

**DRAFT**

**STANDARD OPERATING PROCEDURE**

**FOR IMPLEMENTATION OF**

**GCF Project**

**on**

**Ground Water Recharge and Solar Micro-Irrigation to Ensure Food Security and Enhance Resilience in Vulnerable Tribal Areas of Odisha.**

## **Introduction**

About 10,000 community tanks (1000 under Minor Irrigation and 9000 under Department of PR & DW) spread across 15 Districts Baragarh, Bolangir, Boudh, Gajapati, kalahandi, Kandhamal, Keonjhar, Koraput, malkangiri, Mayurbhanj, Nabarangpur, Nuapada, Rayagada, Sambalpur and Sonepur will be taken up under this project covering 163 GPs shall be received & restored to enhance ground water recharge by installing recharge shafts to provide Micro Irrigation on pilot basis using Solar pumps. The project aims to ensure Water and food security under climate resilient livelihood Interventions.

Project Cost :	Rs. 1097.56 Cr with the following break-up
Govt. Of Odisha Contribution:	Rs. 777.05 Cr (MGNREGA Convergence)
GCF Contribution as grant:	Rs. 226.76 Cr
Community Contribution:	Rs. 93.75 Cr

The project shall be implemented in 5 years through 2020 to 2025.

### **1.1 Identification of Tanks**

- Existing tanks under Minor Irrigation and under the Department of Panchayati Raj and Drinking Water shall be taken up for renovation and restoration under this project.
- Tanks having minimum water spread area of One acre and having defined inlets only shall be selected.
- At least one side of the tanks should be open to allow free entry of surface runoff.
- Tanks having surplus escape and other outlets shall be preferred.

### **1.2 Base line study for 10,000 Tanks**

- To develop data base of each tank pre project base line study shall be conducted.
- A definite format shall be developed to capture the required geo-spatial information.
- Baseline survey shall be executed through experienced agencies to be selected through National Competitive Bidding process on QCBS consultancy process.
- If required more than one shortlisted agencies may be engaged to take up the works at the lowest quoted and approved amount to complete the work in time.

- OCTDMS will supervise baseline survey and generation of Database.
- On completion of the project, fresh survey shall also be conducted to ascertain if desired results have been acquired.

### **1.3 Tank improvement plan & estimate for recharge shaft installation.**

- Identical estimates shall be prepared for all tanks to improve its water retention capacity to maximum extent possible.
- The excavation of the tank shall be up to 1.0 m below the dead storage level or present bottom most level.
- The excavated earth shall be utilized to strengthen the embankments of the tanks and other useful purpose without causing public nuisance or environment problem.
- The Tank improvement work under MI shall be executed through tender and under PR & DW Deptt. through MGNREGS following due procedure.

### **1.4 Installation & maintenance of Recharge Shaft**

- The detail design of the recharge shaft shall be finalized by Chief Engineer, Ground Water Development and the desired spacing of the recharge shafts for effective recharge of Ground water shall also be finalized by Chief Engineer, Ground Water Development.
- The installation shall be made through tender process by OCTDMS & shall be supervised by MI/ PR & DW/CE, Ground water.
- Periodic maintenance shall be made by beneficiaries under supervision of Tank Owners (MI/ PR&DW) & OCTDMS for effective recharge of ground water.

## **Output 2**

### **2.1 Tank water level assessment, Renovation & Sinking of dug wells.**

- The maximum & minimum water level of the Tanks shall be assessed from local enquiry- Historical data shall be collected.
- Deepening of the tank shall be made up to at least 0.6 m below the dead storage level /historical lowest level of water.
- The entire area within the maximum Water level/ historical highest level of water shall be deepened if private land is not involved.
- The ground water level of the vicinity area shall be also be assessed from existing Wells/Tube wells.

- Required no. of dug wells shall be created in the tank command area in consultation with GW authority for extraction of ground water for micro irrigation purpose.

## **2.2 Crop water budgeting**

- The soil characteristics of the locality shall be determined by appropriate laboratory tests only.
- The broad agro-climatic zone of the area shall be determined.
- Cropping pattern suitable for Micro Irrigation shall be finalized in consultation of Agriculture/Horticulture experts and WUA/PP.
- Crop water budget shall be prepared to limit the area of cultivation & type of crop to make the cultivation sustainable.

## **2.3 Water sharing master plan**

- A water sharing master plan shall be prepared in consultation with all stakeholders.
- If required, the available water can be shared in rotation among the farmers to give equal opportunity to all.

## **2.4 Livelihood improvement plan.**

- The livelihood standard of the people in the pond locality shall be assessed through pre-project base line study.
- A master plan for improvement of livelihood, more particularly of the landless people, shall be prepared through an expert/Govt. agency.

## **2.5 Water quality.**

- The quality of both surface water & ground water shall be tested before implementation of the project by collection of samples from tanks & well.
- On completion of the project & thereafter periodically the quality of water shall also be tested to monitor the change in quality, if any.
- Remedial measures shall be adopted to bring the water quality to safe condition.

## **Output 3**

### **3.1 Identification criteria for 1000 solar pump installation.**

- Solar pumps in selected areas shall be installed for demonstration purpose.
- Tanks having more water retention potential and in localities where the ground water level is relatively high shall be selected.

- Gram Panchayats shall be consulted to give their consent through resolution to own, operate, maintain and utilize the pumps appropriately for the purpose.
- The list of beneficiaries/ communities to be provided with Solar Pumps shall be approved in the concerned Gramasabha meeting.

### **3.2 Procurement Plan**

- Solar pumps of suitable capacity shall be procured either through OREDA or through National Competitive bidding process for supply, installation, commissioning & maintenance for 5 years. OERDA shall be the knowledge partner to procurement, operate and maintenance of the solar power system and sola pump operation.
- The Jalasathis/ representatives of local farmers shall be trained by the pump suppliers about operation & maintenance of Solar panels & pumps.

### **3.3 Baseline study before installation of solar pumps.**

- After finalization of tanks/dug wells for installation of solar pumps, base line study regarding type of crop, yield, methods of cultivation etc. shall be studied.
- On installation of pumps, diversification of cropping pattern if any, change in methods of cultivation if any, variation in yield shall be captured and further improvement shall be planned.

### **3.4 Para professionals for O & M of pumps.**

- Two local villagers for each pump to be installed shall be identified based on their qualification, attitude towards learning and implementation of operation and maintenance of pumps.
- They shall be trained and certified by the pump supplier for O & M and shall remain in charge of O & M of the pump.

### **3.5 Energy saving report.**

- The pumps shall be solar operated and hence no energy from other sources shall be used.
- However, the energy which would have otherwise used for operation of such pumps shall be assessed and the energy thus saved shall be reported.

## **Output 4 Capacity Building**

### **4.1 Need assessment**

- Information on households residing in the Tank Command area, both marginal farmers and land less shall be collected through external consultant agencies who will be selected through NCB. [OCTDMS]
- The support required to enhance livelihood & build resilience shall be formulated by a consultant agency.

#### **4.2 Development of Training Module.**

- Based on the support required, training modules will be developed by engaging experienced Consultants to be selected through NCB. [OCTDMS]
- The Consultants will provide training to all stakeholders.
- Demonstrations shall also be provided for better understanding and adaptation.

#### **4.3 Training**

- 500 Engineers of M.I. Organization under DoWR & PR & DW Deptt. and 20,000 Jala Sathis shall be trained by the expert Agencies to be selected through NCB.
- Reputed Institutions such as WALMI and experienced NGOs will also be involved in the training programme.
- Master Trainer shall be trained first who in turn will train other stakeholders.
- OCTDMS will Monitor & Evaluate the training programme.

#### **4.4 Extent of Training & Demonstration**

- Nature of trainings & demonstrations to the farmers and landless residents shall also be organized in convergence with other Departmental programs of Government.
- MoU with Department of Agriculture & F.E. (Directorate of Horticulture & Directorate of Agri.) Directorate of Fisheries & Directorate of Animal Husbandry shall be drawn for the purpose.
- Accordingly Training Workshops and Demonstration of farm activities will be conducted.

#### **4.5 Capacity Building of landless households.**

- Number of landless households- especially women shall also be identified and covered under Capacity Building.

- They will be trained in activities such as
- Post-harvest processing.
- Backyard poultry
- Animal Husbandry
- In convergence with departmental schemes.

#### **4.6 Farmers Producer Organization:**

- FPOs will be formed to promote best practices of farming, maintain marketing information system, diversifying and raising levels of knowledge and skills in agriculture production, post harvesting processing etc. to add value to products.
- The FPOs formed will also be trained in collaboration with WALMI, OLM, NABARD, Central & State Co-operative Societies, Govt. Departments.

#### **Output 5. Quality Monitoring for Ground Water Governance.**

- All Selected tanks shall be geo-tagged.
- Pre project quality of water both surface & ground water shall be tested and a data base shall be prepared.
- The quality of water shall be monitored during the project implementation period and thereafter. The ground water level variation shall also be monitored prior to and during project implementation.
- Suitable MIS shall be developed and monitored by OCTDMS.
- This will be executed by an expert agency to be selected through NCB.  
[OCTDMS]
- Suitable indicators shall be prepared to monitor quality of water and variation of ground water level in the tank area.
- Estimates for adequate improvement of quality of water and level of ground water shall be prepared.
- The Stakeholders shall be motivated to adopt prescribed measures to achieve estimated results.
- Benefits derived shall be documented & reported.
- Based on the benefit results, further improvement shall be planned.

#### **Output 6. Knowledge Management**

##### **6.1 Ground Water Policy**

- New policy for Ground Water Management and Development shall be prepared.
- The Current Ground Water frame work will be analysed. The need in future will be considered and new regulation to facilitate ground water use for socio-economic development of the farmers shall be developed.
- A detail study of Hydrology, ground water recharge & extraction and its effects shall be made. If required the State Water Policy may be reviewed.
- This will be taken up through reputed Research Institutes/ Universities/ Consulting Firms to be selected through invitation of EOI (OCTDMS)

## 6.2 Installation and operation of Solar Pumping Stations

- Standard Operating Procedure for installation and operation of Solar Pumping Stations shall be prepared by expert external agencies.
- The outcome of such pumping shall be documented and processed for formulation of policy for ground water management.
- The knowledge so obtained shall be documented in convergence with other Departments and be published in periodical Newsletters for information of Research Scholars/Universities/Institutes and for their suggestions.
- Eminent persons and organisations working in similar fields will be invited to share their ideas and experience through workshops during the entire life cycle of the project.
- Ten peer workshops will be conducted in coordination with DoWR/ PR & DW and NABARD covering various project outputs.

## Output 7. Project Management:

- For effective Project Management inter departmental steering committee both at State Level & District Level shall be constituted.
- PD-OCTDMS shall initiate Notification for policy interventions, review of implementation and advise project team.
- A project implementation plan will be prepared by engagement of a suitable agency through NCB. [OCTDMS]
- TOR shall be finalised by OCTDMS in consultation with other stake holder Departments & NABARD.
- PIP shall be approved by PD-OCTDMS.

- Required number of service providers shall be engaged for various professional services to strengthen the SPMU for effective Project Management and generation of reports. [OCTDMS]
- Seamless reporting to Accredited Entity shall be established. [OCTDMS]
- A web page shall be developed and maintained till completion of the project to monitor at various levels for:
  - ✓ Fund flow
  - ✓ Physical progress
  - ✓ Financial progress

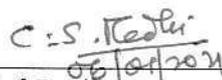
All official documents shall also be made available in the webpage of OCTDMS and DoWR.



S. P. Singh  
06.01.2021

Chief Engineer,

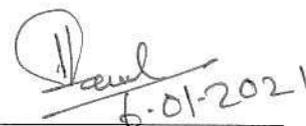
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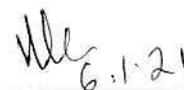
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