



বাংলাদেশ পানিউন্নয়ন বোর্ড

BANGLADESH WATER DEVELOPMENT
BOARD

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Memo No: WDB/CEIP/S-4/839

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**Request for Expressions of Interest (EOI) for
Research Activities for Long Term Monitoring, Research and Analysis of
Bangladesh Coastal Zone (Sustainable Polders Adapted to Coastal Dynamics) under
Coastal Embankment Improvement Program, Phase 1 (CEIP-I)**

Bangladesh

Coastal Embankment Improvement Project, Phase-I (CEIP-I)

**Research Activities for Long Term Monitoring, Research and Analysis of Bangladesh
Coastal Zone (Sustainable Polders Adapted to Coastal Dynamics) under CEIP-I.**

(Contract Package No.CEIP-1/C3/S4)

Credit No-5280- BD

PPCR Grant: TF 014713

Introduction

The People's Republic of Bangladesh (GOB) has received a credit from International Development Association (the Bank) in an amount of US\$ 375 million and a Grant from Pilot Program for Climate Resilience (PPCR), one of the targeted programs of the Strategic Climate Fund (SCF) under the Climate Investment Funds (CIF) of US\$ 25 million to meet the implementation cost of the CEIP-1. The overall project development objective is to increase the resilience of coastal population to natural disasters and climate change by rehabilitating and improving the polder system in the contiguous six coastal districts comprising Satkhira, Khulna, Bagerhat, Pirojpur, Barguna and Patuakhali. The proceeds from this credit would be used to eligible payments under this contract as mentioned above. Coastal districts are characterized by a high pace of population growth. This trend continues to push millions of people to live in the low lying coastal areas which are highly vulnerable to natural hazards. The vulnerability of the coastal population is on the rise due to climate change. Climate variability and change will accentuate the intrinsic risks facing coastal Bangladesh. These risks span: (i) cyclones and storm surges (ii) river bank erosion and vulnerability of islands and chars (shoals), (iii) sea level rise, (iv) salinity intrusion, and (v) coastal erosion. Much is still to be understood of this dynamic delta.

Objective:

The main objective of this Research Activities on *Long Term Monitoring, Research and Analysis of Bangladesh Coastal Zone* (Sustainable Polders adapted to Coastal Dynamics) is to improve and manage the polders successfully in the coming decades. It is important to have a clear understanding of the relation between the functioning of polders and the ever changing boundary conditions due to the dynamics of the environment.

Scope of Services:

Research Activities are required for: (i) creating a framework for polder design, based on understanding of the long term and large scale dynamics of the delta and on sustainable polder concepts. These polders should offer their inhabitants a safe environment to live in and sufficient opportunities for their livelihood. Land use, ground level, sedimentation balance inside and outside the polder, and salinity in rivers and ground water are the key parameters in materializing these concepts, taking into account the climate change. (ii) presenting an overview of values of relevant parameters at locations in the polder area, now and in the future, as boundary conditions for polder design and management; (iii) developing a long term investment plan for implementation of the proposed design and management improvements; and (iv) building the analytical foundation and technical capacity of BWDB & partners to engage in data driven decision making on tidal flood, storm surges and drought hazards in the coastal region of Bangladesh. The activities envisaged, to perform the above services, are structured around the following components:

1. Inception Phase (Polder concepts and coherence in research)
2. Development of input datasets for mathematical models
3. Modeling of the long-term physical processes
4. Completion phase (Polder design and long term management plan)
5. Investment plan for future polder improvements
6. Capacity building and communication of results.

To adapt to local situations and using the available knowledge, a national Research Firm/Institute, experienced and active in Water Modeling in Bangladesh, could be involved in carrying out the services, particularly of the Components 2, 3 & 4 above.

The broad tasks of the Components are given below:

- **Component 1-** Inception Phase (Polder concepts and coherence in research):-The inception phase is meant to review the overall approach of the program and to align strengths and capacities between consultant and MoWR/BWDB to come to a common policy on its implementation. The focus is on how to come to the concept of sustainable polders and the coherence of the physical processes in the coastal zone to be studied.
- **Component 2-** Development of input datasets for mathematical models: This task would cover collection of all input datasets, undertake Quality Assurance / Quality Checking (QA/QC) and update/modify datasets as necessary for use in the modeling of the physical processes in the coastal zone of Bangladesh. Improve the processes of data collection, QA/QC and data dissemination and sharing among the government agencies.
- **Component 3-** Modeling of the long-term physical processes: This component would develop and use available mathematical models and datasets that describe the long-term physical processes in the coastal zone of Bangladesh, taking into account the climate change. The following long-term physical processes are important in polder management and design; and will subsequently be dealt with under: (a) tidal river and coastal morphology, on macro, meso and micro scale; (b) subsidence; (c) meteorology; and (d) effect of the climate change on tidal zone and salinity intrusion.



- **Component 4-** Completion phase (Polder design and long term management plan): This Component is to refine concepts for polder design and management to see in which of the remaining polders in the CEIP-I these concepts could be applied. Based on the boundary conditions around the polders, that were derived under Component 3, the promising polder options from the Inception Phase are translated into conceptual polder designs. After the Inception phase, the work on elaborating the polder concepts will be continued parallel to the research on the delta dynamics. One of the main objectives of this component is to create a framework for polder design, or as the subtitle of the program says: sustainable polders adapted to the coastal dynamics. Therefore, to complete the picture, an overview of the delta dynamics in the future is useful, also to see where future investments can be most favorable in terms of economical, physical and societal aspects. Besides that, after having done all the studies under Component 3 and the overview of data obtained under Component 2, it is considered appropriate to see where the interdependencies lie and where future research would be most useful.
- **Component 5-Investment plans for future polder improvements:** Under this Component, the Research Team, in consultation with the Client, will prioritize and define an Investment Plan to improve the resilience of the communities living in Bangladesh's 139 polders to hydro-meteorological events. This may be accomplished in two phases. The first phase to assess the elaboration of the design of the final 13 polders under CEIP-1, and a second phase to define the Investment Plan for the remaining 122 polders. Once the Investment Plan is designed, the Research Team will work with the Government of Bangladesh to define a fundraising rationale for the International Community to raise the Grant Resources necessary to enable the Government to finance a necessary revamping of the coastal protection system.
- **Component 6-** Capacity building and communication of results: This task will ensure that all analyses and results of the study, the data collected and generated, cost-benefit analyses are able to be updated, interactively communicated and understood by a wide range of stakeholders. Also ensure that the Client and stakeholders participate and are well informed of the developments and results of the project. This task will build the capacity of the BWDB and related agencies/institutes responsible for designing and managing the man-made as well as the natural environment in Coastal Bangladesh and strengthen the university level curriculum in water resources/coastal engineering and management.

Qualificaiton / Selection / Association

Bargladesh Water Development Board (BWDB) under the Ministry of Water Resources now invites eligible International Reaserch Firms/Institutes (consultants) to indicate their interest in providing the above mentioned services with information indicating that they are qualified to perform the services (such as: brochures, description of similar assignments, experience in similar conditions, availability of appropriate skills among staff, etc.). The financial capability should be shown as Financial Turn Over supported by audited financial reports for the last five years.

The consultants should have internationally acclaimed engineering research or relevant professional experience and are encouraged to have association with qualified Research Firm/Institute of Bangladesh. The form of association, if any, should be clearly indicated either "joint Venture (JV)" or "sub-consultancy". In the case of JV, the association shall appoint one of the firms/institutes to represent the association; all members of the JV, or their representative with a power of attorney, shall sign the contract. All members of JV shall be jointly and severally liable for the entire assignment. In case of sub-

consultancy, the lead firm shall sign the contract and shall be liable for the entire assignment. It is preferable that the interested International Research Firm/Institute will associate with a national Research Firm/Institute, experienced and active in Water Modeling in Bangladesh, only as sub-consultant particularly for the Components 2, 3 & 4 above, to ensure better quality, economy and efficiency. It is suggested to limit the total number of research firms/institutes including their associates to a maximum of five (5). All members of association shall have well defined inputs to the assignment.

The EOI would be reviewed on the basis of the following aspects to prepare a short list:

1. Country and Date of Registration/Incorporation
2. Availability of Professionals with Appropriate Skills
3. Availability of other Resources (management and financial)
4. Availability of other Resources - Support services of the firm
5. Experience of firm in conducting assignments of similar nature.
6. Experience of the firm in other areas.

Selection Procedure

Selection of the consultant will be based on **QBS (Quality Based Selection)** method in accordance with the procedures set out in the World Bank's "*Guidelines: Selection and Employment of Consultants under IBRD loans and IDA Credits & Grants by World Bank Borrowers- January 2011*".

Further Information

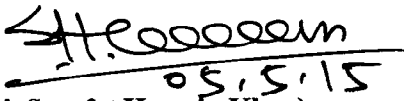
Interested Research Firm/Institute may obtain further information at the address below during regular office time: **09:00 to 17:00 hours (GMT+06:00)** on all working days. They may also obtain further information in the BWDB's official website: www.bwdb.gov.bd. The request for EOI is also available in CPTU's official website: www.cptu.gov.bd.

Deadline for Submission

The EOI must be delivered to the address below by **22 June, 2015** in four (4) sets (1 original+ 3 copies) and a soft copy in the form of CD; and clearly marked "**Expression of Interest**" for the "**Research Activities for Long Term Monitoring, Research and Analysis of Bangladesh Coastal Zone (Sustainable Polders Adapted to Coastal Dynamics) under CEIP-I (Contract Package No.CEIP-1/C3/S4)**".

Right to Select/Reject

The BWDB reserves the right to reject all EOIs or annul the short listing process at any stage.


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