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Tank Irrigation, Livelihoods and Social Inclusion : A Case of Community Tanks in Odisha

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1. Introduction

Tank systems in Odisha date back to ancient times as depicted in the *Odiya Shilpa Sastra* with multiple utilities viz. drinking, bathing, irrigation etc. Such structures categorically suffice two major issues in agriculture; one, harvesting water for supply/ supplement at critical stages of crop growth and two, recharge of the ground water. Simultaneously, impounded water has been useful for pisciculture.

However, irrigation development had not made much headway in the state in the pre- independence era. Hardly 1.83 lakh hectares of irrigation facilities were created. After introduction of Five Year Plans by Govt. of India in 1951, attempts were made for rapid harnessing of water resources and much emphasis was laid to accelerate the irrigation development. A good number of major, medium and minor irrigation projects have been constructed in the state during the last six decades, thereby increasing irrigation facilities from 1.83 lakh hectares in 1951 to 38.15 lakh hectares in 2017. The irrigation facilities created through different sources are given below.

Table 1.1
Irrigation facilities created as of March 2017 (Lakh ha.)

Major & Medium	14.04
Minor (flow)	6.63
Minor (lift) & Borewells	9.98
Megalift	0.07
Other Sources	7.43

The state has a cultivated land of 61.80 lakh hectares. It has been assessed that 49.90 lakh hectares can be brought under irrigation coverage through major, medium and minor (flow & lift) irrigation projects.

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Till June 2005, the Minor Irrigation (MI) Department had 3646 MI projects (tanks) across the state, out of which 958 were diversion weirs and rest were reservoirs. Out of the total MI projects 540 were completely derelict, 844 partially derelict and the rest 2082 were functional ones and as on March 2008, altogether net irrigation potential created by MI source was 529.23 thousand hectares with irrigation intensity of 114% (Annual Report 2007-08, WR Dept.).

Keeping in view the importance of tank-based irrigation systems in the state, Govt. of Odisha in collaboration with Govt. of India with assistance from the World Bank, has initiated a project named Odisha Community Tank Management Project (OCTMP) to rehabilitate 900 MI projects in 29 districts, thus stabilizing irrigation in 1.20 lakh hectares. In order to operationalize the project, Odisha Community Tank Development and Management Society (OCTDMS) as a 'Special Purpose Vehicle' has been institutionalized in the Water Resources Department. The project envisages sustainability of restored tank systems through community participation, improvement in agricultural livelihoods of tank users and enabling legal and institutional environment for the land owners, landless and fishing folks living in the command area.

This paper attempts specifically to consolidate the learning emerging out of the 'Social Assessment' and 'Review of Odisha Pani Panchayat Act,2002' as precursors to initiation of OCTMP in March 2008. The key issues having implications on the project are inclusion & equity, cohesion, participation, transparency & accountability, decentralization, tribal development, livelihoods support, capacity building support, women involvement, convergence and ownership of systems. Further, policy- level interventions are needed to institutionalize the participation of all stakeholders living in tank systems viz. fishing-folk, women and other marginalized groups in the decision-making of Pani Pancahayat, to make it more socially inclusive and pervasive.

2. Background of Tank Irrigation in Odisha

Odisha occupies 4.74% of India's landmass and houses 3.58% of the country's population. Nearly 85% of its population live in the rural areas and are dependent on agriculture and allied activities for their livelihood. Irrigation is the most important input for agriculture and plays a vital role in achieving food production and productivity. As far as water requirement for agriculture sector is concerned, the state requires 18 BCM of surface water and 4.688 BCM of ground water only. Considering the competitive use of water, the surface and ground water available in the state is apparently sufficient for the agricultural requirements in the state. The total cultivated land of the State is nearly 6165 thousand hectares, of which the irrigation potential of 44.7% i.e. 2758.142 thousand hectares land in Kharif season and 21% i.e. 1294.920 thousand hectares land in Rabi season had been created by end of

March, 2007. Thus, the major concern before the state is to utilize the water effectively in improving production and productivity of the crops thereby impacting the livelihoods of the people at large.

Tank based irrigation comes under the ambit of the MI department with Ayacut of each tank ranging from 40 ha to 2000ha. By the end of June 2005, the department had 3646 MI projects, of which 844 were Partially Derelict, 540 were Completely Derelict and 2082 were functional (MI Booklet 2005). In the Kharif season, 8.4% (i.e. 519.02 thousand hectares) of the total 44.7% irrigation potential created in the state is contributed by the minor (flow) irrigation sources. The ultimate irrigation potential to be created under minor (flow) irrigation is about 970 thousand hectares as against the current 519.020 thousand hectares (Annual Report 2007-08, WR Dept.).

There has been steady decline of tank management systems due to the extensive reliance on the Government and decline of village level institutions. The social cohesion of the past has degenerated resulting in dependence on external intervention either through the Government or through the NGOs. There has been decreased interest of villagers in matters of common welfare and management of common property. There is a high degree of open political affiliation and affront leading to no decision-making in the village meetings and lesser stake of less vocal groups in village meetings. There has been a consistent increase in both intra and inter-village conflicts and regular violation of established norms of the village regarding water distribution and management. Once viewed as sustainable institutions, these structures have now become dilapidated. Hundreds and thousands of physical structures still exist in Odisha but with limited ownership of people and a high degree of dependence on Government for operations and maintenance.

3. Development Interventions

In Odisha, before the MI department under the WR department took over the responsibility, various other departments were engaged from time to time for tank systems development. Till 1962, tanks were constructed and renovated under the Revenue Department of Odisha. From 1962 to 1980, the Rural Engineering Organisation (REO) was responsible for construction, operation & maintenance of tank systems / minor irrigation projects in Odisha. In 1980, REO was abolished by the state Government and transferred the control of MI projects to Irrigation and Power Department, subsequently; the Rural Development (RD) department took over the responsibility in 1990. Finally, in 1996, the MI department was created under the administrative control of WR department and was entrusted with the overall responsibility of construction, operation & maintenance of tank systems/MI projects. Since then, the MI department has been exclusively engaged in managing development of MI projects in the State.

The schemes/programmes implemented for development of the Minor Irrigation (flow) sector are:

- Accelerated Irrigation Benefit Programme (AIBP)
- Rural Infrastructure Development Fund (RIDF)
- Repair, Renovation & Restoration (RRR) of Water Bodies
- Biju Krushak Vikash Yojana (BKVY)
- European Commission Aided "Odisha Minor Irrigation Project"

4. Policy Interventions

The legal and policy framework developed by the state Government for optimum utilization of irrigation facilities in the State are viz.

- Odisha Irrigation Act & Rule, 1959
- Odisha Pani Panchayat Act, 2002 & Rule, 2003
- State Water Policy, 2007
- Reservoir Fishery Policy, 2006

5. Odisha Community Tank Management Project (OCTMP)

Keeping in view the importance of tank-based irrigation systems in the state, the Government of Odisha (GoO) with support from Government of India (GoI) has initiated the OCTMP with loan assistance from the World Bank. The project planned to rehabilitate 900 tanks out of the 3646 MIPs existing in the state, covering a total command area of 1.20 lakh hectares spread across 29 districts during 2008-2014. To operationalise the project, Odisha Community Tank Development and Management Society (OCTDMS) as a 'Special Purpose Vehicle' have been institutionalized in Water Resources Department. The overarching objectives of the project envisaged sustainability of restored tank systems through community participation, improvement in agricultural livelihoods of tank users and an enabling legal and institutional environment for the both land owners, landless and fisher folks living in the command area.

In light of the above project requirements, two studies viz. "Social Assessment" and "Review of Odisha Pani Panchayat Act, 2002" were conducted in alignment with the GoO, GoI and the World Bank safeguard requirements, policies, regulations and guidelines. A total of 45 sample tanks under Minor Irrigation Department were undertaken for the two studies covering all the Agro-Climatic Zones as depicted in Table 5.1.

Table 5.1
Sample Tanks for the Studies in different agro-climatic zones and districts

Sl No.	*Agro-Climatic Zones*	*Name of the Districts*	*Sample Tanks for the Studies*	
			Social Assessment	*Review of Odisha Pani Panchayat Act*
1	East South Coastal Plains	Cuttack	1	-
2		Ganjam	3	1
3		Khurda	1	1
4		Nayagarh	1	1
5	North Eastern Ghats	Boudh	1	-
6		Kandhamal	1	1
7		Ganjam	2	3
8		Raygada	2	-
9		Gajapati	1	3
10	Eastern Ghats High Land	Nawarangpur	1	-
11		Koraput	-	1
12	South Eastern Ghat	Koraput	1	-
13		Malkangir	-	1
14	Western Undulating Lands	Kalahandi	1	-
15		Nuapara	-	1
16	West-Central Table Lands	Bolangir	1	-
17		Sambalpur	1	-
18		Bargarh	1	-
19		Jharsuguda	1	-
20	Mid Central Table Lands	Angul	1	2
21	North Western Plateau	Sundargarh	1	2
22	North Central Plateau	Keonjhar	1	1
23		Mayurbhanj	1	1
24	North Eastern Coastal Plane	Jajpur	1	1
		Total	**25**	**20**

6. Diversity in Tank Irrigation

The projects handled by MI department are of two types i.e. (i) tank/reservoir-based project and (ii) diversion weir project. Out of 3646 minor (flow) irrigation projects, 2663 are tank/reservoirs and the rest 958 are diversion weirs. Both the types of projects, whether tank/reservoir-based project or diversion weir project, use rain water by either storing it or diverting it from a stream, *nala* or river for irrigation. The tracts with undulating topography and rocky sub-strata in the southern, western and a part of the northern side of Odisha are mostly found suitable for tank irrigation. Therefore, 40% of the total MI projects are located in the western and southern part of Odisha. In most of the tank systems in Odisha, field to field irrigation is being practiced resulting in huge water loss. The water loss is mainly because of heavy

seepage, leakage, percolation, evaporation and also because of undue tampering of distributaries by the farmers. The major sufferers are the farmers in the tail and middle reach area.

6.1. Diversity in Tank Uses

In Odisha many social, cultural and economic activities of people revolve around tank systems. The uses of tank systems can be broadly categorized as direct and peripheral uses as presented in Table 6.1.

Table 6.1
Uses of Tank System

Direct Uses	*Peripheral Uses*
• People use tank water for irrigation. • Fishery in the tank reservoir • Drinking especially for livestock • Domestic purposes such as cooking, cleaning, bathing etc. • Bathing of livestock • Maintaining rituals and ceremonies • Duck rearing • Fingerling cultivation • Fodder cultivation • Washer men • Traditional activities like pottery, bell & brass metal works etc. • Recharging the other peripheral water bodies	• Silted tank bed clay for pottery, bricks, earth works for houses and for improving productivity of agricultural land • Vegetative cover around the tank bed and in the catchment area is used for cattle grazing • Fuel wood from the vegetative cover around tanks • Maintain the ecological balance of the area

6.2. Stakeholders Diversity

A list of all the stakeholders identified in the sample study at village level is presented below in two categories, viz. direct beneficiaries and indirect beneficiaries.

Table 6.2
Categories of Beneficiaries

Direct Beneficiaries	*Indirect Beneficiaries*
1. Farmers i) Big & medium farmers ii) Small & marginal farmers iii) Share croppers (from the landless and small & marginal farmers groups) iv) Women SHG members (own land or take land on lease for vegetable or other crop cultivation at individual or group level)	1. Rice mill owners 2. *Traders (buyers)* i) Vegetable vendors ii) Rice traders iii) Fish traders 3. *Various community level institutions* i) Youth clubs ii) Village work committee

contd. table 6.2

Direct Beneficiaries	*Indirect Beneficiaries*
v) Fodder cultivators vi) Tank bed encroachers vii) Catchments area encroachers 2. Pani Panchayat 3. *Fishery group* i) Primary Fishery Cooperative Society ii) SHG group involved in Fishery iii) Individual private contractors iv) Traditional fisherman group v) Fingerling cultivators vi) Other villagers (those who catch fish in the tank canal system) 4. Agricultural Labourers 5. Cattle grazers i) Households those who have taken cattle grazing as their occupation ii) Households those who have livestock 6. Brick makers i) Households prepare bricks for their own purpose ii) Households prepare bricks for sale 7. Traditional occupation groups i) Potters ii) Washer man 8. Duck rearers 9. *Waterman* (appointed by Pani Panchayat or WUA members) 10. *Common villagers* (using tank for drinking water, bathing, toilet, washing clothes, observing rituals) 11. *Tribal and Scheduled caste groups* (although they are part and parcel of above stakeholder groups but because of their vulnerability the study has identified them as important stakeholder groups) 12. *Private contractors* (tank renovation, O&M work) 13. Ward member (PRI) 14. Government Functionaries i) Amin & Chain Man (Revenue department) ii) Amin / Khalashi (Minor Irrigation department) iii) Forest guard (Forest department) iv) Village Agriculture Worker (Agril. Dept.) 15. CBO / NGO functionaries	4. *Retailers* (sellers of products like agriculture seeds, pesticides, fertilizers and implements) 5. *Local informal credit institutions* (money lenders, mahajan, etc.) 6. *AWW & ANM* 7. Traditional occupation groups i) Carpenters ii) Black smith iii) Mason

6.3. Socio-economic diversity

As per the Social Assessment study, altogether 340 households (HHs) were surveyed in 25 sample tanks, maximum 40.3% (137 HHs) belong to Other Backward caste, 33.2% (113 HHs) belong to Scheduled Tribe communities followed by 17.1% (58 HHs) belong to Scheduled Caste communities and the rest 9.4% (32 HHs) belong to General caste communities. Almost half of the total households i.e. 48% (163 out of 340 HHs) reported having marginal land holdings i.e. below 2.5acres, of them again half (i.e. 78 out of 163 marginal land holders) possessed land below 1 acre. The next highest i.e. 22.4% (76 out of 340 HHs) had small land holdings between 2.5 to 5 acres. Besides small and marginal land holders, about 10% i.e. 34 HHs were completely landless practicing share-cropping in the tank command areas. The aggregation of percentages of small, marginal and landless households comes to around 80%. The rest 20% HHs were from medium and big land holders category (13% i.e. 44 HHs had land holding between 5 to 10 acres and 7% i.e. 34 HHs possessed more than 10 acres of land).

Table 6.3
Social Assessment Study

Total Numbers of Households Surveyed in the Social Assessment Study	*Diversity*	*Salient Findings*
340	**Socio-economic diversity**	40.3% (137 HHs) OBC, 33.2% (113 HHs) ST 17.1% (58 HHs) SC and the rest 9.4% (32 HHs) General caste communities.
340	**Agricultural livelihoods diversity**	94% (319 HHs) Organic Manure, 87% (295) Chemical Fertilizers, 28% (95) Pesticides
234	**Institutional diversity in the Pani Panchayats (PPs)**	38.5% (90 HHs) Members of the PP 61.5% (144 HHs) Not members of this farmers' association (PP)

6.4. Agricultural Livelihoods

The HHs in the 25 sample tank systems carried out cultivation of paddy, ragi, maize, mung, biri, groundnut and vegetables in the Kharif season. While majority i.e. 329 out of 340 HHs preferred to do paddy cultivation, very few numbers of households cultivated other crops like ragi, maize, mung, biri, groundnut and vegetable in Kharif season. The paddy yield calculated as per the survey comes to around 9.4 quintal per acre which is little higher than the average yield in Odisha i.e. 8.98 quintals per acre in Kharif season (Agricultural Statistics, GoO 2005-06). Unlike Kharif season, maximum

numbers of households in Rabi season cultivated the following mung (75 HHs), biri (42 HHs) and vegetables (19 HHs) cultivation.

Almost all households used their own seeds (saved from last year) for cultivation. For example, 306 out of 329 HHs (those who do paddy cultivation in Kharif season) used their own seeds for cultivation. Near about 67 HHs purchased seeds from government certified sources and about 19 HHs purchased from other farmers in the village. All most all HHs i.e. 319 (94%) out of 340 HHs applied Farm Yard Manure or organic fertilizers in their field. However, almost same percentage of HHs (87% i.e. 295 out of 340 HHs) applied chemical fertilizers. Use of pesticides as compared to chemical fertilizers was quite less as only 95 HHs i.e. 28% of the total HHs.

About 66% HHs had their own bullock. Only half of the HHs i.e. 54% had cows followed by 37% owned hens and 22% had goats. Only 8% and 5% HHs had buffalos and sheep respectively. Out of 25 sample tanks visited, only 10 tanks have been given on lease for pisciculture. The rest 15 tanks have not been given on lease due to two reasons i.e. i) complete damage of tank reservoirs and ii) weed infestation or stumps in the tank reservoir which makes the tank unsuitable for pisciculture. Of those 10 tanks leased out for pisciculture, 6 have been given to women SHGs, 3 tanks have been given to individual private party and the rest one tank has been given to Primary Fishery Cooperative Society for pisciculture. Interestingly, of the 6 tanks leased out to women SHGs, 2 of the groups have subsequently leased out to individual private party and one SHG has handed over the tank lease to the male members of their family for pisciculture. The lease amount collected from the lease owners varies from a minimum of Rs.5, 000/- to a maximum of Rs.40, 000/- based on the size of tanks.

6.5. Profile of Pani Panchayats (PPs)

Out of the 25 tanks visited under Social Assessment, the study revealed existence of Pani Panchayat in 19 tanks. In rest of the 6 tanks, the Pani Panchayat has not yet been constituted. The study covered a total number of 265 households in those 19 tanks having PPs, of them 234 households were eligible to be the member of the Pani Panchayat and the rest 31 households were not eligible because they had no land in the tank ayacut. Out of these 234 eligible households only 38.5% i.e. 90 households said that they were members of the PP and the rest 61.5% i.e. 144 households informed that they were not members of this farmers' association. When these 144 households were asked about the reasons of non-membership in the PPs, around 77% (111 households) informed that they did not know about the existence of PP in their village. Around 88 households (61%) informed that no one from the government or from the village has ever approached them to become members

of the PPs. The 90 households who are members of the Pani Panchayat, maximum i.e. 78 (87%) households know that the PP has a General body and 81 (90%) households know about the existence of Executive body of Pani Panchayat. However, the rest 12 (13%) households and 10 (11%) households do not know about the existence of General and Executive body respectively.

7. Critical Issues

The critical issues can be broadly categorized into three areas namely; awareness / sensitivity related issues; capacity level issues of community level institutions and beneficiaries; and public policy and system level issues with an aim to assist the project to have an effective strategy and interventions for creation of an enabling environment in the community so that effective stakeholder consultation and participation can be ensured.

7.1. Awareness/sensitivity related issues

- Dominance of big-farmers in PP for distribution of water, controlling decisions.
- Low awareness level of small & marginal farmers and landless-sharecroppers on functioning of PP, public systems/ policies, their water rights and revenue collected, etc.
- Low awareness among ST and SC community on government provisions and schemes.
- Lack of interest of marginalized sections (such as SCs, STs, Small & Marginal farmers and landless share croppers) in tank system management.
- Lack of awareness of women SHG members / PFCS on government norms & policies for undertaking pisciculture and about the need and functioning of PPs
- Lack of awareness and sensitivity of Sarpanch/Ward Members especially in connection to leasing out tanks for pisciculture
- Lack of interest towards making contribution both financially and non-financially for tank renovation and management.

7.2. Capacity level issues of community level institutions and beneficiaries

- Lack of understanding to take up community level micro-planning
- Lack of understanding on how to assess their own problems and needs and prioritize them accordingly.

- Lack of understanding on how to form people's institution whether it is PP or another society/CBO/group
- Lack of knowledge and skills of PP members on functioning and management of PPs
- Lack of mobilization skills of executive body members of PP
- Lack of knowledge and skills of women SHGs to take up pisciculture
- Lack of negotiation skills for resolving inter and intra stakeholder conflicts and personal differences
- Lack of understanding on how to apply for different provisions and schemes under government programmes
- Lack of negotiation / advocacy skills for availing services of various public and private agencies and creating pressure on government for some system and policy level changes
- Lack of knowledge and skills to take-up cash cropping
- Lack of knowledge and skills on other tank-based livelihood options such as brick making, fingerling culture, duck rearing, grass cultivation, etc.
- Lack of knowledge on how to improve PP revenue and manage records/ books of accounts maintained under PP
- Lack of knowledge and skills on equitable distribution of tank system benefits and their monitoring and supervision
- Lack of knowledge of PP on how to execute and assist MI in tank renovation work
- Lack of knowledge on how to avail subsidized seed, fertilizer and pesticide license from government and start extension counter in their village/in Pani Panchayat
- Lack of knowledge on marketing of products from various tank-based livelihood options

7.3. Public policy and system level issues that affect community stakeholders

- Lack of system or policy for convergence between various groups of stakeholders in the community e.g. convergence between pisciculture group and PP group
- Lack of policy or norms for equitable distribution of tank water i.e. who should get how much water?
- In-adequate provisions in the policy for representation of various departmental staff in the PP for promotion of integrated livelihood options
- Lack of convergence between Panchayat level and other departmental initiative in the village

8. Project system design to address the issues

8.1 Inclusion and equity: While selecting the tanks for renovation, the major issue before the project is to identify, the districts and the blocks (under each district) that need to be included so that the most marginalized population of the state gets the maximum benefit out of the investments proposed under the project. Keeping in view of this, the tank selection criteria has been developed by OCTMP on the basis of findings of various preparatory studies undertaken in the project. The details about the tank selection criteria are presented below:

i) Tanks in which major repairs/renovation has been taken up during last five years under any scheme of GoI or GoO have been deleted

ii) Tanks have not been considered where the gap ayacut i.e. difference between the designed ayacut and the actual ayacut is less than 20%

iii) Completely derelict tanks have been ignored except the smaller ones (40 ha to 100 ha ayacut) which can be renovated with stipulated cost norms.

8.2. Cohesion and stakeholder participation

Various community level institutions such as Pani Panchayat, Fishery Cooperative Society and other community level groups will be promoted with an aim to use them as a vehicle to enhance the level of stakeholder participation and also use them to resolve community level conflicts. The following social and institutional interventions have been planned under the project to ensure cohesiveness within the community and activate stakeholders' participation:

- Creation of an enabling environment by resolving inter and intra stakeholder groups conflicts at the community level through sensitization and awareness generation programmes
- Formation of water user associations at tank level and a network of water users at the Block/ cluster of tank level
- Capacity building or training (class room & on-field training) or orientation of various stakeholders
- Preparation of an integrated micro level plan by various stakeholders and role delineation among different stakeholders
- Mobilization of tank users' participation in tank renovation work and in operation & maintenance work
- Community level monitoring and supervision
- Handing over of project management work to tank users' association

8.3. Transparency and accountability

The project operational structure has been designed in line with maintaining a transparent and accountable system starting from state level to tank level. A three-tier project operational structure viz. State level, District level and Tank-Village level has been developed for implementation of the project. At the State level Odisha Community Tank Development and Management society has been set-up under Department of WR to coordinate the overall implementation of the project. Under the society, a State Project Unit has been established, headed by a Project Director which consists of six operational units such as Technical, Livelihoods, Institution Building, M,E&L unit, Communication and Financial Management and Procurement Unit. A District Level Steering Committee will be also formed, headed by District Collector as the Chairman of the committee. Apart from state and district level set up, Support Organizations will be appointed by the district units to execute the operational plan at the tank level along with MI department. In order to establish an accountable and transparent mechanism, greater emphasis has been given to establish an M&E system that provides timely and necessary information for achieving the same. Therefore, from the very beginning the project would like to set clear deliverables for which process has been started to establish baseline status and set up output/process, outcome and impact indicators so that the progress against the same can be measured from time to time.

8.4. Decentralization

The OCTMP established a decentralized governance mechanism in implementation of project. The basic idea behind this is to adopt a need-based implementation mechanism instead of going for a top-down approach of implementing a project. The advantage in this is to design and implement a programme based on exact requirements of people.

The initiatives that have already been taken are as follows:

- Carried out social, hydrological, institutional and livelihood assessment studies prior to implementation of the project – using participatory tools with an aim to provide scope to stakeholders to assess and analyze their own problems and priorities and then suggest measures to address the same.
- Conducted state and district level stakeholder consultation workshops which was participated by stakeholders at tank, block, district and state level. In these workshops, the project discussed the problems and priorities of people and took inputs and suggestion from stakeholders on overall project planning and designing.

- Designed the project operational structure in such a way where greater emphasis is being given to District Project Unit to lead the whole implementation process starting from planning to decision making and project management. As per this operational structure, the district Collector will be the Chairman of the DPU and the Executive Engineer will act as the District Project Director. The funds will be placed to District Project Unit for implementation of project activities at district level. As the Chairman of district project unit, the district Collector will review and approve the planning process and implementation of activities.
- Preparation of tank level microplans in capturing the location specific issues
- After renovation the tanks would be handed over to Pani Panchayats for Operation & Maintenance
- Inter-departmental coordination for dovetailing of funds and resources at PP level.

8.5. Livelihoods Support

The critical analysis of the agriculture livelihoods system prevailing in the tank command villages has been done with specific reference to agriculture, horticulture, livestock, fisheries production and marketing sub-systems so as to identify the specific reasons that contribute to the poor performance of the agricultural and horticultural crops, livestock products and cultured fish production and the possible strategies and set of activities for improvement in production, productivity and profitability of the agricultural commodities. All these need to be carried out for each tank system, involving the community and the agriculture line departments. Institutional arrangements have been done from the state to tank level to ensure effective coordination among the agriculture line departments and implementation of the programmes. The project supports the delivery of appropriate extension services in impacting the livelihoods of the whole of the community living in the tank command area. Further, the project includes landowners, landless, traditional fisher folks, women, tribal and other marginalized stakeholders while delineating livelihoods improvement strategies.

8.6. Convergence

Specific emphasis has been laid in this project to achieve inter departmental coordination so that an integrated development approach can be adopted under the project

The plans that have already been made in this regard are as follows:

- Setting up of District Project Unit under the Chairmanship of District Collector so that the Collector who is the head of the district can actually take up initiatives to bring all the departments in one platform and dovetail / channelize resources for the benefit of common mass under the tank system.
- Taking support of Revenue, Fisheries, Panchayati Raj, SC&ST Development and Agriculture and allied Departments channelising infrastructural and resource support.

8.7. Capacity Building and Capacity Support

For effective execution of project deliverables, the OCTMP took-up the following capacity building measures at the community level:

- Understanding to take up micro level planning
- Capacity to assess own problems and priorities
- Capacity to form water users' institution
- Knowledge and skills to manage water users' institution
- Technical skill to take-up tank operation and maintenance work
- Skills to mobilize community for generation of community contribution
- Knowledge and skills to take-up various tank-based livelihood options
- Negotiation skills for resolving inter and intra stakeholder conflicts and personal differences
- Advocacy skills to demand for services
- Apart from the above capacity building initiatives, decision has been taken to employ Support Organizations which would provide support at the tank level on community mobilization, livelihood promotion; facilitation of linkage between community with various government departments, financial institutions and market; etc.

8.8. Land Acquisition

The land acquisition is expected to be minimal. However, there might be some encroachment of existing land under the reservoir area. Besides, land will have to be acquired for tank systems where distributary systems are non-existent or not correctly aligned. In view of this a detail framework has been designed in consonance with Rehabilitation & Resettlement Policy of Govt. of Odisha.

8.9. Tribal Development

Considering poor socio-economic backwardness and vulnerability, development of tribal especially in the Scheduled Areas of the state is being given utmost importance in the project. As per the study findings, the specific issues that would require project interventions are: lack of awareness and access to information; subsistence resource base; dominance of other caste groups; poor access to credit, market and other institutions; lack of capacity to manage O&M of tanks; limited practice of alternative livelihoods; etc. In order to address such issues, a detail Tribal Development Plan has been developed and while developing tank specific micro plans, those need to be included for the tanks coming under scheduled areas.

8.10. Policy Intervention

In order to make the Pani Panchayats more inclusive the interest of the traditional fisher folks living in tank command villages needs to be taken care. This can be made more effective by adopting enabling policy initiatives so as to include traditional fisher folks and other marginalized section including women into the primary membership of Pani Panchayats. Further after renovation and repair of the projects, the collection of water taxes can be handed over to the members of Pani Panchayats for actualizing ownership. This would require amending the Odisha Pani Panchayat Act, 2002, which has already been initiated.

9. The Current Developments

By end of March 2017, renovation & improvement works of 332 tanks covering CCA of 64237 hectares were completed.

9.1 Irrigation Potential Utilization • The irrigation potential created and utilised since 2000-01 is given in table 9.1:

The gap between potential created and utilised is attributed to many factors, but the main reasons are defunct LIPs, MIPs, deterioration of distribution systems of irrigation projects. Initiatives have been taken to minimize the gap between potential created and utilised. Canal system improvement works in some of the major and medium irrigation projects were completed through different schemes. At present following schemes are being implemented to minimise the gap between potential creation and utilization:

- State funded Canal Lining and System Rehabilitation Programme (CLSRP) and RIDF • funded by NABARD are being implemented for canal system improvement works of major, medium and minor irrigation projects.

Table 9.1
Status of Irrigation Potential Created & Utilised

Year	*Irrigation Potential Created (Th. Ha.)*			*Irrigation Potential Utilized (Th. Ha.)*			*% of Utilisation*
	Khariff	*Rabi*	*Total*	*Khariff*	*Rabi*	*Total*	
2000-01	2533.83	1071.99	3605.82	1589.88	535.84	2125.72	58.95%
2001-02	2554.26	1117.63	3671.89	1752.27	793.64	2545.91	69.34%
2002-03	2608.59	1123.75	3732.34	1246.81	465.21	1712.02	45.87%
2003-04	2674.12	1161.21	3835.33	1737.49	780.87	2518.36	65.66%
2004-05	2707.27	1266.22	3973.49	1845.79	844.87	2690.66	67.72%
2005-06	2731.50	1294.92	4026.42	1922.70	1042.79	2965.49	73.65%
2006-07	2720.46	1318.52	4038.98	2001.98	1147.47	3149.45	77.98%
2007-08	2765.73	1342.06	4107.79	2027.00	1281.46	3308.46	80.54%
2008-09	2867.01	1407.18	4274.19	2081.13	1096.03	3177.16	74.33%
2009-10	2962.21	1476.81	4439.02	2058.85	979.67	3038.52	68.45%
2010-11	3035.85	1477.97	4513.82	2085.21	1020.70	3105.91	68.81%
2011-12	3089.34	1501.43	4590.77	2078.90	1009.18	3088.08	67.27%
2012-13	3130.51	1573.56	4704.07	2186.86	1178.73	3365.59	71.55%
2013-14	3352.94	1651.79	5004.73	2253.67	1267.35	3521.02	70.35%
2014-15	3457.47	1696.56	5154.03	2327.00	1134.00	3461.00	67.15
2015-16	3670.91	1803.48	5474.39	2241.41	1052.94	3294.35	60.17

- A new scheme "Revival of defunct LIPs" commenced to revieve defunct LIPs.
- Odisha Comunity Tank Management Project (OCTMP) funded by World Bank and RR&R funded by Government of India are being implemented for rehabilitation / modernisation of derilict / partly derilict MIPs.
- Canal system improvement work of 11 major and medium irrigation projects and 1400 lift Irrigation projects are also being implemented under ADB funded Odisha Integrated Irrigated Agriculture and Water Management and Investment Projects (OIIAWMIP).
- In-addition to above, CAD & WM works have been scaled up in different major and medium irrigation projects to minimise the gap.

9.2 Major & Medium Irrigation Sector It has been assessed that 31.30 lakh hectares cultivable land can be brought under irrigation through major & medium irrigation projects. By end of March 2017, irrigation facilities of 14.04 lakh hectares has been created excluding Mega Lift Projects. At present 18 major & medium irrigation projects to provide irrigation to 4.09 lakh hectares are in progress. Following table represents the status of ongoing major and medium irrigation projects in the state as on 31.03.2017

Table 9.2
Status of Ongoing Projects

Sl. No.	*Name of the Projects*	*Financial ('in Crore) Latest Cost*	*Total Expdr by 03/2017*	*Balance Cost*	*Irr. Potential Status (Th. Ha.) Designed*	*Total Potential Created by March 2017*	*Balance Potential*	*Target year of comp-letion*
A	*Major Irr. Projects*							
1	Subarnarekha	4728.28	3369.08	1750.8	67.4	37.73	29.67	2019-20
2	Rengali RBC	1962.33	1498.41	463.92	84.41	16.47	67.94	2019-20
3	Lower Indra	1753.64	1517.72	235.92	29.9	18.56	11.34	2018-19
4	Lower Suktel	2448.09	871.20	1576.89	23.5	0	23.50	2019-20
5	Anandapur	2990.05	957.20	2032.85	60	0	60	2019-20
6	Kanupur	2438.29	1390.20	1048.09	29.58	0	29.58	2019-20
7	Rengali LBC	3603.67	563.48	3040.19	39.42	0	39.42	2021-22
8	MCII	395.46	267.20	128.26	15.34	9.41	5.93	2018-19
	Sub-Total (A)	**20319.8**	**10434.09**	**10276.9**	**349.55**	**82.17**	**267.38**	
B	**Medium Irr. Projects**	**1**		**2**				
9	Telengiri	992.85	687.37	305.48	9.95	0	9.95	2018-19
10	Ret	768.46	382.32	386.14	8.50	0	8.5	2018-19
11	Cheligada	207.01	174.04	32.97	3.80	0	3.8	2019-20
12	Rukura	296.98	255.63	41.35	5.75	2	3.75	2017-18
13	Deo**	375.75	216.19	203.27	9.90	0	9.9	2018-19
14	Manjore**	417.56	299.65	159.56	6.78	4.3	2.48	2018-19
15	Mahendratanaya**	77.82	23.50	54.32	2.00	0	2	2018-19
16	Hadua**	323.23	46.87	276.36	3.95	0	3.95	2019-20
17	Baghalati**	186.13	175.14	10.99	6.22	6	0.22	2017-18
18	Rajua**	35.27	15.67	19.60	2.69	0	2.69	2017-18
	Sub-Total (Med)	**3681.06**	**2276.38**	**1490.04**	**59.54**	**12.30**	**47.24**	
	Total (A+B)	**24000.8**	**12710.87**	**11766.9**	**409.09**	**92.47**	**316.62**	
C	M. I. Projects(158)	[7]215.93	30.89	[6] 218	43.41	11.13	32.28	Mar-19
	G.Total	**24216.8 0**	**12741.76**	**11984.9 6**	**452.50**	**105.60**	**346.90**	

** cost to be approved by State TAC

9.3. Minor Irrigation (Flow)

It has been assessed that 9.70 lakh hectares of cultivable land can be provided irrigation facilities through minor (flow) projects. By end of March 2017, irrigation facilities has been created in 6.63 lakh hectares. MI organisation of DOWR is looking after construction, operation and maintenance of Minor Irrigation (flow) projects with irrigation command area more than 40 hectares. The MIPs with irrigation command area less than 40 hectares are looked after by Panchayati Raj Department.

9.4. Lift Irrigation

It has been assessed that 8.90 lakh hectares of cultivable land can be provided irrigation facilities through micro Lift Irrigation Projects. By end of March 2017, irrigation facilities of 6.65 lakh hectares has been created. Besides, irrigation facilities of 3.33 lakh hactares created through recently launched Bore well and Jalanidhi-II Programmes.

9.5. Schemes / Programmes

The following Schemes / Programmes are being implemented for irrigation development.

- Accelerated Irrigation Benefit Programme (AIBP)
- Rural Infrastructure Development Fund (RIDF)
- Biju Krushak Vikash Yojana (BKVY).
- Japan International Co-operation Agency (JICA)
- Odisha Integrated Irrigated Agriculture and Water Management Investment Programme (OIIAWMIP)
- Odisha Community Tank Management Project (OCTMP)
- Dam Rehabilitation and Improvement Project (DRIP)
- Check Dam construction programme.
- Deep Bore-well irrigation programme.
- Repair, Renovation, Restoration of water bodies. (RR&R)
- Megalift Construction Programme.
- Canal Lining & System Rehabilitation Programme (CLSRP)
- Revival of defunct LIPs.

10. Conclusion

In consonance with the overall National Framework of GoI, the Odisha Community Tank Management Project (OCTMP) had been conceived with an overarching project objective for selected tank-based producers to improve agricultural productivity and water users' associations to manage tank systems effectively. The project design had set its priorities on the following key outputs and outcomes

- ☞ Sustainability of the restored tank systems through community participation and empowerment.
- ☞ To create enabling legal and institutional environment to implement the solutions emerging out of participatory and demand driven processes.

- To improve the production and productivity of selected agricultural commodities in tank command area and enhance livelihood options.
- Community contribution is to be made compulsory. The suggested extent is about 10% of the total project cost out of which 5% may be kind and the remaining cash.
- Although the project seems likely to benefit the farmers (land owners) more, however it includes the whole of the tank user community involving other users like landless farm families, livestock owners, fishermen community etc.

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