

**Terms of reference (ToRs) for the  
Assessment and management of Fisheries  
resources of Pong reservoir, Himachal  
Pradesh**




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<b>Assessment and management of Fisheries resources of Pong reservoir, Himachal Pradesh</b>	<b>Project number/ cost centre: 16.9020.5.001.00</b>
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## **0. List of abbreviations**

AVB	General Terms and Conditions of Contract (AVB) for supplying services and work 2018
BBMB	Bhakra Beas Management Board
WRIS	Water Resources Information System
ToR	Terms of reference
NPCA	National Plan for Conservation of Aquatic Ecosystems
MoEFCC	Ministry of Environment, Forest and Climate Change
NCSCM	National Centre for Sustainable Coastal Management
WISA	Wetlands International South Asia
CV	Curriculum vitae
CDA	Chilika Development Authority
RS	Remote Sensing
GIS	Geographic Information System
GDP	Gross Domestic Product

## **1. Context**

### **1.1 Project Background**

Wetlands exist as transitional ecosystems at land and water interface which are represented by various types including lakes, marshes, reservoirs, mangroves, lagoons, estuaries etc. As highly productive ecosystems, wetlands are vital for hydrological cycle and support rich biological diversity. Globally, wetlands are threatened by reclamation and degradation through drainage and landfill, pollution, hydrological alteration, over-exploitation, and climate change resulting in loss of biodiversity and disruption in ecosystem benefits to the society.

Wetlands in India are integral to biodiversity conservation, water and food security, and climate protection. MoEFCC, in partnership with GIZ, is implementing a Technical Cooperation project “Wetlands management for biodiversity and climate protection” with funding support from the German Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU) under the International Climate Initiative (IKI). The goal of the project is to strengthen the institutional framework and enhance capacities for an ecosystem-based integrated management of wetlands of international importance (Ramsar sites) in India.

The project is implemented in close cooperation with the NPCA of the MoEFCC with an overall objective to establish an integrated management approach at four Ramsar sites (namely, Pong, Renuka, Bhitarkanika and Point Calimere). In order to facilitate project implementation, Wetland Research and Training Centre, Chilika Development Authority (CDA) has been identified as a resource centre in partnership with the respective State Wetlands Authorities and site level management institutions. Wetlands International South Asia (WISA) is the technical partner in project implementation.

Three main output areas define the implementation approach of the project:

- Integrated management planning for 4 pilot Ramsar sites based on biodiversity, ecosystem services and climate change risks.
- Capacity development of national, state and site level stakeholders for integrated wetland management.
- Development of a wetland monitoring system, including an instrument to track management effectiveness.

### **1.2 Context of the assignment**

India has 3.15 million hectares of reservoirs and more than 5 lakh hectares of flood plain wetlands, spread across the numerous river basins in the country. Fisheries in reservoirs have always been considered as a secondary activity and have not received much attention until recently. Increasingly Fisheries are considered an important ecosystem service provided by the reservoirs that are impounded primarily for water resource utilization. India is the third largest producer of fisheries in the world and it contributes to 0.91% of our GDP with a present production of 3.2 million metric tonnes contributed by the Reservoirs. Through its Blue Revolution-Neel Kranti Mission, Government of India also aims to maximize fish production from the reservoirs through optimal harnessing. Pong Reservoir, Himachal Pradesh is a major Fishery resource for the State with over 450 tonnes of catch produced annually. Pong also provides livelihood support to a significant proportion of the community making it an even more critical resource. But over the years, Fisheries resource has shown tremendous fluctuations probably sourced from over-exploitation and/or mismanagement. Thus, raising a need for

developing suitable resource extraction model which could ensure and enhance fish production in a sustainable manner.

### **1.3 Objectives and Scope of the Assignment**

The overall objective of the assignment is to conduct assessment of fisheries in Pong and recommend management measures for sustainable fish production while maintaining the ecological characteristics and functioning of the wetland.

## **2. Tasks to be performed by the contractor**

The project will employ the services of a consultant to carry out fieldwork, laboratory analysis, secondary data collection and stakeholder consultations at Pong Reservoir.

The specific tasks of the consultant are as follows:

### **Objective 1: Ecology and dynamics of fish stocks in Pong reservoir**

Current status of hydrological, geological, physico-chemical features and primary productivity of the reservoir which have direct and indirect impact on Fisheries resource

- Existing diversity and abundance of fish fauna along with mapping and delineation of species-specific breeding grounds within the reservoir
- Current status of commercial fishing within the reservoir w.r.t. diversity, landing size, annual yield, stock characterization (total and species specific), and fishing effort.
- Mapping the existing fishing zones within the reservoir.
- Determining maximum sustainable fish yield and optimum fishing effort
- Mapping current mode of Fisheries operation within the reservoir
- Detailed mapping of communities dependent on Fisheries resource, livelihood support to local communities, prevalent extraction techniques and practices.
- Assessment of local institutional set-ups (cooperatives/societies), governance mechanisms and social structures affecting fisheries.

### **Objective 2: Spatial and temporal trends for Fisheries within Pong reservoir**

- Delineating trends during the last three decades w.r.t. fish diversity and abundance, trophic state of reservoir, stocking, catch and market trends within specific management and governance regimes
- Impacts of different management and governance regimes on resource production as well as extraction
- Impact of migratory birds on fish resource production
- Identifying threats to sustainable fisheries resource extraction from Pong reservoir

### **Objective 3: Develop suitable resource extraction models and guidelines to ensure sustainable and sustained resource extraction**

- Evolve suitable stocking policies for the reservoir through studies on important commercial fishes from the reservoir.

- To suggest suitable fishing gears and intensity of exploitation for different commercial fishes.
- Proposing a suitable reservoir zonation that could ensure sustainable resource extraction and could check for overexploitation of resource.
- Assess trade-offs between fisheries and tourism as well as wetland use by waterbirds and also propose suitable mitigation measures.
- Developing guidelines and capacitating local fisher community and other stakeholders regarding best practices, alternate methods and dos and don'ts to ensure sustainable and sustained resource extraction from Pong Reservoir.

Certain milestones, as laid out in the table below, are to be achieved by certain dates during the contract term, and at particular locations:

<b>Milestone</b>	<b>Deadline (from signing of contract)</b>
<b>Inception report</b> including a detailed plan of action with a detailed framework of activities, methodology, schedule etc	3 weeks from signing of contract
<b>Status report</b> on current status of fisheries resource, including details on current diversity of fishes along with the status of commercial fishing and mapping of communities dependent on Pong for livelihood support etc.,	9 weeks
<b>Interim progress report</b> including details on progress made so far, including a factsheet on the Fisheries resource of Pong, spatial and temporal trends and identification of threats	12 weeks
<b>Draft project report</b> on the assessment and management of fisheries resources, both as ready to be printed formats as well as in the form of a digital presentation. This should include documentation of best management practices along with proposed management scenarios for Pong reservoir.	16 weeks
<b>Stakeholder consultation</b> for feedback and inputs on the draft project report	18 weeks
<b>Final project report</b> incorporating the suggestions given by the stakeholders and project team	20 weeks

The following report structure is proposed for the assignment.

- Executive summary highlighting the important findings of the assessment and key recommendations.
- Introduction including a brief review of existing literature describing the fisheries resource of Pong reservoir

- iii. Methodological framework
- iv. Results and Discussion
  - Ecology and dynamics of fish stocks in Pong reservoir as well as direct and indirect impact of hydrological, geological, physico-chemical features
  - Spatial and temporal trends for Fisheries within Pong reservoir for last three decades while identifying impacts of different management and governance regimes on production and extraction of resource
  - Suitable resource extraction options for Pong reservoir providing a suitable reservoir zonation to ensure sustainable resource extraction
  - Guidelines and best practices to ensure sustainable and sustained resource extraction from Pong reservoir.
- v. Conclusions
- vi. References
- vii. Annexes

Period of assignment: From 1 December 2019 until 30 April 2020.

### 3. Concept

In the bid, the bidder is required to show how the objectives defined in Chapter 2 are to be achieved, if applicable under consideration of further specific method-related requirements (technical-methodological concept). In addition, the bidder must describe the project management system for service provision.

#### Technical-methodological concept

**Strategy:** The bidder is required to consider the tasks to be performed with reference to the objectives of the services put out to tender (see Chapter 1). Following this, the bidder presents and justifies the strategy with which it intends to provide the services for which it is responsible (see Chapter 2).

The bidder is required to present the actors relevant for the services for which it is responsible and describe the **cooperation** with them.

The bidder is required to present and explain its approach to **steering** the measures with the project partners and its contribution to the results-based monitoring system.

The bidder is required to describe the key **processes** for the services for which it is responsible and create a schedule that describes how the services according to Chapter 2 are to be provided. In particular, the bidder is required to describe the necessary work steps and, if applicable, take account of the milestones and contributions of other actors in accordance with Chapter 2.

The bidder is required to describe its contribution to knowledge management for the partner and GIZ and promote scaling-up effects (**learning and innovation**).

#### Other specific requirements

The methodology for the assignment is proposed to include field-based assessments and collation of data from secondary sources such as BBMB, Fisheries Department, Academic

institutions, NGOs and open source platforms including WRIS, etc. and scientific research publications.

The assignment execution should follow the feedback mechanism with continuous discussion and engagement of the contractor with GIZ and State Forest Department, Himachal Pradesh to review and provide suggestions. For this purpose, the contractor would be available for discussions and meetings in Delhi/Himachal Pradesh or over skype/telephone as and when required.

### **Project management of the contractor**

The bidder is required to explain its approach for coordination with the GIZ project.

- The contractor is responsible for selecting, preparing, training and steering the experts (international and national, short and long term) assigned to perform the advisory tasks.
- The contractor makes available equipment and supplies (consumables) and assumes the associated operating and administrative costs.
- The contractor manages costs and expenditures, accounting processes and invoicing in line with the requirements of GIZ.  
The contractor reports regularly to GIZ in accordance with the AVB of the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH from 2019

The bidder is required to draw up a **personnel assignment plan** with explanatory notes that lists all the experts proposed in the bid; the plan includes information on assignment dates (duration and expert days) and locations of the individual members of the team complete with the allocation of work steps as set out in the schedule.

In derogation from GIZ AVB, the contractor makes contributions to reports to GIZ's commissioning party instead of submitting its own reports.

### **Eligibility Criteria for firms**

The qualifying criteria for the firms/institutions/organisations applying for this is given as follows:

- Should be registered in India;
- Should have annual turnover of at least Euro 30,000;
- Should have present staff strength of at least 5 persons;
- Should have implemented reference project with a minimum value commission of Euro 5,000;
- Should have implemented at least one reference project in the field of assessment and management of fisheries resources;
- Should have implemented at least one reference project in reservoir fisheries;
- Should have more than 5 years of experience in fisheries assessment and fish stock management;
- Should have more than 5 years of experience in ecology and fishery management of reservoirs in India;
- Should have experience in wetland ecology;
- Should have experience of implementing assignments with multi-disciplinary teams of experts;

- Should have 5 years' experience in implementing assignments in the Himalayan region, especially Himachal Pradesh;
- Experience in implementing development projects;
- Sub-contracting the assignment or its parts to other agencies is not permitted.

### **Technical backstopping**

The bidder is required to describe its backstopping concept. The following services are part of the standard backstopping package, which (like ancillary personnel costs) must be factored into the fee schedules of the staff listed in the bid in accordance with section 5.4 of the AVB:

- Service-delivery control
- Managing adaptations to changing conditions
- Ensuring the flow of information between GIZ and field staff
- Contractor's responsibility for seconded personnel
- Process-oriented technical-conceptual steering of the consultancy inputs
- Securing the administrative conclusion of the project
- Ensuring compliance with reporting requirements
- Providing specialist support for the on-site team by staff at company headquarters
- Sharing the lessons learned by the contractor and leveraging the value of lessons learned on site

## **4. Personnel concept**

The bidder is required to provide personnel who are suited to filling the positions described, on the basis of their CVs (see Chapter 0), the range of tasks involved and the required qualifications.

The below specified qualifications represent the requirements to reach the maximum number of points.

### **Team leader/Technical Expert 1**

#### Tasks of the team leader/Expert 1

- Overall responsibility for the advisory packages of the contractor (quality and deadlines);
- Developing methodology for the assignment and execution of the assignment;
- Coordinating and ensuring communication with GIZ, partners and others involved in the project;
- Personnel management, in particular identifying the need for short-term assignments within the available budget, as well as planning and steering assignments and supporting local and international short-term experts;
- Regular reporting in accordance with deadlines

#### Qualifications of the team leader/Expert 1

- Education/training (2.1.1): University qualification (Master's)/Ph.D. in Limnology/Inland Fisheries or any other related field from a reputed Indian / international institute
- Language (2.1.2): Good business language skills in English and Hindi.
- General professional experience (2.1.3): 10 years of professional experience in conducting Fisheries resource assessments especially reservoir fishery;



- Specific professional experience (2.1.4): 5 years in topics of wetlands resource management viz. Fisheries;
- Leadership/management experience (2.1.5): Management/leadership experience as a director or manager in an organisation in assignments of similar nature;
- Development Cooperation (DC) experience (2.1.7): NONE.

## **Technical Expert 2**

### Tasks of expert 2

- Develop suitable methodology for the assignment and assist the Team Leader in the following tasks.
- Conduct and oversee field assessments including stock assessments, reservoir ecology, risk assessment, institutional analysis, use of RS-GIS in Fisheries resource assessment, Fisheries resource modelling and management, etc.
- Data analysis
- Report Preparation

### Qualifications of expert 2

- Education/training (2.2.1): Master's/Ph.D. degree in Limnology/Inland Fisheries or Aquaculture or Fisheries resource management or any other relevant field from a reputed institute
- Language (2.2.2): English and Hindi
- General professional experience (2.2.3): 5 years of experience in conducting Fisheries resource assessments, modelling, biological studies, etc.
- Specific professional experience (2.2.4): Well-versed with wetland and GIS based Fisheries resources management and reservoir fisheries
- Leadership/management experience (2.2.5): NONE
- Other (2.2.8): NONE

### Soft skills of team members

In addition to their specialist qualifications, the following qualifications are required of team members:

- Team skills
- Initiative
- Communication skills
- Sociocultural competence
- Efficient, partner- and client-focused working methods
- Interdisciplinary thinking

## **Short-term expert pool with up to 4 members**

### Tasks of the short-term expert pool

- Data collation and analyses
- Field assessment
- Data analysis

### Qualifications of the short-term expert pool

- Education/training (2.6.1): 2 experts with Master's in Freshwater Ecology/Natural resource management/ Limnology or any other related field, 2 experts with Bachelor's degree in Ecology/Natural resource management/ Hydrology/any other related field.
- Language (2.6.2): 2 technical experts with very good language skills in English and Hindi

- General professional experience (2.6.3): technical experts with at least 3 years of experience in Inland Fisheries assessments
- Specific professional experience (2.6.4): Resource modeling and sustainable fisheries resource management
- Development Cooperation (DC) experience (2.6.6): NONE
- Other (2.6.7): NONE

The bidder must provide a clear overview of all proposed short-term experts and their individual qualifications.

## **5. Costing requirements**

### **Assignment of personnel**

Team Leader: Up to 50 expert days

Technical Expert 1: Up to 60 expert days

Technical Executives pool: Up to 100 expert days

### **Travel**

The bidder is required to calculate the travel by the specified experts and the experts it has proposed based on the places of performance stipulated in Chapter 2 and list the expenses separately by daily allowance, accommodation expenses, flight costs and other travel expenses.

## **6. Inputs of GIZ or other actors**

GIZ and/or other actors are expected to make the following available:

- Necessary communication to government department to facilitate the tasks outlined in the project
- Conceptual inputs as and when needed

## **7. Requirements on the format of the bid**

The structure of the bid must correspond to the structure of the ToRs. In particular, the detailed structure of the concept (Chapter 3) is to be organised in accordance with the positively weighted criteria in the assessment grid (not with zero). It must be legible (font size 11 or larger) and clearly formulated. The bid is drawn up in English (language).

The core proposal/bid shall not exceed 30 pages (excluding CVs, Annexures and details of reference projects).

The CVs of the personnel proposed in accordance with Chapter 4 of the ToRs must be submitted using the format specified in the terms and conditions for application. The individual CV of each expert shall not exceed 2 pages. The CVs must clearly show the position and job the proposed person held in the reference project and for how long. The CVs shall be submitted in English (language).

If one of the maximum page lengths is exceeded, the content appearing after the cut-off point will not be included in the assessment.

As the contract to be concluded is a contract for works, please offer a fixed lump sum price that covers all applicable costs (fees, travel expenses etc.). The price bid will be evaluated based on the specified lump sum price. For our internal costing and any further commissions, please also provide the daily rate which the prices are based on. A breakdown of days is not required.