



**Department of Fisheries
Ministry of Fisheries & Livestock, Bangladesh**

**Climate Smart Agriculture and Water Management Project
(CSAWMP-DoF)**



Terms of Reference (ToR)
For
Environment and Climate Change Expert
Individual Consultant (National)

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Package No: CSAWMP-DoF/SD-01/C

1. Background

Bangladesh is predominantly an agricultural country and the growth rate of Gross Domestic Product (GDP) of the country still depends on the performance of the agriculture sector. As the single largest production sector of the economy, agriculture contributes about 11.70% to the total GDP of the country and the sector also accommodates around 42.7% of labor force. Bangladesh is one of the largest deltas (Ganges-Brahmaputra-Meghna Delta or GBM Delta) in the world which is highly vulnerable to natural disasters because of its geographical location, flat and low-lying landscape, population density, poverty, illiteracy, lack of institutional setup/linkages etc. In other words, the biophysical, the social as well as economic conditions of Bangladesh are very typical to any of the most vulnerable countries (prone to natural disasters) in the world. The total land area of the country is 147,570 sq km and it consists mostly of floodplains (almost 80%) leaving major part of the country (except for the north-western highlands) prone to flooding during the rainy season. Recently Bangladesh has attained self-sufficiency in fish production.

Bangladesh is a comparatively small landmass with diverse landscape, having (i) Widespread coastal plain across the south, (ii) high and moderately dry land in the north and mountainous trace along the north and south-east, (iii) depressed¹ haor basin in the north-east, and (iv) central flood plain. The deltaic landscapes are crisscrossed with rivers and wetlands spread over entire land mass and evolved into aquatic and terrestrial ecosystems including evergreen forest, deciduous forest, mangroves, swamps, reed lands and² beels, rivers and haors. The country is exposed to extreme weather events, with high rainfall during the monsoon season, extensive flooding occurs in lower-lying areas of the country, and this problem is compounded by slow drainage and high sea tides. There are both benefits and losses this situation brings: it allows for highly productive farming (increase land fertility) and fishing systems, but at the same time creates deep flooding, erosion and drainage problems which can cause serious crop losses, livestock deaths, salinity intrusion, and rural population displacement. They also take considerable areas of otherwise arable land out of production, thereby adversely affecting agricultural production and livelihoods. At the same time, during the dry season the availability of surface water is a significant constraint to agriculture. Droughts, especially in the northern parts of the country frequently lead to crop failure, livestock death, land degradation, and also undermine groundwater replenishment, which is critical to performance of irrigated agriculture in those areas.

¹ Haor is a wetland ecosystem in the north eastern part of Bangladesh which physically is a bowl or saucer shaped shallow depression, also known as a backswamp. During monsoon haors receive surface runoff water from rivers and canals to become vast stretches of turbulent water

² A beel is a billabong or a lake-like wetland with static water as opposed to moving water in rivers and canals.



Bangladesh is recognized worldwide as one of the most vulnerable countries to the impacts of global warming and climate change. The country has a history of observing extreme climatic events claiming millions of lives and destroying development gains. The people and social system have knowledge and experience of coping with their effects to some degree and extent. Variability in rainfall pattern, combined with increased snow melt from the Himalayas, and temperature extremes are resulting in crop damage and failure, preventing farmers and those dependent from meaningful earning opportunities. Our national economy strongly depends on agriculture and natural resources that are sensitive to climate change and sea level rise. Moreover, the adverse effects of Climate Change – especially High Temperature, Sea-level Rise, Cyclones and Storm Surges, Salinity Intrusion, Heavy Monsoon Downpours etc. – have aggravated the overall Economic Development scenario of the country to a great extent. The effects of climate change pose risks for agriculture, fisheries, food and water supplies. A better understanding of the existing risk coping strategies may inform us about households' ability to adapt to weather-related risk, and, potentially, inform the design of policy in the context of increasing climatic stress on the smallholder farmers in a developing country like Bangladesh. In rural areas, livelihood and employment opportunities center on farming and fisheries; however, increased competition for land and resources narrows the economic opportunities for highly marginalized rural populations. High unemployment, climatic stress and low wages are driving migration to urban areas. In addition, approximately 80% of the population is under the age of 40. Plagued by poverty, unemployment, and marginalization, youth represent a tremendous and largely untapped resource.

Bangladesh is amongst top ten fish producing countries of the world. The vast flood plain of Bangladesh currently remains underutilized for fish production. The goal of the prospective plan is to meet the increasing demand for fishes of through efficient management of water bodies. Fish production has increased rapidly since the 1990s through (a) Pond aquaculture (fish raised in ponds) using hatchery-reared fish fingerlings; and (b) Conversion into fish ponds by raising embankments around low-lying lands. Embankments are also used as orchards and vegetable gardens. According to FAO statistics of 2020, Bangladesh is ranked 5th in world aquaculture production. However, fish production has declined in inland open waters during last three decades due to various man-made causes such as overfishing, implementation of flood control and drainage program, construction of roads and dams, indiscriminate use of insecticides and pesticides for agricultural crop production. In 1985-86, the contribution of inland capture and culture fisheries to total fish production were 55.7% and 18.2%, respectively; whereas in 2018-19, inland capture fisheries contribute only 28.19% and inland culture fisheries contributes 56.76% to total production (FRSS, 2019). Due to decline of fish species in open waters and obstructions of their migration routes, recruitment of fish in open waters has constantly declined and natural resources available in such water bodies remain vacant and unused. Productivity of inland open waters is still very poor due to a number of constraints like change of course of rivers and blockage of connecting canals between floodplains due to siltation, destruction of fish breeding and nursery grounds, indiscriminate use of pesticides and insecticides, overfishing, global warming and climate change, revenue-oriented leasing system of water bodies, and unjustified harvesting of broods and young fish. To minimize problems and to increase fish production of inland open waters different strategies



can be followed - (1) establishing fish sanctuary; (2) stocking of fingerlings or fry (stock enhancement); (3) fish conservation (use of fisheries conservation acts and rules); and (4) habitat restoration. In addition, paddy field for rice-fish farming during the wet season has enormous potential in Bangladesh. At the same time, production from aquaculture sector can also be sustained and enhanced through introducing different culture practices, bringing innovations, and introducing climate smart or climate resilient farming systems/technologies. Both the capture fisheries and aquaculture sectors in Bangladesh need to be decarbonized and there is a huge possibility to do so.

Project Objective and Components

The main objectives of the project are:

The Project Development Objective (PDO) of CSAWMP-DoF Part is to enhance climate resilience and productivity of irrigated agriculture and fisheries in targeted sub-projects.

The specific objectives of the project (CSAWMP-DoF Part) are:

- To increase 20% of fish production and productivity base year 2018-19 by introducing climate smart aquaculture technology;
- To enhance market access of the relevant stakeholders through promoting business-friendly supply chain and market network; and
- To ensure better livelihoods of the stakeholders and better understanding on sustainable fisheries resources management through capacity development.

Projects Components

The objectives of this project will be achieved through implementation of following three components

Proposed Projects Components	Proposed Sub-Components
Component 1: Adoption of region-specific climate smart fisheries management and aquaculture technology	<p>Sub-Component 1.1: Adoption of region -specific climate smart aquaculture technology</p> <ul style="list-style-type: none"> (i) Demonstration of Seabass/Tilapia/Koi/Pangas/Carps/Shing/ Magur/Golda-carp/Bagda-Carp polyculture (ii) Establishment of cage/pen culture demonstration firm (III) Promotion of non-traditional aquaculture practices <p>Sub-Component 1.2: Adoption of region -specific climate smart fisheries management approach</p> <ul style="list-style-type: none"> (i) Replenishment of endangered indigenous fish species through establishing fish sanctuaries in suitable schemes (ii) Up scaling beel nursery practice in feasible schemes
Component 2: Improving fish value chain and facilitating market access	<p>Sub-Component 2.1: Improving supply chain to reduce post-harvest loss</p> <ul style="list-style-type: none"> (i) Establishment of mini fish processing center in potential locations (ii) Fish drying technology demonstration (iii) Enhancement of market access and strengthen market networks



Proposed Projects Components	Proposed Sub-Components
Component 3: Strengthening institutional capacity and knowledge development	Sub-Component 3.1: Training on climate smart aquaculture technology (i) Suitable different aquaculture technology (ii) Training on fish feed preparation and feed management, value addition, post-harvest management, group/Community mobilization, saving management (iii) Exposure visits/Field trip/Field Day (iv) Modules update/formation

Project Beneficiaries:

The objectives would be achieved through adopting decentralized and participatory water resources management approach for efficient and sustainable operations and management of the existing proposed BWDB schemes.

This is expected to result in reduced vulnerability and enhanced livelihood opportunities for the beneficiaries, enhance aquaculture production by improving the water use efficiency and will also create a favorable environment for improved water resources management by the core water institutions, in partnership with the beneficiaries. Almost 12840 beneficiaries will be directly benefited from this project.

2. Objective of the Assignment:

The Overall objective of this assignment is to assist the PIU, CSAWMP-DoF in achieving its objectives by providing technical expertise adheres to environmental standards, promotes climate-smart practices, and contributes to the sustainable management of natural resources. The expert will provide guidance, conduct assessments, and collaborate with stakeholders to integrate climate resilience and environmental sustainability into project activities.

3. Scope of Services and Tasks:

The objective of this assignment is to identify, Plan, execute, manage, facilitate, coordinate, report and evaluate all activities related to environment and climate change issues. Environment Expert will be deployed with the Project Implementation Unit (PIU) at the headquarter of DoF under the Supervision of Project Director. He/She will provide co-ordination, technical support and services maintaining liaison with other individual and institutional consultants for Successful implement of Components 2.2. He/She will review the existing environmental impact on fisheries and develop mitigation strategies in consultation with local people. He/She will have reporting line to the Project Director and will be responsible to the PD for the following (but not limited) tasks:

- i. Responsible to Project Director;
- ii. Assures the provision of safeguard measure in ecological and other related climate change and environmental aspects in the project;
- iii. Develop relevant screening matrix to evaluate environmental safeguard aspects of all project activities;



- iv. Work closely with World Bank (WB) Task Team to address any environmental issues indicated by the WB environmental safeguard team.
- v. Develop monitoring plan for environmental management for all relevant activities in line with WB guidelines
- vi. Ensure adaptation of Environmental Management Plan/Framework (EMP/EMF) for effective management to closed water biodiversity, waste management, and sustainable livelihood activities in the project;
- vii. Assess and identify climate resilient technologies (inclusive of the consideration of gender issues).
- viii. Monitor and plan the project outcomes that will strengthen the adaptive capacities of vulnerable smallholder farmers, especially women, to climate change induced impacts.
- ix. Ensure adaptation and mitigation to climate change by provision of climate smart Aquaculture practices to the project farmers in an environmentally sustainable manner.
- x. Develop a training manual on environmental safeguard in aquaculture, post-harvest handling, marketing and provide training to all project stakeholders on climate change mitigation, adaptation, and resilience.
- xi. Conduct a climate change risk and vulnerability assessment in the project area to identify climate change impacts on aquaculture, and developing a climate change adaptation strategy to address these impacts.
- xii. Contributing to knowledge sharing and best practices on climate change for the wider development of community and civil society.
- xiii. Accountable to Project Director and Any other task assigned by the Project Director/ project management as and when required.

4. Contribution in Deliverables

- (i) Climate Risk and Vulnerability Assessment Report
- (ii) Environmental Impact Assessment Reports and Environmental Management Plans
- (iii) Climate-Smart Practices Report and Pilot Results
- (iv) Capacity Building and Training Materials
- (v) Monitoring and Evaluation Framework for Climate and Environmental Outcomes
- (vi) Stakeholder Engagement Reports
- (vii) Regular Progress Reports on Climate and Environmental Activities.

Transfer of knowledge where appropriate-The Environment and Climate Change Expert will be involved in ensuring that all training and capacity building activities include periodic progress reports are prepared and submitted in time to PD. Will work with PIU and other DoF Officials responsible for the PIU staff training to maintain adequate staff capacity and skills specially of consultants and DoF officials at the PIU as well as the project cost centers.



5. Qualifications and Experiences:

(a) Education

Master's Degree in Environment Related Science/Fisheries/Marine science

(b) Professional Experiences:

- i. Minimum 15 years work experience in environmental related activities in government/ autonomous/semi-autonomous/private international organization
- ii. Must have 05 years proven experience in natural resource management development project;
- iii. Experience in the relevant field with IDA/development partner funded project will be an advantage.
- iv. Fluency in English & Computer literacy skills (MS Words, Excel, PowerPoint etc.) are highly desirable.

6. Selections Method:

The Consultant will be selected through the 'Open Competitive Selection of Individual Consultants' method in accordance with World Bank's "Procurement Regulations for IPF Borrowers" July 2016, Revised November 2020 ("Procurement Regulations"). The Procurement Regulations can be viewed at the World Bank's external website:

<https://thedocs.worldbank.org/en/doc/178331533065871195-0290022020/original/ProcurementRegulations.pdf>

The attention of interested Consultants is drawn in particular to:

- (i) Section III, paragraphs, 3.14, 3.16, and 3.17 of the Procurement Regulations setting forth the World Bank's policy on Conflict of Interest, and
- (ii) Section III, paragraphs, 3.21-3.24 of the Procurement Regulations setting forth the World Bank's policy on Eligibility, including the specific pre-requisite conditions to be met for the eligibility, on exceptional basis, of Government officials and civil servants of the Borrower's country under consulting contracts in the Borrower's country.

Individuals who are currently working as Environment and Climate Change Expert/Consultants at any other World Bank-financed project may also compete in this selection process. But if they are selected, they will be required before signing the proposed contract to provide documentary evidence of having satisfactorily complied with their existing contract's requirements with respect to early termination of the contract by the consultant, including advance notice period, to avoid disruption in implementation of that project."

7. Duration of the Assignment:

The Duration of this assignment is 24 months or duration of the project which comes first, The duration of the assignment may be extended on further extension of the project or reduced based on the performance of the consultant or subject to program needs.

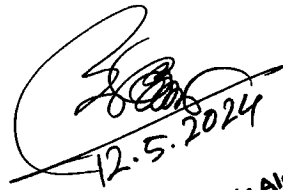


8. Institutional Arrangement:

Environment and Climate Change Expert will be based at the PIU, CSAWMP (DoF-Part) in Dhaka and will Report Directly to the Project Director. The incumbent will work closely with other Consultants working at the PIU and Departmental Officials. The consultant is expected to undertake the activities (Scope of Services) mentioned in the ToR in order to achieve the stated objectives. Under this Consultancy travels are being envisaged. However, travels necessary for the exigencies of service to achieve the desired objectives, may be undertaken but with prior permission of the PD, PIU and in such cases daily subsistence allowance (DSA) as per contract signed and the actual costs for travels could be reimbursed.

The Consultant will oblige to submit the project update or progress reports and deliverables once in a month to the PD, CSAWMP (DoF-Part) Project, Department of Fisheries, Matashya Bhaban, Ramna, Dhaka.

Data, Personnel, Facilities and Local Services to be provided by the Client-The PD PIU will arrange all necessary Information relevant to the consultant to fulfill this assignment. Personal office space will be provided from the project.



12.5.2024

(Md. Zahangir Alam)
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