the amendment of the Indian Penal Code, the Code of Criminal Procedure, 1973, the Indian Evidence Act, 1872 and the Protection of Children from Sexual Offences Act, 2012. The amended section of the act deals with “an act of throwing or administering acid or an attempt to throw or administer acid which may reasonably cause the apprehension that grievous hurt will otherwise be the consequence of such act. The act has the provision for punishment whoever causes permanent or partial damage or deformity to, or burns or maims or disfigures or disables, any part or parts of the body of a person or causes grievous hurt by throwing acid on or by administering acid to that person, or by using any other means with the intention of causing or with the knowledge that he is likely to cause such injury or hurt.
9	National Commission for Women Act, 1990	The National Commission for Women was set up in January 1992 under the National Commission for Women Act, 1990 (Act No. 20 of 1990 of Govt. of India) to (1) review the Constitutional and Legal safeguards for women, (2) recommend remedial legislative measures, (3) facilitate redressal of grievances, and (4) advise the Government on all policy matters affecting women. In keeping with its mandate, the Commission initiated various steps to improve the status of women. It took up the issue of child marriage, sponsored legal awareness programmes, Parivarik Mahila Lok Adalats and reviewed laws such as Dowry Prohibition Act, 1961, the Pre-Natal Diagnostic Techniques (PNDT) Act 1994, Indian Penal Code 1860 and the National Commission for Women Act, 1990 to make them more stringent and effective.
10	The Odisha State Commission for Women Act, 1993	The State Commission for Women has been constituted in 1993 aims at protecting, preserving and safeguarding the rights and interest of women and dealing with atrocities on and offences against women in the State and intervenes the complaints of sexual harassment of women at working place and trafficking in women.

5.8.5 Schemes and Women Empowerment Measures:

Gender Sub-Plan / Women Component Plan Approach:

The discourse on analysing public expenditure in India from the gender perspective is usually traced back to the Report of the Committee on the Status of Women (titled “Towards Equality”) brought out by the Government of India in 1974. The consciousness generated by this report led to changes in policies towards development of women in the Fifth Five Year Plan. However, it was only in the Seventh Five Year Plan (1985-90) that specific attention was paid to allocations for programmes / schemes which directly benefited women. The adoption of Women’s Component Plan (WCP) is also traced back to the Seventh Plan which witnessed the initiation of a mechanism for identifying and monitoring schemes that extended benefits directly to women. In 1986, the Department of Women and Child Development (DWCD), under the Central Government’s Ministry of Human Resource Development, was entrusted the responsibility of monitoring 27 beneficiary-oriented schemes under various sectors which directly benefited women.

The notion of WCP had entered the planning process in the Seventh Plan with the initiation of a special mechanism to monitor 27 beneficiary-oriented schemes for women. However, the Ninth Five Year Plan (1997-2002) marked a significant progress in this regard. The Tenth Five Year Plan (2002-07) marked another significant step forward as it envisaged “immediate action in tying up these two effective concepts of WCP and Gender Budgeting to play a complementary role to each other, and thus ensure both preventive and post facto action in enabling women to receive their rightful share from all the women-related general development sectors”. The need for taking up Gender Budgeting was also recognized in the National Policy for the Empowerment of Women, 2001.

Mission Shakti:

Mission Shakti has been a flagship programme of Govt of Orissa for women empowerment. The Government of Odisha launched Mission Shakti in 2001, with an aim of strengthening Women Self-Help Groups (WSHGs) at Panchayat, Block and District levels. It was launched with a target to organize 2 lakh Women Self Help Groups (WSHGs) covering all revenue villages of the State (formation of WSHGs has crossed 2 lakhs). The Mission Shakti has been working on different aspects of women empowerment through community level women organisation, called SHG. The major areas of operation include (1) Micro credit, (2) Entrepreneurship Development, (3) Livelihood promotion, (4) Agriculture & Allied, (5) Health, Hygiene & Sanitation and (6) Capacity building. While Mission Shakti is concentrating on above priorities, women SHGs are dealing with different social issues at the grassroots level, like addressing the problems of dowry torture, domestic violence, low literacy, liquor issues, weak social status, long demand for political power and many other social disorders.

Further, the Mission Shakti has been supporting the formation of SHG federations which has been providing women a common platform for accessing different government schemes / programmes. Mission Shakti has taken up strategies for (1) formation and strengthening of WSHGs, (2) Institutionalization of WSHGs through federating them at Panchayat, block and district level, (3) building up the capacity of the institutions (from SHGs to Federations), (4) strengthening livelihood, (5) efforts to ensure market linkage to SHG products across the state and nation, and (6) convergence with different Govt. Departments in the state. Different other players are also associated for strengthening the SHG movement, like NGOs, MFIs, formal financial institutions, NABARD, SIDBI etc.

Mahatma Gandhi National Rural Employment Guaranty Act, 2005:

The Act was enacted with the objective of "enhancing livelihood security in rural areas by providing at least 100 days of guaranteed wage employment in a financial year, to every household whose adult members volunteer to do unskilled manual work". Any member of the household, irrespective of gender, has the right to work under the Act. Moreover, it reserves one-third of total employment to females. Further, it provides work within a radius of five Km. from the place of residence and also provides child care facilities at the work site, making it especially attractive to females who may be averse to travelling long distances for work. MGNREGA has several provisions that address gender differences in wages.

Mission for Protection and Empowerment for Women:

The National Mission for Empowerment of Women (NMEW) aims to achieve holistic empowerment of women through convergence of schemes/programmes of different Ministries/Department of Government of India as well as State Governments. Under the revised Scheme, the Ministry has been taking new initiatives, such as (1) Beti Bachao Beti Padhao (BBBP), (2) One Stop Centre, (3) Women Helpline etc. At the state level, the State Resource Centre for Women (SRCW) under the State Government (department of WCD/Social Welfare) have been established to provide technical assistance towards implementing programmes, laws and schemes meant for women through effective coordination at the State/UT level.

Rashtriya Mahila Kosh:

Rashtriya Mahila Kosh (RMK) was established in the year 1993 as a national level organization as an autonomous body under the Ministry of Women and Child Development, for socio-economic empowerment of women. The RMK provides loan to NGO-MFIs termed as Intermediary Organizations (IMO) which on-lend to Women Self Help Groups (W-SHGs). The aims & objectives of Rashtriya Mahila Kosh are;

1. Socio-economic empowerment through multi-pronged effort;
2. Providing micro-credit facilities;

3. Capacity building of IMOs and women beneficiaries;
4. To promote or undertake activities for the promotion of or to provide credit as an instrument of socio- economic change and development through the provision of a package of financial and social development services for the development of women;
5. To promote and support schemes for improvement of facilities for credit for women for sustenance of their existing employment, for generation of further employment, for asset creation, for asset redemption; and
6. for tiding over consumption, social and contingent needs.

Odisha State Social Welfare Board (OSSWB)

The OSSWB was set up in 1954 to implement and organize regular welfare activities, seminars to generate awareness among the community about women's problem under welfare programmes like Rajiv Gandhi National Crèche for Children of Working and Ailing Mothers and Family counselling Centres.

Working Women's Hostels

Government has constructed Working Women's Hostel for safe and affordable hostel accommodation for working women, singles, divorcees, separated women etc.

Anti-Human Trafficking Measures

Combating trafficking and bring offenders under custody, State Government has set up 37 Integrated Anti Human Trafficking Units (IAHTUs) during 2016-17.

Mahila Vikas Samabaya Nigam (MVSBN)

The Nigam, an apex Co-operative Society working under Women and Child Development Department was established as the nodal agency for implementing schemes and programmes for welfare, development and empowerment of women and to enable them to take up different sustainable income generating activities. In collaboration with ORMAS, an agency of the Panchayati Raj Department, it has widened the scope of marketing of products of Women's Self-Help Groups (WSHG). It provides funds for training of the poor and needy women in traditional occupations to upgrade their skills and sell their products.

Odisha Livelihood Mission (OLM):

Aajeevika - National Rural Livelihoods Mission (NRLM) was launched by the Ministry of Rural Development (MoRD), Government of India in June 2011. In Odisha, the centrally sponsored programme Swarna Jayanti Gram Swarojgar Yojana (SGSY) has been restructured as National Rural Livelihoods Mission (NRLM). In Odisha, the scheme is being implemented by Odisha Livelihoods Mission (OLM) with an objective to enhance the socio- economic condition of rural poor through promotion of sustainable community-based institutions. At present 24 districts are functioning under NRLM. Under Mahila Kisan Sasaktikaran Pariyojana (MKSP), women farmers have been covered.

Women Help Line:

To support women at the time of need, there has been a toll-free Women Helpline "181" to provide 24 hours immediate and emergency response to women affected by violence through referral (linking with appropriate authority such as police, One Stop Centre, hospital) and information about women related government schemes programs across the country through a single uniform number. Specific objectives of the Scheme are:

1. To provide toll-free 24-hours telecom service to women affected by violence seeking support and information.
2. To facilitate crisis and non-crisis intervention through referral to the appropriate agencies such as police/Hospitals/Ambulance services/District Legal Service Authority (DLSA)/Protection Officer (PO)/OSC.

3. To provide information about the appropriate support services, government schemes and programmes available to the woman affected by violence, in her particular situation within the local area in which she resides or is employed.

The target group under the scheme are any woman or girl facing violence within public or private sphere of life or seeking information about women related programmes or schemes. The type of services offered under the scheme covers (a) prevention of violence against women, and (b) providing information of Women Empowerment Schemes and programmes.

One Stop Centre:

One Stop Centres (OSC), named as “Sakhi” are intended to support women affected by violence, in private and public spaces, within the family, community and at the workplace. Women facing physical, sexual, emotional, psychological and economic abuse, irrespective of age, class, education status, marital status, race and culture are facilitated with support and redressal. Aggrieved women facing any kind of violence due to attempted sexual harassment, sexual assault, domestic violence, trafficking, honour related crimes, acid attacks or witch-hunting who have reached out or been referred to the OSC are provided with specialized services. Specific objectives of the scheme are;

1. To provide integrated support and assistance to women affected by violence, both in private and public spaces under one roof;
2. To facilitate immediate, emergency and non-emergency access to a range of services including medical, legal, psychological and counselling support under one roof to fight against any forms of violence against women.

The One Stop Centres support all women including girls below 18 years of age affected by violence, irrespective of caste, class, religion, sexual orientation or marital status. For girls below 18 years of age, institutions and authorities established under Juvenile Justice (Care and Protection of Children) Act, 2000 and the Protection of Children from Sexual Offences Act 2012 are linked with OSC.

Ujjawala

The Ministry of Women and Child Development, Government of India has formulated a Central Scheme “Comprehensive Scheme for Prevention of Trafficking for Rescue, Rehabilitation and Re-Integration of Victims of Trafficking for Commercial Sexual Exploitation-Ujjawala”. The scheme has been conceived primarily for the purpose of preventing trafficking on the one hand and rescue and rehabilitation of victims on the other. Specific objectives of the scheme are;

1. To prevent trafficking of women and children for commercial sexual exploitation through social mobilisation and involvement of local communities, awareness programmes, workshops / seminars and other innovative activity;
2. To facilitate the rescue of victims from the place of their exploitation and place them in safe custody;
3. To provide rehabilitation services, both immediate and long-term to the victims by providing basic amenities/needs such as shelter, food, clothing, medical treatment including counselling, legal aid and guidance and vocational training;
4. To facilitate the reintegration of the victims into the family and society at large;
5. To facilitate repatriation of cross-border victims to their country of origin.

Different facilities provided under the scheme Ujjawala are;

1. Facilitate rescue of victims from the place of their exploitation and provide them safe custody;
2. Rehabilitation services both immediate and long term to the victims by providing basic amenities/needs such as shelter, food, clothing, medical treatment including counselling, legal aid and guidance and vocational training;

3. Facilitate reintegration of the victims into the family and society at large;
4. Facilitate repatriation of cross-border victims to their country of origin.

Support to Training and Employment Program for Women (STEP), 2016:

The scheme has two-fold objectives, viz. (a) to provide skills that give employability to women, and (b) to provide competencies and skills that enable women to become self-employed/entrepreneurs. Assistance under the STEP Scheme is available in any sector for imparting skills related to employability and entrepreneurship as identified by the Ministry of Skill Development & Entrepreneurship (MSDE) including but not limited to the following:

1. Agriculture;
2. Horticulture;
3. Food Processing;
4. Handlooms;
5. Traditional crafts like Embroidery, Zari etc.;
6. Handicrafts;
7. Gems & Jewellery;
8. Travel & Tourism;
9. Hospitality.

Soft skills (which would include computer literacy, language and workplace inter-personal skills relevant for the sector/trade) are also made an integral part of the skills training process and planned to be suitably integrated into the course modules.

Biju Kanya Ratna Yojana (BKRY):

The Biju Kanya Ratna Yojana (BKRY) has been implemented for the development of girls in three districts like Ganjam, Dhenkanal and Angul of the State on a pilot basis for three years with an objective to improve the Sex Ratio at Birth (SRB) and Child Sex Ratio (CSR), increasing enrolment of girls in elementary education and decreasing dropout of girls from schools, creating awareness on gender discrimination against girls, their nutrition, health and education. It also includes provision of toilets for girls in every school, self-defense training and along with promotion of access to education. It also seeks to sensitize adolescent girls on reproductive and sexual health issues, training of elected representatives and grassroots functionaries as community champions. Mass awareness on promoting the value of girl child is carried out by print and electronic media.

The overall goal of the scheme is to create an enabling environment for the survival and development of the girl child and secure her dignity. The scheme has four broad components, i.e., (1) Inter Department Convergence, (2) Training & Capacity building programme, (3) Innovations and (4) IEC activities. The objectives of the scheme are;

1. To prohibit gender biased sex selection;
2. To ensure survival, health & nutrition security of the girl child;
3. To ensure education & retention of girl child in school;
4. To sensitize and mobilize the community and all stakeholders towards the value of the girl child;
5. Take initiatives to encourage girls to express their views and to be heard, to participate actively, effectively and equally.

The Department of Women & Child Development, Government of Odisha is the implementing Department and responsible for budgetary control and administration. At district level, the district administration is the implementing agency for the scheme. State Resource Center for Women (SRCW) functions as Programme Management Unit (PMU) for the Scheme at state level for implementation of the scheme.

5.8.6 Gender Action Plan (GAP):

During the social assessment, consultations were organised with different stakeholders to understand the gender issues and possible measures that can help women in ensuring their participation in the overall process. The assessment helped to identify certain key issues pertaining to women and their involvement in agriculture and fishery activities.

5.8.6.1 Key Issues / Challenges:

During assessment, it is observed that while participation of women in different development activities have been poor in general, their association in agricultural decision making remains marginal. Though, their contribution is significant in different stages of farm activities, still their contribution has been ignored to a great extent. In irrigation management, role of women has been negligible or almost nil. In the labour front, the wage rate paid to the women agricultural workers are comparatively less than their male counterpart. Though Government has been taking required measures for giving land rights to women in shape of registering land jointly with the male counterpart, still in most of the earlier record of rights, male in most cases are title holder. This creates an imbalance as far as land holding is concerned. Access to market by women is also limited due to factors like social stigma, low quantum of sellable produce, distance of the market place from the village etc. However, in primary level value addition (drying, cleaning, grading and sorting), their involvement is quite significant at domestic front. Similarly, in fishery, women have been playing a pivotal role in post-catch operation like drying, segregating, selling in market / locality etc.

Women workers face many problems in agricultural sector, which hinder their growth and act as the main obstacles in their path of progress. All these problems have made women to stay at subsistence level women and lead a low status life. The assessment finds that (1) hardly any women holding of agricultural productive resources such as land, animals, and machinery, (2) association of women with the decision-making process, either inside or outside home is limited and negligible, (3) women perform all un-mechanized agricultural tasks and perform multiple tasks, which add more burden to them, (4) women workers in agriculture suffer from high illiteracy rate among them and drop-out of schools. Women earn fewer wages than men, especially in joint, informal and private sector. Specific gender issues that have significance for the project, as assessed in the project locations are;

1. Poor economic condition compels women to work in agricultural field as agricultural labourers;
2. Less availability of agricultural labourers compel women of the farming households to work as agricultural labourer in own field for a longer duration;
3. Income from agricultural engagement, as agricultural labourer has been less in comparison to their male counterpart;
4. Other source of engagement of women in rural areas is limited to livestock, petty business and related works. Low or no education is primarily attributed to this along with less exposure;
5. Engagement of women in agribusiness and value addition activities is also limited;
6. Insignificant quantum of fish catches from the tank, which is again seasonal, does not fetch much income;
7. Occupational health hazards due to prolonged duration of engagement during farm activities;
8. Women normally do not use personal safety equipment during agricultural operations and hence exposed to insecticide / pesticides that are applied on agricultural field. It is also equally applicable for male members;
9. Drudgery of women in agricultural activities due to less usable agricultural equipment;
10. Low awareness on agricultural technologies, hence its adoption;
11. Decision in agricultural operation like selection of crop types, application of other inputs and its selection, marketing of produces etc. are mostly confined to male members and participation of women in decision making is limited;
12. Insignificant or no role of women in irrigation management;

13. Poor access to extension services and institutional facilities;
14. Few women holding productive resources such as land, animals, and machinery.
15. Women perform most of un-mechanized agricultural tasks and perform multiple tasks, which add more burden to them;
16. Women earn less wage for the same duration of work, especially in informal / private sector;
17. Poor market information and hence high dependency on local market for sale of commodities;
18. Women's role in functioning of the PP is limited, whereas some selected women participate more actively in women SHGs; Active participation in community institutions is limited to a few women and large section either do not participate or remain passive;
19. Limited institutional platform of women to have a better bargain for their produces and market access. Role of women SHGs in this aspect is limited though recently producer groups are being formed for the purpose;
20. Access to formal financial credit institution for agricultural activities is limited for women farmers and hence limited investment in agriculture;
21. Low land holding and hence low production and insecure livelihood;
22. Poor Capital Investment capacity for agricultural and allied activities;
23. Most of the fisherwomen were not aware about the improved practices in site management, packaging, quality assessment, etc.;
24. Lack of required infrastructure facility, marketing channel and credit facilities refrain women and fisher families to improve their fishery-based livelihood;
25. Though fisherwomen are mostly involved in dry fish production, they have limited decision-making power of their own;
26. Participation / attendance of women in trainings / meetings / workshops is very less as a result access to knowledge base and fishery practices, more particularly to post-harvest management remains limited;
27. Lack of alternative income generating opportunities of fisher women, apart from fish vending and primary processing (drying);

5.8.6.2 Project Strategies:

Women constitute a significant percent of workforce in agriculture, however they are not geared up for higher skills and knowledge required for climate resilient agriculture and related package of practices. Most operations in agriculture undertaken by women are often causes drudgery and reduces efficiency. The project will take feasible and implementable actions, that will support greater participation of women. The project will focus on women specific issues across different project components that would help women for a better participation and decision making along with benefitting from the project interventions. The project approach, therefore, would be more inclusive in nature. The project will use the operational definition of women farmers¹⁷ in its intervention plan by which they will not be left out. In all the project activities, across the components, such strategies will be taken that help the women to participate and access project benefits. The project level gender development strategy is presented in Table 67. Looking at the issues pertaining to women, more particularly women associated with agriculture and fishery sector, project will take following measures, in an inclusive manner.

Gender planning is the approach for advancing gender equity and equality in the society. It involves incorporating gender perspective into policies, plan, programmes and projects to ensure that these impact women and men in an equitable way. However, below-mentioned strategy could be useful for mainstreaming the gender in the project and its activities.

Screening and Identification: Identification of vulnerable women headed households / women farmers / women fishers that are primarily dependent upon agriculture / fishery activities for their livelihood. A

¹⁷ Operational definition of women farmers refers to women having land in her name and directly associated in the agricultural activities and substantially involved in farm related decision-making process.

feasible and executable action plan will be prepared for households of such categories, within the scope of the project, after due analysis of their needs and preferences.

Participation in Governance of Community Organisations: Ensuring active participation of women in local institutions, such as PP, FPO and PFCS, following mandatory inclusion criteria. Each FPO should have at-least one women director in its board of directors. The FPC, may also take woman member as independent director in the company along with the inclusion of women farmers as members.

Strengthening Women Producer Group: Based on the feasibility and requirement, existing Women Producer Groups (WPG) / women SHGs promoted under other government schemes like OLM / Mission Shakti / ORMAS will be provided with necessary inputs for improving their functioning in line with the mandate group. The WPGs (if exists in the project area) shall be treated at par with any other FPO, in terms of provisioning of project benefits. In case of requirement, existing WPG/s will be tied up with other local FPO / WPG based on their nature of business engagement (if type of business of WPG and FPOs are same or in related areas).

Capacity Development: Special capacity building measures will be taken for women farmers / fishers to acquaint them with the climate resilient agricultural practices / fish farming technologies. To design the training module, specific capacity building needs of the women farmers / fishers will be assessed and the curriculum is to be designed accordingly. In the exposure visits, which is part of capacity development initiative of the project, representation of women will be ensured. The project will develop required technology kits for promoting knowledge and skill on different aspects related to farming practices (agriculture / horticulture / fishery).

Identifying the right training and extension needs of women is one of the most important steps. The project, through its partner entities, will facilitate in giving women more access to meetings, trainings, exposure visits and demonstrations and organizing training programmes based on the needs of the women. Local / village-based trainings to be organized as per the convenience of the women. Peer group-based training methods (farmer-to-farmer / fishers to fishers) and participatory training methods would be further helpful for the women farmers.

Drudgery Reduction: Reduction of drudgery of women, engaged in agriculture, will be taken up by supporting them with women friendly farm machinery / tools. The Custom Hiring Centres (CHCs) will have such tools available for hiring of women farmers. In this regard project will have consultation with the ICAR-Central Institute of Women in Agriculture, OUAT, Bhubaneswar related to women friendly farm machineries.

Credit Access: The project, through local institution (SHG / SHG Federations FPO), will facilitate linkage of women producer groups (if so exists in the project area) to formal credit sources in order to enable them to take up agri-business activities (in case, such groups willing to participate in the process and identified as potential entity to take up agribusiness activities).

Support for Livelihood Improvement: In order to improve the economic condition of the vulnerable women farmers / fishers, the project will facilitate them for adopting supportive livelihood options. Such identified households (identified during planning process) will be supported with livelihood improvement avenues, such as backyard plantation, mushroom cultivation, agri-enterprises, inland fishery and other feasible agro-based livelihood activities. Looking at the interest of the women and their collectives in project area, wherever feasible, they will also be involved in managing agro-processing units.

Standardization of Women Specific Field Practices: Certain climate resilient agricultural practices that are women friendly, will be promoted whereby it will improve their productive engagement with

reduced drudgery. Identification and improvement of farming systems suited to farmwomen will be taken up in collaboration with the SAU and other technical institutions. The experience of National Research Centre for Women in Agriculture (NRCWA) can be used for this purpose. Based on their intense involvement in vegetable cultivation or in field crops, supportive activities in the area of vermicomposting, preparation of natural plant pesticides etc. can be taken up individually or through group approach and linked to other farmers of the locality. The project will extend support in identification of gender implications in farming systems approach and adopt women specific technologies under different production systems.

Technology Promotion:

Involvement of women farmers will be encouraged in agricultural technology promotion such as seed treatment, IPNM / IPM, organic farming, organic inputs / bio-fertilizer production unit, natural resource conservation etc., based on the scope of the project.

Improved Agricultural Tools and Implements:

Agricultural tools and implements are usually designed to match the physical requirement and capacities of men and the women have difficulties in operating these tools and implements. Appropriate set of tools for work in the field will not only improve her work efficiency but also reduce drudgery. Project will give attention to the needs of the women farmers with regard to farm tools and implements. The National Research Centre for Women in Agriculture (NRCWA) project ergonomically evaluated fifteen equipment out of which 11 equipment namely seed treatment drum, Naveen dibbler, wheel hoe, improved sickle, tubular maize sheller, groundnut decorticator, hanging type cleaner, fertilizer broadcaster, CIAF seed-cum-fertilizer drill, PAU seed drill and hand ridger were found suitable and appreciated by farm women. Such equipment would be popularized/promoted among the farm women.

Farmer Field Schools:

Active farming women will be selected, trained and they would be provided with necessary support to practice the improved technology. Their fields can also be used as demonstration plots for training other women farmers in case of emergence of a need.

Fish Farming and Value Addition:

The women members play an important role in fishery sector, more specifically in post-catch operations and marketing. The project will take suitable measures to ensure that they are trained appropriately in fishery, tank-based fish farming management, value addition and marketing of processed products. Selected women fishers will also be encouraged to take up fishery-based enterprises.

Table 67: Approach and Strategy for Greater Balance and Women Participation in the Project

Project Stages	Project Approach and Strategy	Expected Outcome
Preparatory Phase	<ol style="list-style-type: none"> 1. Discussion with women of the project area in general with exclusive emphasis on women farmers and fishers by project component and activities. 2. Preparing a priority list of actions, based on the identified issues and interest of women. 3. Preparing tank specific gender plan, covering all project aspects / components for better inclusion of women in different activities that are feasible for their greater participation. 	<ol style="list-style-type: none"> 1. Key intervention areas are identified and guiding note prepared for improved participation of women in general and women farmers / fishers, in particular. 2. List of actions finalized for implementation to ensure greater participation of women
Implementation Phase	<ol style="list-style-type: none"> 1. Implementing priority actions that are finalized during preparatory phase; 	<ol style="list-style-type: none"> 1. Participation of women / women farmers in different

	<ol style="list-style-type: none"> 2. Ensuring greater participation of women / farming women / fisher women in activities / sub-activities taken up under different component / sub-components of the project; 3. Taking measures, adhering to the scope of the project, to build the capacity of women farmers in agricultural technologies, marketing, institution management etc., as per the project requirements; Capacity building of fisher women on intensive / semi-intensive fish farming, hygienic handling of fish, fish processing etc. 4. Ensuring measures that are legally binding like equal and minimum wage norm, prevention of women harassment at work place, membership of women in different community organizations like PP, FPO, and PFCS; 5. Monitoring of actions taken under the project for inclusion of women by project component / sub-components and initiating corrective measures accordingly; 6. Documenting success and learning from different initiatives undertaken by the project that ensures greater participation of women and dissemination of lessons learned to greater audience. 	<p>activities implemented under the project;</p> <ol style="list-style-type: none"> 2. Reduced gender biasness and inclusive targetto bring gender equity. 3. Inclusion of women and their active involvement ensured with better operational and management capabilities; 4. Parity in wage (equal work equal pay) payment ensured and legal provisions are abided by.
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5.8.6.3 Inclusion Framework (Project Component Wise)

Table 68: Project Approach and Strategy by Project Components

COMPONENT / ACTIVITIES	KEY CHALLENGES	PROPOSED PROJECT MEASURES	PROJECT STAGE		RESPONSIBILITY		
			PLANNING	IMPLEMENTATION	PRIMARY	SECONDARY	TERTIARY
Component 1: Climate Smart Intensification and Diversification of Agriculture							
AGRICULTURE							
Alternate Energy Systems for Agriculture Solar Pump Sets	<ol style="list-style-type: none"> Poor financial / paying capacity of women farmers, more particularly marginal women farmers; Knowhow on operation and maintenance of solar pumps; 	<ol style="list-style-type: none"> Giving priority to women farmers of low holding categories who have water sources for irrigation; Training of women farmers on use of solar pumps, with demonstration; Developing their basic understanding on operation and maintenance of solar pumps; Provisioning and linking available subsidy of Govt. for wider coverage. 		√	DOA	OREDA	SPMU & Sub-SPU (DOA)
Promoting Adaptive Sustainable Agriculture Practices							
1. Crop residue management through Organic Waste Converter;	Knowhow on the use, operation and maintenance of organic waste converter;	Orientation / training to women on the use of organic waste converters and application of converted organic waste.		√	DOA	Sub-SPU (DOA)	SPMU

COMPONENT / ACTIVITIES	KEY CHALLENGES	PROPOSED PROJECT MEASURES	PROJECT STAGE		RESPONSIBILITY		
			PLANNING	IMPLEMENTATION	PRIMARY	SECONDARY	TERTIARY
Farm Mechanization							
Establishment of Custom Hiring Centre (CHC)	<ol style="list-style-type: none"> 1. Availability of women friendly farm machinery / equipment 2. Accessibility of women farmers to farm machineries as per their need 3. Negligible role of women in management of CHCs; 4. Knowledge on application of farm machineries on field; 	<ol style="list-style-type: none"> 1. Devising guiding principles / procedures of effective operation of CHCs for equal opportunity accessibility; 2. Making women friendly farm equipment available in the CHCs (developed by ICAR institution/s) 3. Orientation of women farmers on application of different farm machineries with demonstrations. 4. Local women groups will be assessed and based on potentiality, may be engaged in CHC management 		√	DOA	Sub-SPU (DOA)	SPMU
HORTICULTURE							
Area Expansion Under Horticulture & Support for Vulnerable Households							

COMPONENT / ACTIVITIES	KEY CHALLENGES	PROPOSED PROJECT MEASURES	PROJECT STAGE		RESPONSIBILITY		
			PLANNING	IMPLEMENTATION	PRIMARY	SECONDARY	TERTIARY
1. Backyard Nutritional Garden (Papaya, Banana, Drumstick, K. Lime, Guava, Yam) 2. Hybrid Vegetable Cultivation 3. Mushroom Cultivation (Production Unit) 4. Root & Tuber Crop Cultivation (S. Potato) 5. Lemon Grass Cultivation 6. Floriculture (Marigold)	1. Participation of women / women groups 2. Involvement of women farmers in floriculture and mushroom cultivation and technical knowhow; 3. Market mechanism for mushroom, tuber crops, lemon grass and floriculture.	1. Giving priority to women from economically poor sections / women groups to take up mushroom cultivation, floriculture and lemon grass cultivation; 2. Training on lemon grass and mushroom cultivation and its economic benefit; 3. Extension of technical support for horticultural activities, including mushroom farming. 4. Facilitating market linkage of produces through institutional / agency tie-ups.		√	DOH	Sub-SPU (DOA)	SPMU
Soil Health Management							
Promotion of Vermi-compost	1. Understanding of women on organic farming and vermicomposting; 2. Association of women in such activities.	1. Awareness on vermi compost especially from economic and environmental point of view 2. Orientation / training to women / women farmers on vermi composting and		√	DOH	Sub-SPU (DOA)	SPMU

COMPONENT / ACTIVITIES	KEY CHALLENGES	PROPOSED PROJECT MEASURES	PROJECT STAGE		RESPONSIBILITY		
			PLANNING	IMPLEMENTATION	PRIMARY	SECONDARY	TERTIARY
		application of vermi compost 3. Encouraging women to take up composting as an business opportunity.					
Promoting Micro Irrigation							
Drip Irrigation	1. Involvement / coverage of women farmers from different communities; 2. Non-availability of water sources and overhead tank for adoption of drip irrigation system; 3. Knowledge on operation and maintenance of drip irrigation system.	1. Educating and motivating for adoption of drip irrigation; 2. Convergence with existing government scheme/s for greater coverage of women farmers; 3. Use of Existing individual / community water resources for drip irrigation. Project may provide support for overhead tank system for drip irrigation; 4. Matching grant support to women farmers adhering to the existing government norms; 5. Facilitate convergence with existing other		√	DOH	Sub-SPU (DOA)	SPMU

COMPONENT / ACTIVITIES	KEY CHALLENGES	PROPOSED PROJECT MEASURES	PROJECT STAGE		RESPONSIBILITY		
			PLANNING	IMPLEMENTATION	PRIMARY	SECONDARY	TERTIARY
		schemes for improved coverage 6. Training on operation and maintenance of drip system; 7. Periodic monitoring and follow-up and guidance.					
Protected Cultivation							
Protected Cultivation - Bamboo Poly green House for Mushroom Cultivation., Seedling Raising & Veg Cultivation	1. Accessibility of women farmers having low holding size; 2. Poor economic condition for incurring investment in structure.	1. Awareness and encouragement to women farmers for adoption of protective cultivation; 2. Coverage of women farmers as per the sector specific plans; 3. Provision of matching grant for women farmers adhering to the prescribed norms; 4. Facilitate credit accessibility through local community institutions like women SHG; 5. Facilitate convergence with existing schemes for wider coverage.		√	DOH	Sub-SPU (DOA)	SPMU

COMPONENT / ACTIVITIES	KEY CHALLENGES	PROPOSED PROJECT MEASURES	PROJECT STAGE		RESPONSIBILITY		
			PLANNING	IMPLEMENTATION	PRIMARY	SECONDARY	TERTIARY
FISHERY							
Fish Seed Production							
<ol style="list-style-type: none"> 1. Modernizing Fish Hatchery - at Chiplima, Katphal and Bhanjanagal 2. Portable Fish Hatchery - at 30 locations in the project area 3. Ugradation of Net manufacturing Unit of OPDC at Mancheswar, Bhubaneswar 4. Pure-line breeding: Germ Plasm improvement programme in 10 select hatchery locations 5. Fish Seed transportation system - 3 Nos of seed transportation vans with carrier crates at Chiplima, 	<p>Accessibility to quality fish seed by women fishers / cooperatives.</p>	<ol style="list-style-type: none"> 1. Devising mechanisms to ensure that fishers / PFCS access fish seeds of required quantity. 2. Fish seed transportation system would be designed to cater to the need of fishers. 		√	F&ARD	SPMU	

COMPONENT / ACTIVITIES	KEY CHALLENGES	PROPOSED PROJECT MEASURES	PROJECT STAGE		RESPONSIBILITY		
			PLANNING	IMPLEMENTATION	PRIMARY	SECONDARY	TERTIARY
Katphal and Bhanjanagal							
Fish Feed Production							
1. Establishment of Mini Fish Feed Mill 2. Establishment of Small-Scale Fish Feed Mill	Association of women / women groups in establishing / management of feed mills.	1. Identification of women entrepreneurs / groups having interest for establishing feed mills; 2. Orientation / training of women / women group on feed mill operation and management; 3. Facilitate linkage of production to demand destinations (PFCS / open market / private entities etc.);		√	F&ARD	SPMU	
Fish Production							
1. Tank culture Of IMC (Indian major carps); 2. Polyculture with Mola / Scampi in selected MI tanks along with IMC	1. Lack of knowhow on ornamental fish culture by women and their groups; 2. Knowledge of women on intensive /	1. Special training to women / women groups on fish farming / ornamental fish cultivation; 2. Linking ornamental fish farming with the		√	F&ARD	SPMU	

COMPONENT / ACTIVITIES	KEY CHALLENGES	PROPOSED PROJECT MEASURES	PROJECT STAGE		RESPONSIBILITY		
			PLANNING	IMPLEMENTATION	PRIMARY	SECONDARY	TERTIARY
3. Gift Tilapia Culture demo. 4. Demonstration of Pangasius culture in select tanks 5. Demo. of climate resilient aqua - culture production models 6. Demo. of cage culture in 7 medium projects and 4 large MI tanks 7. Stocking of self-replicating species 8. Demonstration of Integrated Farming system Including Duckery in 16 select tanks 9. Demonstration of aquaponics 10. Demonstration of RAS (Recirculatory aqua culture system) in one MI tank;	semi-intensive fish farming.	market for remunerative return to the tribal women; 3. Demonstration of integrated farming system, cage culture and climate resilient aquaculture production models in suitable tanks and organizing exposure of women fishers / women group members; 4. Piloting with tribal women fishers / groups on ornamental fish farming and linking it with the market. 5. Inclusion of women fishers (if involved in catching fish) under life jacket support facility					

COMPONENT / ACTIVITIES	KEY CHALLENGES	PROPOSED PROJECT MEASURES	PROJECT STAGE		RESPONSIBILITY		
			PLANNING	IMPLEMENTATION	PRIMARY	SECONDARY	TERTIARY
11. Strengthening Women Fisher SHG through promotion of Ornamental Fish Culture; 12. Net Barricading; 13. Disease Surveillance; 14. e-dash data acquisition system; 15. Provision of Life Jacket to fishers							
Component 1: Climate Smart Intensification and Diversification of Agriculture Support to Diversification and Produce Marketing							
AGRICULTURE							
Crop Diversification & Demonstration							
1. Demonstration of Climate Resilient Varieties 2. Aerobic Rice Demonstration 3. Integrated farming System (IFS) 4. Inter cropping/ Bund plantation	1. Involvement of women farmers in demonstrations; 2. Participation in on-field orientation and FFS 3. Technical knowhow on IFS / Inter cropping and understanding on environmental and	1. Awareness and Sensitization using appropriate mediums; 2. Special orientation drive on crop diversification and its importance from climate resilient perspective; 3. Capacity building through training, exposure, hand		√	DOA	Sub-SPU (DOA)	SPMU

COMPONENT / ACTIVITIES	KEY CHALLENGES	PROPOSED PROJECT MEASURES	PROJECT STAGE		RESPONSIBILITY		
			PLANNING	IMPLEMENTATION	PRIMARY	SECONDARY	TERTIARY
5. Demonstration on cropping systems 6. Demos. For diversification of ID crops 7. Integrated crop management (INM/IPM) 8. Establishment of Farmers Field School (FFS)	economic benefits of diversification.	holding and technical extension services; 4. Understanding current practices and educating them on benefit of changing practices; 5. Involving women farmers in demonstrations. Using their agricultural fields as demonstration plots; 6. Involving women / their groups in exposure to demo. sites.					
Post-Harvest Management & Agri-Business							
AGRICULTURE							
1. Procurement Shed / Transit Point Storage 2. Mini Processing Plant (Dal Mill) 3. Mini Processing Plant (Oil Expeller) 4. Mini Processing Plant (Millet)	1. Limited knowhow on the post-harvest management practices of different crops 2. Participation of women / their group in the agribusiness / supply and value chain improvement	1. Training / orientation on post-harvest management practices for different crops; 2. Assessment of potential of interested women entrepreneurs / women SHGs / women groups and involving them in establishing		√	DOA	Sub-SPU (DOA)	SPMU

COMPONENT / ACTIVITIES	KEY CHALLENGES	PROPOSED PROJECT MEASURES	PROJECT STAGE		RESPONSIBILITY		
			PLANNING	IMPLEMENTATION	PRIMARY	SECONDARY	TERTIARY
5. Other Rural Marketing Infrastructure 6. Buyer-Seller Interface 7. Linking Agriculture Markets with E-NAM / Other Portal 8. Web Portal Development for Market Linkage with Maintenance 9. Agriculture Entrepreneur promoter 10. Agribusiness Support Organization (ABSO)	3. Limited or no access to processing units / other market infrastructures.	processing units / agribusiness activities / management of the processing units.					
HORTICULTURE							
Storage Structures							
1. Functional Pack House 2. Solar Cold Room	1. Involving women entrepreneurs / women groups in establishment / operation and management of storage structures;	1. Assessment and identification of potential women entrepreneurs / women groups having interest for establishing / operationalize and		√	DOH	Sub-SPU (DOA)	SPMU

COMPONENT / ACTIVITIES	KEY CHALLENGES	PROPOSED PROJECT MEASURES	PROJECT STAGE		RESPONSIBILITY		
			PLANNING	IMPLEMENTATION	PRIMARY	SECONDARY	TERTIARY
	2. Understanding on storage structure operation and management.	management of such structures; 2. Facilitate their linkage with existing govt. schemes / provisions through convergence approach; 3. Training on operation, management and maintenance of storage structures.					
Post-Harvest Management-Value Addition							
1. Processing Unit 2. Processing Unit-Mechanized fruits and vegetables 3. Processing unit (Canning Centre fruits and vegetables) 4. Processing Unit-Lemon Grass Oil 5. Perforated Van/Refrigerator Vehicle (4 MT) 6. Organizing / Participating in exhibition shows (Block / District / State Level)	1. Involving women entrepreneurs / women groups in establishment / operation and management of processing units / value addition activities; 2. Skill and knowledge base on operation and management of processing units and value chain activities.	1. Assessment and identification of potential women entrepreneurs / women groups having interest for establishing / operationalize and management of processing units; 2. Facilitate their linkage with existing govt. schemes / provisions through convergence approach; 3. Training on operation, management and maintenance of processing units;		√	DOH	Sub-SPU (DOA)	SPMU

COMPONENT / ACTIVITIES	KEY CHALLENGES	PROPOSED PROJECT MEASURES	PROJECT STAGE		RESPONSIBILITY		
			PLANNING	IMPLEMENTATION	PRIMARY	SECONDARY	TERTIARY
		4. Periodic guidance and hand holding support; 5. Facilitate their linkage with market for selling of processed / value added products.					
FISHERY							
Processing and Value Addition							
1. Supply of ICE Boxes to fishers 2. Provision of DAT (Distress alert transmitter); 3. Establishment of fish processing units in selected locations for value added products (Filleting, Pickle making, Cutlet making etc.); 4. Strengthening Value chain infrastructure- Hygienic fish / fish product transportation; 5. Strengthening Marketing Infrastructure-	1. Active involvement of women and their cooperatives in processing value addition activities; 2. Knowhow of tribal fishers / tribal women fishers on fish value addition and process; 3. Feasibility of establishing marketing infrastructure and related units in interior / less accessible pockets dominated by tribals;	1. Adoption of inclusion strategy in providing ice box to tribal and their cooperatives in scheduled areas; 2. Training / orientation of tribal on fish processing / value addition; 3. Establishing value chain infrastructures in interior / less accessible tribal pockets based on feasibility assessment;		√	F&ARDD	SPMU	

COMPONENT / ACTIVITIES	KEY CHALLENGES	PROPOSED PROJECT MEASURES	PROJECT STAGE		RESPONSIBILITY		
			PLANNING	IMPLEMENTATION	PRIMARY	SECONDARY	TERTIARY
modernization of 2 model kiosks for fish and fish product retailing in PPP mode; 6. <i>FINSHOP</i> : One stop aqua shop for Fishery Inputs retailing in PPP mode; 7. Market study.							
Component 2: Improving Access to Irrigation And Water Productivity							
Improvement in Irrigation Coverage							
1. Installation of Sub-surface pressurized irrigation system; 2. Ground water extraction through community bore well / dug well.	Accessibility to water by the women farmers having land in the tail end of the command	1. Provision of water availability to each Ha., including tail end through pressurized irrigation system; 2. Extraction and use of ground water in cases of non-availability of surface water for irrigation; 3. Irrigation scheduling for equitable distribution of water and making water available to tail end;		√	DOWR	SPMU	

COMPONENT / ACTIVITIES	KEY CHALLENGES	PROPOSED PROJECT MEASURES	PROJECT STAGE		RESPONSIBILITY		
			PLANNING	IMPLEMENTATION	PRIMARY	SECONDARY	TERTIARY
		4. Improved water use efficiency for additional area irrigation.					
Institution Strengthening							
Strengthening PPs through capacity building and other support provisions	<ol style="list-style-type: none"> 1. Participation of women in general and women farmers in particular in the capacity building measures; 2. Coverage of need of women farmers in the overall capacity building measures 	<ol style="list-style-type: none"> 1. Special measures to include women farmers / women water users under the purview of capacity building through awareness / sensitization; 2. Identification of need of women farmers and designing curriculum that suits to their needs; 3. Organizing training / exposure taking in to account their engagement an availability 		√	DOWR	SPMU	
Water Productivity & Efficiency							

COMPONENT / ACTIVITIES	KEY CHALLENGES	PROPOSED PROJECT MEASURES	PROJECT STAGE		RESPONSIBILITY		
			PLANNING	IMPLEMENTATION	PRIMARY	SECONDARY	TERTIARY
1. Ground water monitoring and PGM; 2. Promotion of conjunctive water use through crop water budgeting and water scheduling; 3. Management and maintenance of hydraulic assets; 4. Incentivizing PPs for attending water use efficiency.	Understanding of women on water use efficiency and improving the water productivity in farming	Education / awareness of women on water resources, its judicious use, irrigation planning, crop water budgeting etc. Special training may be planned for women farmers on these aspects.		√	DOWR	SPU	
Component 3: Institution Development and Capacity Building							
Promotion of New Institutions							
1. Formation of New FPOs; 2. Registration of FPOs; 3. Management Cost support to FPOs.	1. Association of women farmers / producers in the FPO and its functioning	1. Provision for inclusion of women farmers in the FPO and their representation in the board of directors (at least one member in the BOD) 2. Capacity building of women members on		√	DOA / DOH	Sub-SPU (DOA)	SPMU

COMPONENT / ACTIVITIES	KEY CHALLENGES	PROPOSED PROJECT MEASURES	PROJECT STAGE		RESPONSIBILITY		
			PLANNING	IMPLEMENTATION	PRIMARY	SECONDARY	TERTIARY
		FPO management and its activities.					
1. Formation of new PFCS; 2. Registration of new PFCS.	Participation of women involved in fish processing	1. Measures for inclusion of women fisher folk involved in different fishery related activities in the new PFCS; 2. Representation of women fisher folk in the managing committee of the PFCS.		√	F&ARDD	SPU	
Capacity Building							
1. Capacity building of PPs (training / exposure); 2. Capacity building of FPOs (training / exposure); 3. Capacity building of PFCS (training / exposure); 4. Capacity building of women SHGs (training / exposures);	1. Capturing actual need of women, 2. Participation of women in general and women from ST/SC community; 3. Gap between need of the members and impacted themes / topics in training sessions 4. Uniform capacity building plan may not help to all the primary stakeholders	1. Capacity building need assessment of women fishers / farmers; 2. Designing training module keeping the needs of women and their sectoral engagement; 3. Ensuring their involvement in capacity building measures like training / exposure as per the identified needs;		√	DOWR / DOA / DOH / F&ARDD	Sub-SPU	SPMU

COMPONENT / ACTIVITIES	KEY CHALLENGES	PROPOSED PROJECT MEASURES	PROJECT STAGE		RESPONSIBILITY		
			PLANNING	IMPLEMENTATION	PRIMARY	SECONDARY	TERTIARY
5. Capacity building of farmers on agriculture / horticultural / agri-business activities; 6. Training of trainers (existing training and extension service providers); 7. Training / exposure of engineers	at the community level	4. Organizing trainings at local level to ensure participation of women; 5. In case of requirement, organizing exclusive training of women, based on their number, at village / cluster level; 6. Preparing training session plan taking women engagement in to account; 7. Follow-up of application of capacity building inputs and planning for higher adoption					

5.8.7 Monitoring and Evaluation:

The overall M&E framework of the project will be adhered to and would be applicable for the M&E of the inclusion and development of women in project activities. However, care will be taken to integrate the inclusion indicators in the overall monitoring and evaluation framework of the project. Key indicators to be taken up that are relevant to ensure inclusion of women in the overall project are like;

1. Coverage of Women Headed Households (WHH) / Women Farming Households (WFH) in different project activities;
2. Benefits rendered to and accessed by the women of different social and economic background;
3. Overall growth in production and productivity of women farmers (crop specific);
4. Unirrigated land of women farmers in the tank command covered under irrigation;
5. No. / percentage of women involved in agribusiness activities and having access to alternative market;
6. No. / percentage of women have improved their agricultural income;
7. Increment in production and productivity of women farmers (crop specific);
8. Value addition benefits availed by women farmers / women groups / women entrepreneurs;
9. Farm technology (climate resilient technologies) adoption rate by women farmers;
10. No. / percentage of women in community organizations, such as PP, FPO and PFCS;
11. No. of CHCs having women supportive farm implements and accessibility of women farmers to such implements
12. Percentage of cultivated area of women farmers covered under farm mechanization;
13. Number / percentage of women / women groups trained on different agricultural and fishery aspects, visited demonstrations and adopted the technologies;
14. Number of women involved in civil works and reported equal wage for equal work;
15. Number / percentage of women members involved in processing and value addition; etc.

5.8.7.1 Institutional Arrangement for M&E

At the SPMU level, the Monitoring and Evaluation Specialist (M&E Specialist) will be looking after the overall monitoring and evaluation of the project. She / he will be supported by the external M&E agency for conducting concurrent monitoring, mid-term review and final assessment. The overall monitoring mechanism will be IT / MIS driven to track the inputs, outputs and outcomes of the project. Role and responsibilities of different project implementation levels with regard to M&E are as follows.

Table 69: Role and Responsibilities for M&E

Sl. No.	Project Implementation Level	Role & Responsibilities
1	2	3
1	State Project Monitoring Unit (SPMU) (State Level, OIIPCRA Level)	Preparing Quarterly & Annual Monitoring Plan
		Seeking required data from Sub-SPU/DLPMT
		Compilation & Analysis of data
		Tracking the inclusion of tribals in project activities
		Tracking indicators of tribal inclusion and benefits
		Supporting / guiding Sub-SPU & DLPMT
2	Sub-State Project Unit (S-SPU) (Dept. Level)	Preparing Quarterly & Annual Monitoring Plan for Agriculture, Horticulture and Fishery Activities
		Seeking required data from DDA / DDH
		Compilation & Analysis of data
		Tracking the inclusion of tribals in project activities
		Tracking indicators of tribal inclusion and benefits
		Supporting / guiding DDA / DDH
3	District Level Project Monitoring Team (DLPMT, District Level)	Designing activity specific gender inclusion plan
		Reviewing gender inclusion in project activities
		Monitoring gender inclusion indicators

Sl. No.	Project Implementation Level	Role & Responsibilities
1	2	3
		Preparing disaggregated reports
		Tracking gender inclusion parameters
		Conducting process monitoring-quarterly basis
		Reporting to SPMU on Progress /achievements
4	Tank / Village level Institutions (Tank / Village Level)	Activity wise planning for inclusion of women
		Ensuring representation / participation of women
		Support in M&E studies / assessment in proving data / information, organizing meetings etc.
		Data collection and maintenance of disaggregated data in regular intervals covering gender inclusion in project activities.

Chapter VI: Implementation Arrangement of SMF

6.1 Institutional Arrangement

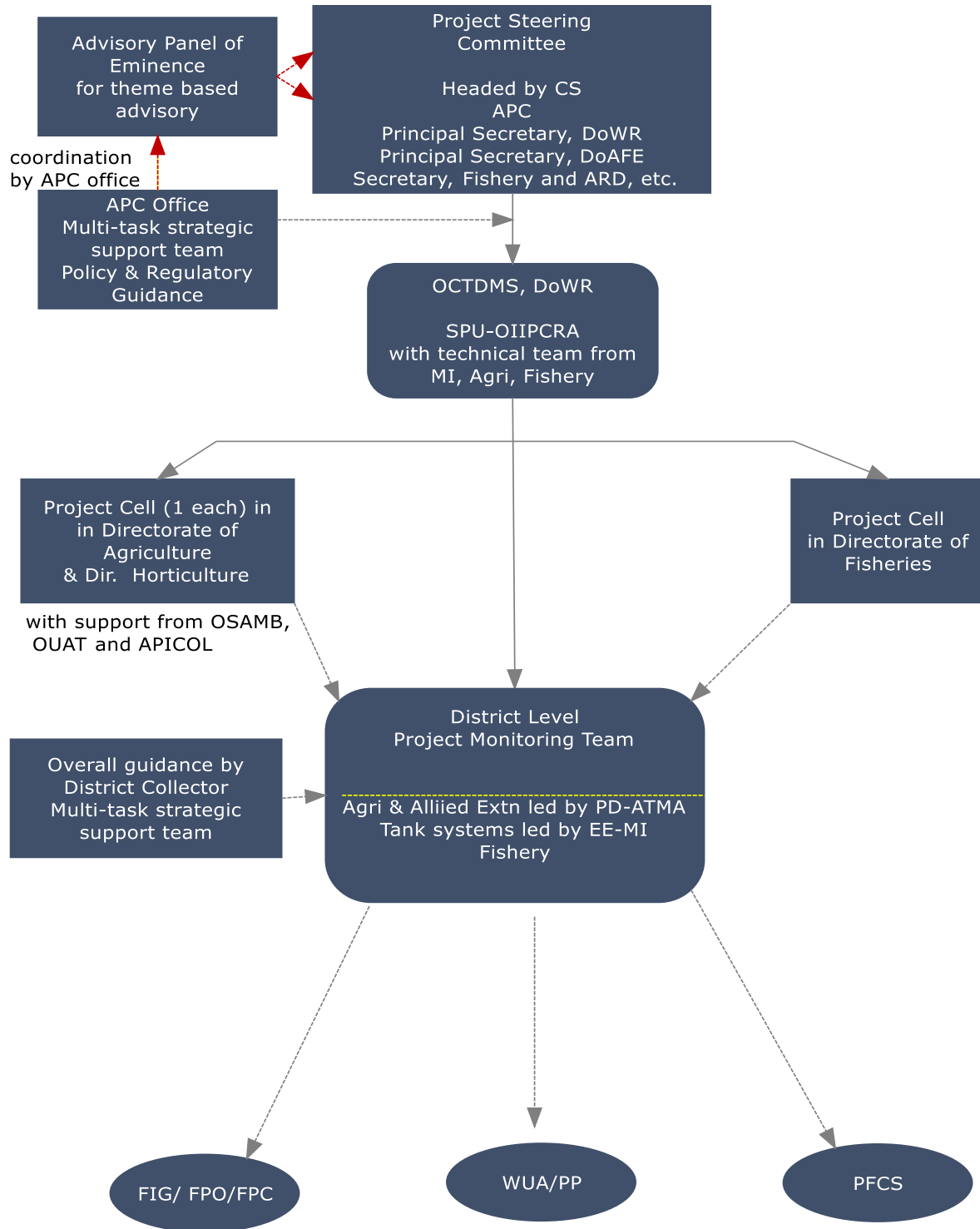


Figure 19: Project Implementation Structure

The institutional arrangement (*Figure 19*) made in the project for its execution will be followed for the implementation of the SMF, including GAP and TPPF. The role and responsibility at different execution levels are discussed below.

6.1.1 State Level

State Project Steering Committee (SPSC): For effective management of the project and decision making, there will be a Project Steering Committee at the State Level, headed by the Chief Secretary of Government of Odisha. The Project Director, OIIPCRA-OCTDMS will be the Member Convener of the steering committee (SPSC). The steering committee will comprise following members.

1. Agriculture Production Commissioner (APC), Govt. of Odisha;
2. Development Commissioner Cum Additional Chief Secretary, Government of Odisha;
3. Secretary, Department of Agriculture and Farmer's Empowerment, Government of Odisha;
4. Secretary of Panchayati Raj & DW Department, Govt. of Odisha;
5. Secretary, ST & SC Development, Minorities and Backward Class Welfare, Govt. of Odisha;
6. Secretary, Finance Department, Govt. of Odisha;
7. Secretary, Fisheries and Animal Resource Development Department, Govt. of Odisha;
8. Director, OIIPCRA, Water Resources Department, Govt. of Odisha;
9. Director, Agriculture and Food Production Directorate, Govt. of Odisha,
10. Director, Horticulture Directorate, Govt. of Odisha;
11. Director, Directorate of Fisheries, Govt. of Odisha;
12. Director, Special Project, Panchayati Raj Department, Govt. of Odisha;
13. Invitees from Government and Civil Society Organizations

The SPSC will review the project and provide necessary guidance once in six months during the life of the project.

Office of Agriculture Production Commissioner (APC): The project will support in strengthening the office of APC to coordinate the activities of all the Govt. Departments associated in execution of the project. There will be an Advisory Group associated with the office of the APC to support and facilitate the overall execution of the project by different departments in a collaboration and convergent manner. The office of the APC will also have a Strategic Support Unit (SSU) comprising experts from different project related disciplines. The SSU will support in coordinating project activities with implementing entities / departments.

Project Implementing Departments: The project will be executed primarily by three Departments of Government of Odisha, i.e., (1) Water Resources Department, (2) Department of Agriculture and Farmer's Empowerment, and (3) Fisheries and Animal Resource Development Department. The Directorate of Agriculture and Directorate of Horticulture of Department of Agriculture and Farmer's Empowerment will be the project executing Entity. Similarly, Directorate of Fisheries of Fisheries and Animal Resource Development Department will be associated in the execution of the project. Apart from these Departments, Odisha State Agriculture Marketing Board (OSAMB) will also be associated in the execution of the project activities, more particularly in the marketing aspects.

State Project Monitoring Unit (SPMU): There will be a State Project Management Unit (SPMU), for the project (OIIPCRA), which will be under Water Resources Department of Government of Odisha. The SPMU will be headed by the State Project Director (PD), who will be responsible for the overall implementation of project activities and safeguard measures, including TPPF. The Social Development Specialist of the SPMU, will look after the tribal issues. She / he will be responsible for monitoring the inclusion of tribal in different project activities at different stages of implementation. The SPMU will have required human resources, as per the need of the project and sanctioned by the Government.

Sub-State Project Unit (S-SPU): Apart from SPMU, there will be sub-SPUs, which will function under associated Departments / Directorates, i.e., Directorate of Agriculture and Food Production, Directorate of Horticulture and Directorate of Fisheries. The S-SPU will have different experts and support staff to look after the implementation of agriculture, horticulture and fishery aspects, including post-harvest management and agribusiness.

6.1.2 District Level

Office of the PD-ATMA: At the district level, the Project Director of ATMA (Agriculture Technology Management Agency) will be the nodal officer to execute the project activities and coordinate the activities with the office of Deputy Director, Agriculture; Deputy Director, Horticulture; and Deputy Director, Fishery. She / he will be a part of the DLPMT to monitor and supervise the activities at the district level and funds will be rooted through the office of PD-ATMA. For overseeing and coordinating implementation of project activities, the office of the PD-ATMA will have a Strategic Management Support Unit (SMSU). The SMSUs will have sanctioned human resources to facilitate the process. In every quarter, there will be planning and review meeting of all the implementing entities which will be headed by the PD-ATMA. Quarterly plans will be finalized in the meeting along with review of the preceding quarter activities. The office of PD-ATMA will submit their quarterly report to the SPMU highlighting physical and financial progress of the project.

District Level Project Monitoring Team (DLPMT): Every project district will have a District Level Project Monitoring Team (DLPMT) to monitor the project activities on regular basis. The DLPMT will comprise of (1) Executive Engineer of Water Resources Department, (2) Deputy Director, Agriculture; (3) Deputy Director, Horticulture; and (4) Deputy Director, Fisheries apart from PD-ATMA. The Collector and DM of the district will chair the session. The team will meet every month at the district level and will review the project progress as per the monthly plan. The committee will appraise to the Collector and DM on the progress of the project during quarterly review and planning exercise.

6.1.3 Tank Level:

At the tank level, different organizations / institutions will be associated in the implementation of project activities, such as;

1. Pani Panchayat (PP) / Water User Association (WUA);
2. Farmer Producer Organization (FPO);
3. Primary Fisheries Cooperative Societies;
4. Women Self-Help Groups (WSHG); and
5. Technical Support Organizations (NGOs).

6.1.4 Association of Technical Institutions:

Different technical institutions will be associated at different stages of project implementation and supporting on technical aspects. Technical institutions to be associated are;

1. Odisha University of Agriculture and Technology (OUAT);
2. Central Inland Fisheries Research Institute (CIFRI);
3. Central Institute of Freshwater Aquaculture (CIFA)
4. College of Fisheries, OUAT;
5. Odisha Pisciculture Development Corporation Ltd. (OPDC);
6. Agriculture Technology Management Agency (ATMA).
7. Central Institute of Fisheries Technology (CIFT).

6.1.5 Engagement of Support Organizations (SO)

The project intends to involve Support Organizations (SO) at the project village level to facilitate execution of project activities. The Support Organizations (SO) are state/district level NGOs having sector level subject matter experts involved in the rural development programs at the grassroots level, working with the community. The role of the SO is to facilitate the project implementation process through social mobilization at the tank/cascade level, in association with PPs/PFCSs/FPOs/SHGs and implementing line Departments. The SOs will perform different activities such as Awareness creation, Community Mobilization, Supporting and Strengthening PPs/PFCSs/FPOs/SHGs etc.

6.2 Implementation of SMF:

The project will have a separate unit, in the name of Institution Development Unit (IDU) within the State Project Monitoring Unit (SPMU), located at the office of the Project Director, OIIPCRA at the State Level. This unit will work closely with the PD-ATMA and DLPMT at the district level, different institutional partners, facilitating agencies, state agricultural universities and other line departments that are associated with the project from time to time. The unit will ensure that the project interventions are consistent with the agreed strategies and framework. The unit will have Capacity Building and Institution Development Specialist, who will be looking after social aspects of the project, including monitoring of social indicators (including gender and tribal aspects) and coordinating with different agencies / institutions. The specialist will be guided by the Project Director, OIIPCRA and reporting to the Project Director directly. The role and responsibilities of the unit are;

1. Support the implementing entities in preparation and finalisation of gender plan and tribal plan for their greater inclusion;
2. Over all planning, designing, guiding, implementing and coordinating institutional development and capacity building strategies proposed for PPs, SOs, PFCS, SHGs and FPOs;
3. Identify resource agencies, partners for the project for capacity building, based on the gap analysis exercise conducted from time to time;
4. Ensure strengthening of community-based institutions, covering PP, FPO, PFCS and women SHGs, develop a plan for their effective governance and monitoring
5. Develop incentive mechanisms for well governed PPs on water saving and adapting resilient practices;
6. Identifying stakeholders and ensuring their participation;
7. Monitoring implementation of the social framework by different implementing entities as per SMF;
8. Designing the community manual and guidelines for the support organization and developing training modules / manuals / IEC materials;
9. Monitoring the activities of the unit;
10. Ensuring timely implementation of capacity building measures.

The CB & ID Specialist at the SPMU level will be the responsible person to guide the overall process related to social aspects. The district / sub-district level implementing agencies will execute and monitor the social components in consultation with the specialist. She / he will be associated in the screening process of such activities that require greater involvement of women and/or need special focus on tribal involvement. She/he will monitor the social processes followed in execution of the planned activities and realisation of the social inclusion parameters. The CB & ID Specialist will also look at women and tribal inclusion aspects as per the SMF.

6.3 Grievance Redressal Mechanism

During implementation of the project, certain grievances may arise which require time bound redressal. The project will have grievance redressal mechanism in place to take care of grievances, if any arises.

The overall framework for redressal of grievances at appropriate levels of the project implementation structure are as below.

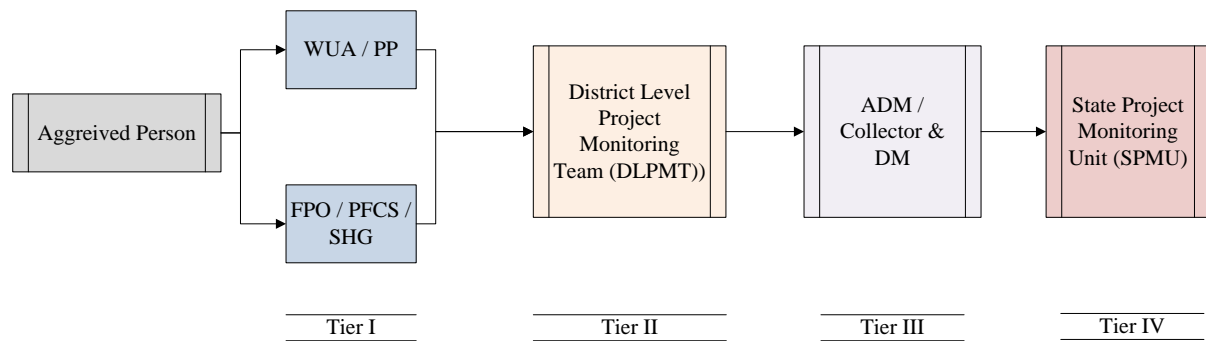


Figure 20: Grievance Redressal Mechanism

6.3.1 Tier I:

The project will have different community based institutional structures, such as PP / WUA, FPO, PFCS etc. to execute different project activities at the village level. Such institution of people will be the first point of grievance redressal (Tier I). Any grievance arising at the village level, due to the execution of the project, will be sorted out amicably at the village level with the support of these community level institutions. As similar community organizations will also be promoted in scheduled areas, they will act as first point of grievance redressal, preferably in consultation with the Gram Sabha / GP.

6.3.2 Tier II:

Any issue, which the local institutions is not able to address amicably, will be referred to the District Level Project Monitoring Team (DLPMT). The district level Tier II structure (DLPMT) for grievance redressal will comprise of (1) Collector and DM as the chairperson, (2) PD-ATMA as the Nodal Officer, (3) Executive Engineer, Department of Water Resources, (4) Deputy Director, Agriculture, (5) Deputy Director, Horticulture, and (6) District Fishery Officer. The concerned department along with DLPMT will take up the issue and will attempt to address it. All such issues, referred by local community institutions (PP / FPO / PFCS / SHG etc.) will be recorded and settled amicably.

6.3.3 Tier III:

Any aggrieved person, not satisfied with the decision of the DLPMT, may forward his / her grievance to Additional District Magistrate / Collector and District Magistrate of the concerned district for solution. The Additional District Magistrate / Collector and District Magistrate will consult with the DLPMT / concerned departmental officials / sub-SPU for amicable settlement of the dispute.

6.3.4 Tier IV:

Any aggrieved person, not satisfied with the decision of the Additional District Magistrate / Collector and District Magistrate, may forward his grievance to the Grievance Redressal Committee (GRC) of the SPMU-OIIPCRA for amicable settlement. The grievance redressal committee, after examining the relevance of the case, will settle the issue in a time bound manner.

6.3.5 Toll Free Number for Grievance Redressal

The project will introduce a toll-free number for receiving grievances and its timely redressal. Any member, having any grievance related to the project can use the toll-free number and communicate with the appropriate authority of the project. After reviewing the details of his/her grievances and field facts, appropriate authority will communicate to the concerned person and solve his/her grievance. The SANJOG help line of the Department of Water Resources may also be used for grievance redressal.

6.3.6 IT based Grievance Redressal Mechanism

The project will extensively use IT platform for receiving grievances, its processing and addressing the issue. Any person having any grievance related to the project can use the IT platform to share his / her grievance to the appropriate project authority for amicable solution. The decision, made by the appropriate authority, based on available facts and figures will be communicated back to the concerned person using the same platform.

In the official web site of the project, there will be a space for placing grievance. An aggrieved person can post his/her grievance in the specified space and submit it. Posting of grievance in the specified area will be structured and the aggrieved person has also to upload the decisions of the local institutions for solution. Areas of grievance may be selected from a pre-designed dropdown list (district, block, GP, Tank, list of anticipated grievances type etc.) or it may be kept open for persons to fill-up (will be finalized based on the design of the web site). The GRC at the state level will examine each case and appropriate step will be taken by the GRC.

6.3.7 Recording of Grievances and its Dispose-off

From PP / FPO to Gram Panchayat, at every stage the grievances received, number of grievances addressed, time consumed for decision making and decision of the PP / FPO and Gram Panchayat related to the raised grievance would be documented. In case of IT based grievance redressal mechanism or use of toll free number, such aspects will be electronically recorded for future review.

6.4 Monitoring and Evaluation

The overall M&E framework of the project will be adhered to and would be applicable for the M&E of social parameters. However, care will be taken to integrate the inclusion indicators in the overall monitoring and evaluation framework of the project. Key indicators to be taken up are discussed below by project component and activities.

6.4.1 Institutional Arrangement:

At the SPMU level, the CB and ID Specialist will be looking after the overall monitoring and evaluation of the SMF. She / he will be supported by the external M&E agency for conducting concurrent monitoring, mid-term review and final assessment. The overall monitoring mechanism will be IT / MIS driven to track the inputs, outputs and outcomes of the project. Role and responsibilities of different project implementation levels with regard to M&E are as follows.

Table 70: Role and Responsibilities for M&E

Sl. No.	Project Implementation Level	Role & Responsibilities
1	2	3
1	State Project Monitoring Unit (SPMU) (State Level, OIIPCR Level)	Preparing quarterly & annual monitoring plan
		Seeking required data from PD-ATMA/Sub-SPU/DLPMT
		Compilation & Analysis of data
		Tracking the social indicators / inclusion parameters by project activity
		Supporting / guiding Sub-SPU & DLPMT
2	Sub-Project Management Unit (Sub-SPU) (Dept. Level)	Preparing quarterly & annual monitoring plan
		Seeking required data from DDA / DDH
		Compilation & Analysis of data
		Tracking the indicators by project activities

Sl. No.	Project Implementation Level	Role & Responsibilities
1	2	3
		Supporting / guiding DDA / DDH to ensure implementation of SMF, including GAC and TPPF
3	District Level Project Monitoring Team (PD-ATMA & DLPMT, District Level)	Designing activity specific social inclusion plan Reviewing social inclusion in project activities Monitoring social inclusion indicators Preparing disaggregated reports (gender / tribal etc.) Tracking inclusion and participation parameters Conducting process monitoring-quarterly basis Reporting to SPMU on Progress /achievements
4	Tank / Village Level Institutions	Designing inclusion / participation framework Ensuring representation / participation in project activities Support in M&E studies / assessment in proving data / information, organizing meetings etc. Collection of disaggregated data and its updation in regular intervals, taking project activities in to account.

6.4.2 Mid-Term Evaluation

There will a mid-term assessment of social indicators after three years of project implementation to take stock of project impact on farmers, women and tribal communities. The assessment will identify key issues / challenges and recommend corrective action, as necessary. This mid-term assessment would be conducted prior to the Mid-term Review (MTR) mission.

6.4.3 End-Line Evaluation

There will an end-line assessment, at the end of the project period, of social parameters, as presented in the SMF to assess the overall outcome and impact in social front. Benefit details availed by farmers of different holding categories, tribal communities and women under the project will be mapped by project component, covering financial and non-financial aspects. The evaluation report will highlight exclusively the benefits availed by such population in the project area.

6.4.4 Monitoring and Evaluation Indicators

Table 71: Evaluation Indicators by Project Component

Project Component	Project Sub-Components	Indicators (Social Indicators)
Component A: Climate Smart Intensification and Diversification of Agriculture	Sub-component A.1: Support to Improve Productivity and Climate Resilience	1. Different stakeholders, such as marginal farmers, small farmers, fishers, women groups, tribals etc. are adequately and appropriately consulted in the DIAP preparation process and their needs and aspirations are well captured and reflected in the plan document; 2. Areas of concerns, as highlighted in the SMF are well captured and planned appropriately, covering inclusion of women and tribals in project activities, equal wage provision, protection of tribal rights, prevention of women harassment in the work place, promotion of women friendly farm technologies etc.

		<ol style="list-style-type: none"> 3. Marginal farmers, small farmers, women farmers and other vulnerable households from different social groups are well represented in different activities, such as demonstrations, access to irrigation through solar pumps, crop residue management practices, farm mechanization etc. 4. Capacity building needs of different stakeholders and their institutions, such as PP, women SHGs, PFCS, FPOs etc. are assessed and project measures taken to improve their capacity through training, exposure and handholding support; 5. Livelihood support provision made available to identified landless families and other vulnerable households in horticultural activities.
	<p>Sub-component A.2:</p> <p>Support to Aquaculture Production</p>	<ol style="list-style-type: none"> 1. Priority given to women entrepreneurs and women SHGs for produce marketing and greater involvement in fish processing and value addition; 2. Less accessible project areas having fish culture potentials are covered appropriately and infrastructural support facilities are crated for fish-based enterprises and value addition. 3. Greater involvement of PFCS is ensured in executing the project framed activities and accessing project benefits. 4. Capacity building measures addressed the needs of the fishers, more particularly the women fishers in post-harvest management and business promotion; 5. Women fishers and their groups are well trained in ornamental fish farming and appropriate measures initiated for establishing forward and backward linkages.
	<p>Sub-component A.3:</p> <p>Support to Diversification and Produce Marketing</p>	<ol style="list-style-type: none"> 1. Individual women entrepreneurs and women SHGs are encouraged for greater participation in the post-harvest management and agribusiness activities; 2. No of women entrepreneurs and women SHGs involved in agribusiness activities, managing value addition, processing and marketing of commodities; 3. No. of post-harvest management and processing units established in scheduled areas and no. of tribals associated in the process
<p>Component B:</p> <p>Improving Access to Irrigation and Water Productivity</p>	<p>Component B.1:</p> <p>Support to Water Sector Reform</p> <p>Component B.2:</p> <p>Support to Investment in Cascades</p>	<ol style="list-style-type: none"> 1. Improvement in irrigation coverage realized with tail end farmers having better share in irrigation through surface and/or ground water; 2. Increased area under Rabi crop by the tail end farmers due to tank system improvement and irrigation management (increment in gross cropped area); 3. Local manual job seekers engaged in civil works as per the need of the work and based on their interest and equal wage for equal work norm followed for male and female workers;

<p>Component C:</p> <p>Institutional Development and Capacity Building</p>		<ol style="list-style-type: none"> 1. Capacity building needs of different community institutions / individuals of different social categories assessed and reflected in the capacity building design frame; 2. Number / percentage of small and marginal farmers / fishers by sex (male & female farmers) and community (tribal & non-tribal) received capacity building inputs under the project; 3. Number / percentage of such farmers adopting climate resilient agricultural practices; 4. Improved functioning of the local level institutions, such as PP, FPO, PFCS and women SHGs reported with better knowledge and management capacity.
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Table 72: Evaluation Indicators of SMF by Project Activity

Components / Activities	Evaluation Indicators
Component 1: Agriculture	
Preparation of DIIAP	<ol style="list-style-type: none"> 1. No. of consultation meetings organized with different holding categories and irrigation requirements mapped by cropping seasons; 2. Additional area planned to be covered under irrigation during Rabi season, more particularly in the tank command; 3. No. of farmers, by their holding categories and social groups, planned to be covered under added irrigation coverage, especially during Rabi season.
Crop Diversification and Demonstrations	<ol style="list-style-type: none"> 1. No. of awareness and sensitization camps organized on cost & benefit of climate resilient technologies / practices; 2. No. of orientation programmes / trainings organized and no. of farmers by holding categories and social groups trained; 3. No. of demonstrations conducted in scheduled areas and less accessible areas; 4. No. of farmers by holding groups and social category visited the demonstration sites and gained knowledge on climate resilient practices; 5. No. of farmers by holding categories and social group adopted demonstrated technologies / package of practices; 6. No. of farmers by social group and holding categories involved in demonstrations by demonstration categories;
Water Lifting Using Renewable Energy (Solar Pump)	<ol style="list-style-type: none"> 1. No. of farmers by social group and holding category accessed to solar water lifting devices; 2. Area irrigated through solar pumps, especially in Rabi season and enhancement in gross cropped area; 3. Schematic convergence made and amount of subsidy released for farmers in general and women / tribal farmers in particular.

Crop residue management through Organic Waste Converter	<ol style="list-style-type: none"> 1. No. of scheduled areas / tribal dominated habitations having waste convertors; 2. Amount of organic waste produced in cropping seasons and reduction in cost of fertilizer and cost of production; 3. No. of farmers / women farmers / tribal farmers trained on operation and maintenance of organic waste convertors and application of converted organic waste.
Installation of Moisture Meter	<ol style="list-style-type: none"> 1. No. of farmers by holding and social categories applied moisture meter and improved irrigated area through efficient use of water; 2. Percentage of the total area in the tail end of the command is irrigated due to improved irrigation efficiency with the use of moisture meter 3. No. of farmers trained / orientation on application of moisture meter and measures taken as per the reading;
Installation of Farm Guard	<ol style="list-style-type: none"> 1. Reduction in occurrence of pest attack and expenditure incurred on pest management 2. No. of farmers trained / orientation on application of farm guard by holding and social category;
Farm Mechanization	<ol style="list-style-type: none"> 1. No. of CHCs established in scheduled area / less accessible pocket; 2. Area of marginal / small holders, women farmers and farmers of different social groups covered under farm mechanization. No. of farmers of low holding categories accessed different machineries from the CHC; 3. No. of CHCs having women friendly farm equipment in the CHCs
Capacity Building of Farmers through Farmer Field School (FFS) and Training on Climate Resilient Agriculture	<ol style="list-style-type: none"> 1. No. of FFS organized in scheduled area / less accessible pockets for practical learning of farmers; 2. No. of farmers of different social and holding categories trained in FFS / availed exposure; 3. No. of farmers of different social / holding categories adopted the learning from FFS;
Post-Harvest Management & Agribusiness Promotion	<ol style="list-style-type: none"> 1. No. of women and tribal entrepreneurs and / or their groups associated in post-harvest management and agribusiness 2. No. of trainings / workshops organized on post-harvest management and agribusiness and number of community organizations trained (PP / FPO / SHG); 3. No. of processing units / market infrastructure established in scheduled area / less accessible areas; 4. Enhancement in earning of farmers of different social and holding categories due to agribusiness and post-harvest management.
Component 1: Horticulture	

<p>Area Expansion Under Horticultural Crops</p>	<ol style="list-style-type: none"> 1. No. of farmers of different holding and social categories enrolled under area expansion activity and area (in Ha.) covered under expansion program; 2. Percentage of total area (in Ha.) covered under area expansion program in scheduled areas / less accessible areas; 3. No. of farmers trained / oriented on management of horticultural crops by social and holding groups.
<p>Horticultural Support to Vulnerable Groups</p>	<ol style="list-style-type: none"> 1. No. of vulnerable families supported under backyard plantation / nutritional garden; 2. No. of women / women groups (SHGs) associated in floriculture and mushroom cultivation; 3. No. of women / women groups / farmers trained on lemon grass and mushroom cultivation and its economic benefit; 4. Increment in income of vulnerable families from horticultural activities; 5. Market linkage established for no. of women / women groups / farmers associations engaged in livelihood activities such as lemon grass cultivation and mushroom farming;
<p>Micro Irrigation System Promotion (Drip / Sprinkler)</p>	<ol style="list-style-type: none"> 1. No. of farmers from different social and holding categories adopted drip irrigation; 2. Total area covered under drip irrigation and percentage of area covered in scheduled area / less accessible pockets; 3. No. of farmers trained on drip irrigation system and its management; 4. Additional area put to irrigation due to water use efficiency by farmers of different social and holding groups;
<p>Protected Cultivation</p>	<ol style="list-style-type: none"> 1. Area covered under protected cultivation and no. of farmers benefitted by their social / holding categories; 2. No. of units established and total area covered under protected cultivation in scheduled area / less accessible area;
<p>Promotion of Vermicompost</p>	<ol style="list-style-type: none"> 1. No. of vermicompost units established and no. of farmers by different social and holding categories benefitted; 2. No. of farmers trained / oriented on vermicompost preparation and its application; 3. Average quantum of vermicompost produced, reduction in cost of fertilizer and cost of production of farmers of different social and holding categories;
<p>Establishment of Functional Pack House and Solar Cold Room</p>	<ol style="list-style-type: none"> 1. No. of pack house and solar cold rooms established and no. of such units in scheduled / less accessible areas; 2. No. of PP / FPO / women SHG associated in operation and management of such structures / facilities;

	<ol style="list-style-type: none"> 3. Average annual earnings of PP / FPO / women SHG and increment in income of the farmers of different holding and social groups; 4. No. of entrepreneur / FPO / women SHG / PP trained on management of the facilities.
Post-Harvest Management and Value Addition (Horticulture)	<ol style="list-style-type: none"> 1. No. of women and tribal entrepreneurs and / or their groups associated in post-harvest management and agribusiness 2. No. of trainings / workshops organized on post-harvest management and agribusiness and number of community organizations trained (PP / FPO / SHG); 3. No. of processing units / market infrastructure established in scheduled area / less accessible areas; 4. Enhancement in earning of farmers of different social and holding categories / community organizations due to agribusiness and post-harvest management.
Capacity Building (Training / Exposure)	<ol style="list-style-type: none"> 1. No. of trainings organized and no. of farmers by different social and holding categories trained on horticultural activities; 2. No. of farmers by social and holding groups adopted acquired knowledge / skill in horticultural activities.
Component 1: Fishery	
Fish Seed Production	Enhancement in fish seed production and its timely accessibility by no. of PFCS, especially in less accessible areas / scheduled areas;
Fish Feed Production	Enhancement in fish feed production and its timely accessibility by no. of PFCS / fishers especially in less accessible areas / scheduled areas;
Fish Production	<ol style="list-style-type: none"> 1. Increment in fish production per unit area and enhancement in income of the fishers and/or their cooperatives; 2. No. of fishers / PFCS trained / oriented on intensive / semi-intensive fish farming. 3. No. of women groups trained / oriented on ornamental fish farming and enhancement in their income.
Fish Processing and Value Addition	<ol style="list-style-type: none"> 1. No. of PFCS supported with bicycle, ice box and no. of farmers accessed the benefit; 2. No. of PFCS / women SHGs associated with fish processing and value addition activities; 3. No. of PFCS / women SHGs trained / oriented on fish processing / value addition; 4. No. of value chain infrastructures established in interior / less accessible pockets and scheduled areas;
Project Component 2	

Sub-Component 2.1: Support to Water Sector Reform;	1. Additional area put to irrigation, percentage of tail end area irrigated and no. of farmers benefitted;
Sub-Component 2.2: Support to Investment in Cascades	2. Increment in Rabi crop area and enhancement in gross cropped area in the tank command; 3. Average increment in income of the farmers of different social and holding groups.
Project Component 3	
Promotion of New PFCS	No. of new PFCS promoted and number of women members inducted in the new PFCS;
Capacity Building / Strengthening of PP / FPO / PFCS / SHG Etc.	1. No. of community institutions such as PP / FPO / women SHGs etc. trained on identified needs and got exposure on different learning initiatives; 2. Improvement in functionality of different community organizations due to capacity building measures.

6.5 Capacity Building Plan

The concerned officials / experts at the PMU and DPMU level will be oriented on different social aspects by which they will be equipped well to manage the social issues effectively and efficiently. The capacity building on social aspects would take in to account the current issues that may influence the project activities, measures that are required to be taken to ensure greater involvement of socially and economically backward families and deprived sections of the society. A detail capacity building plan will be prepared for different stakeholders of the project, based on the assessment of their capacity requirement, in line with the project objective and its activities.

Table 73: Capacity Building Plan (Based on Coverage of Clusters in Different Phases)

Training / Workshop	Project Level	Stakeholders	PY 1	PY 2	PY 3	PY 4	PY 5	PY 6
Orientation Training (On Project & SA-SMF)	SPMU	Project Officials / Experts						
	Sub-SPU	Project Officials / Experts						
	Staff in APC	Thematic Experts						
	Govt. Dept.	Project Officials / Experts						
	Staff of C & DM	Thematic Experts						
	DLPMT	Govt. Dept. Officials						
	TSO							
	CBO	FPO / SHG / PFCS						
Best-Practice Workshop	SPMU	All Project Staff of all levels						
Exposure Visit	SPMU	Thematic Expert/s						
	Sub-SPU	Cluster Coordinators						
	Govt. Dept.	Selected Farmers						
	DLPMT	Govt. Dept. Officials						
	CBO	FPO / SHG / PFCS						

6.6 Reporting Plan

The ID and CB expert, who will function as social expert will be reporting directly to the Project Director at the State Project Monitoring Unit level. The SPMU will prepare periodic report, preferably six-monthly report, on progress of social parameters. The report will be shared with the Project Director for feedback and preparing plan based on the findings. The institutions / agencies associated in the implementation process will also prepare their reports, covering social aspects as per the social management frame. The associated institutions / agencies / govt. departments will prepare their report on social parameters on quarterly basis and submit their report to the social expert of the SPMU. The mid-term and end-line assessment will also measure key social indicators.

Annexure:

Date	GP /Village/Block/Dist.	MIP Name	Stakeholder Consultation
15th December, 2018	Dandamunda, Chandahandi, Nabarangpur	Dhandamunda MIP	PP- Sibasakti, Dandamunda, Dept. of MI (Dist.), Fertilizer/ Pesticide Distributor
	Ganjam NAC, Ganjam, Ganjam	Jallibandha MIP	PP- Jallibandha, Ganjam, Dept. of MI, Dept. of Agriculture (Block), Fertilizer/ Pesticide Distributor,
	Patbil, Karanjia, Mayurbhanj	Bisipur MIP	PP- Bisipur Pani Panchayat,
	Ganjam NAC, Ganjam, Ganjam	Jallibandha MIP	SHG- Maa Thakurani
	Patbil, Karanjia, Mayurbhanj	Bisipur MIP	SHG- Maa Shidheswari, Dept. of MI, Fertilizer/ Pesticide Distributor
	Patbil, Karanjia, Mayurbhanj	Bisipur MIP	SHG Sanadei
16th December 2018	Dandamunda, Chandahandi, Nabarangpur	Dhandamunda MIP	SHG- Maa Mahalaxmi, Dept. Agriculture, Fishery
	Dandamunda, Chandahandi, Nabarangpur	Dhandamunda MIP	FF – Dhadipani, Chandahandi
	Patbil, Karanjia, Mayurbhanj	Bisipur MIP	FF – Badagaon, Karanjia, CCF- Simlipal, Fertilizer/ Pesticide Distributor
	Dignaria, Nilagiri, Balasore	Khaibandha MIP	FF- Dignaria Fisherfolk, Dept. of MI
	Dhobasil, Nilagiri, Balasore	Khaibandha MIP	FF – Khaibandha, Balasore
17th December 2018	Dhobasil, Nilagiri, Balasore	Khaibandha MIP	PP – Maa Gadachandi, Dept. of Fishery, Agriculture, Hatchery Unit
	Badabanga, Daringbadi, Kandhamal	Cradigappa MIP	PP – Maa Patakunda, Dept. of MI,
	Talakholaghai, Khallikote, Ganjam	Talakholaghai, Mohanpur MIP	SHG – Maa Mangala, Dept. of MI, Agriculture, Fishery
	Dignaria, Nilagiri, Balasore	Khaibandha MIP	SHG – Maa Mangala Kalyani Jon
	Badabanga, Daringbadi, Kandhamal	Cradigappa MIP	SHG – Amarjoty Biswa
18th Decemebr, 2018	Badabanga, Daringbadi, Kandhamal	Cradigappa MIP	FF- Cradigappa fisherfolk, CCF,
19th December, 2018	Ghuchepali, Patnagarh, Bolangir	Dandrabahal MIP	PP- Ganga Jamuna, Dept. of MI, Agriculture, Fishery, FPO
	Ghuchepali, Patnagarh, Bolangir	Dandrabahal MIP	SHG – Maa Bastaran Budhi, Fertilizer/ Pesticide Distributor, Hatchery Unit
	Ghuchepali, Patnagarh, Bolangir	Dandrabahal MIP	SHG- Maa Samalatori SHG, Baglabandha, Fertilizer/ Pesticide Distributor

Date	GP /Village/Block/Dist.	MIP Name	Stakeholder Consultation
20 th December, 2018	Duarsuni, Bhawanipatna, Kalahandi	Jamunasagar MIP	PP- Jamunasagar, Dept. of MI, Agriculture, Fishery, Fertilizer/ Pesticide Distributor
	Duarsuni, Bhawanipatna, Kalahandi	Jamunasagar MIP	SHG – Jagat Janani
	Duarsuni, Bhawanipatna, Kalahandi	Jamunasagar MIP	FF – Jamunasagar, Bhawanipatna
21 st December, 2018	Ganjam NAC, Ganjam, Ganjam	Jallibandha MIP	Dept. of Fishery, DFO- Brahmapur
15 th January, 2019	Bhubaneswar, Odisha	—	State Dam Safety Organisation (SDSO), Bhubaneswar
21 st January, 2019	Patbil, Karanjia, Mayurbhanj	Bisipur MIP	ITDA- Karanjia, Dept. of Agriculture
22 nd January, 2019	Badabanga, Daringbadi, Kandhamal	Cradigappa MIP	ITDA- Baliguda, Dept. of Fishery
22 nd January, 2019	Patbil, Karanjia, Mayurbhanj	Bisipur MIP	Dept. of Fishery
23 rd January, 2019	Badabanga, Daringbadi, Kandhamal	Cradigappa MIP	Dept. of Agriculture, DFO
29 th January, 2019	Harichandanpur, Keonjhar	Kalimati MIP	Dept. of MI, Agriculture
30 th January, 2019	Harichandanpur, Keonjhar	Kalimati MIP	PP- Mahabir, Mandakini SHG, FPO
31 st January, 2019	Harichandanpur, Keonjhar	Kalimati MIP	Dept. of Forest, Fertilizer/ Pesticide Distributor

Note: In addition, several round of consultation with line departments conducted at the state level



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