

**PPCR Project/Program Approval Request**

1. <b>Country/Region:</b>	Bangladesh	2. <b>CIF Project ID#:</b>	XPCRBD002A
3. <b>Source of Funding:</b>	<input type="checkbox"/> FIP	<input checked="" type="checkbox"/> PPCR	<input type="checkbox"/> SREP
4. <b>Project/Program Title:</b>	Coastal Embankment Improvement Project Phase I (CEIP-I)		
5. <b>Type of CIF Investment:</b>	<input checked="" type="checkbox"/> Public	<input type="checkbox"/> Private	<input type="checkbox"/> Mixed
6. <b>Funding Request in million USD equivalent:</b>	<i>Grant: USD 25,000,000</i>		<i>Non-Grant:</i>
7. <b>Implementing MDB(s):</b>	IBRD		
8. <b>National Implementing Agency:</b>	Bangladesh Water Development Board (BWDB)		
9. <b>MDB Focal Point and Project/Program Task Team Leader (TTL):</b>	<i>Headquarters- Focal Point:</i> <i>Kanta K. Rigaud</i> <i>(<a href="mailto:kkumari@worldbank.org">kkumari@worldbank.org</a>)</i>		<i>TTL:</i> <i>Maria Sarraf</i> <i>(<a href="mailto:msarraf@worldbank.org">msarraf@worldbank.org</a>)</i>
10. <b>Project/Program Description (including objectives and expected outcomes):</b>			

This project is a blended operation with USD 375,000,000 in IDA credit and USD 25,000,000 in PPCR Grant funds.

The **project development objectives** are to: (a) increase the area protected in selected polders from tidal flooding and frequent storm surges, which are expected to worsen due to climate change; (b) improve agricultural production by reducing saline water intrusion in selected polders; and (c) improve the Government of Bangladesh's capacity to respond promptly and effectively to an eligible crisis or emergency. These objectives will be achieved by taking an integrated approach to rehabilitate and improve the polder system in the coastal area.

The long term objective is to increase the resilience of the entire coastal population to tidal flooding and natural disasters by upgrading the whole embankment system. With an existing 6,000 km of embankments with 139 polders, the magnitude of such a project is enormous. Hence, a multi-phased approach will be adopted over a period of 15 to 20 years. The proposed CEIP-I is the first phase of this long term program. Based on the success of the project, a series of projects that capture the lessons learned from CEIP-I can be designed for other exposed areas along the coastal region of Bangladesh.

Progress towards increasing the resilience of the coastal population to climate-related hazards by improving and rehabilitating the embankment structures of the polders will be demonstrated by the indicators in Section 14 and in Annex 1 of the PAD.

The Project has five components: four components are related to polder improvement and a fifth component (with a provisional zero amount) has been included to allow for rapid reallocation of loan proceeds during an emergency, under streamlined procurement and disbursement procedures. A detailed description of the Project is found in Annex 2 of the PAD:

- A. Rehabilitation and Improvement of Polders;
- B. Implementation of Social Action and Environment Management Plans;
- C. Construction Supervision, Monitoring & Evaluation of Project Impact, Supervision of Social and Environment Plans, and Coastal Zone Monitoring;
- D. Project Management, Technical Assistance, Training and Strategic Studies; and
- E. Contingent Emergency Response.

#### 11. Consistency with Investment Criteria<sup>1</sup>:

*Here are the investment criteria – a few lines on how the projects respond to these:*

- *Pilot and demonstrate approaches for integration of climate risk and resilience into development policies and planning*

Coastal embankments are an integral part of the disaster risk reduction and climate change programs for Bangladesh. There is clear evidence that embankments provided an effective buffer during the tidal surge resulting from *Cyclone Sidr* (2007). Damages and losses are much lower and lives were saved in areas where effective embankments were present. After *Cyclone Sidr*, extensive consultations occurred between government agencies, development partners and the World Bank to prepare a *Long Term Disaster Risk Reduction Program*. The five strategic pillars of this program, estimated to cost about US\$4 billion, are: (i) risk identification and assessment; (ii) strengthening and enhancing emergency preparedness; (iii) institutional capacity building; (iv) risk mitigation investment (mostly multi-purpose cyclone shelters and rehabilitation and upgrading of the embankment system), and (v) introducing catastrophe risk financing in the long term.

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<sup>1</sup> Please provide the information in the cover page or indicate page numbers in the accompanying project/program document where such information can be found.

- *Strengthen capacities at the national levels to integrate climate resilience into development planning*

The **impact of climate change** are an integral part of the **design** of the project.

There have been 19 well documented major cyclones that have occurred from 1960 to 2009. These events were used and simulated under different tidal conditions. Specifically, these storms were simulated under the maximum tide level in order to have conservative simulation of storm surge to compute the design parameters of the embankment scheme. A spatio-temporal hydrodynamic cyclone and storm surge model of the Bay of Bengal was used to compute maximum surge heights for different return periods (i.e., 10, 25, 50 and 100 years) at different locations of the embankment. The model used was stressed using different monsoon characteristics. The model also took into account 50 cm of sea level rise, 10% increase of wind speed and 20% increase in extreme precipitation by 2050. Generally, for the normal flood protection works, the frequency of occurrence of floods that needs to be selected for the design of a particular embankment depends on the acceptable extent of damage by inundation in the locality. Considering likely agricultural damage to important installations and loss of human lives, a 20 year return period flood is acceptable for use in Bangladesh in agricultural dominated areas. Considering the result of the analysis and project purpose, it was decided that the design return period should be 25 years. This time frame was used in the model to inform the design of sea, interior, and marginal dykes and used to test hydraulic, seepage, and structural failure modes. The design of slope protection work, and scour depths, launching apron, and filter material were also informed by the hydrodynamic simulations. (See Annex 2.1 of the PAD for a full description of the climate change parameters considered).

- *Scale-up and leverage climate resilient investment, building on other ongoing initiatives*

The proposed \$25 million PPCR grant are leveraging \$375 million IDA credit to build resilience in the coastal area of Bangladesh.

- *Enable learning by doing and sharing of lessons at country, regional and global levels*

The long term sustainability of the embankment is considering a learning by doing approach by piloting the use of *Water Management Organization*, that relies on strong social mobilization to ensure the operation and minor maintenance of the embankment. This is building on the experience of the Dutch financed *Integrated Planning for sustainable Water Resources Management Program (IPSWAM)*. Considering the need for 2 years of social mobilization, the project will pilot the establishment of WMO in 4-6 polders. If successful this can be scaled up in future phases of CEIP (For further information, please see Component B1 in Annex 2 of the PAD).

## 12. Stakeholder engagement<sup>2</sup>:

Stakeholders and beneficiaries consultations and participation are essential to carrying out the improvement works to the polder system. Beneficiaries will be consulted and work with BWDB on the operation and management of water infrastructure, through polder committees (PC) that either already exist or will be established through the project. In addition, participatory water management organizations (WMOs) will be piloted in 4 to 6 polders. WMOs will be involved in all stages of project implementation from identification of works, prioritization, design, construction as well as operation and minor maintenance (see Component B1 description in Annex 2 of the PAD for more detail).

<sup>2</sup> Ibid.

**13. Gender considerations<sup>3</sup>:**

Women in Bangladesh contribute significantly to the family's economy, both through their remunerative work on farms and through unpaid traditional work at home. BWDB will follow a strategy of gender inclusive project design, implementation, and operation. Women in the communities are and will continue to be consulted at each stage of project cycle and their representation will be ensured in project management including inventory of resettlement impacts, valuation of affected property, grievance resolution and relocation. BWDB will encourage the employment of poor women in earth work through the Labor Contracting Societies (LCS) and it is expected that at least 30% of WMOs members will be women. BWDB will provide gender-related training to sensitize its officials and increase capacity of the LCS and WMOs.

In addition, A *Social Management and Resettlement Policy Framework* (SMRPF) has been developed for the project. The SMRPF includes a resettlement policy framework and a social inclusion/gender framework. (A copy of the full SMRPF is available in the project file).

**14. Indicators and Targets (consistent with results framework):  
(details and intermediate indicators can be found in Annex 1 of the PAD)**

Core Indicator	Target (cumulative by end year)
(a) Gross areas protected against tidal flooding and storm surge in selected polders	100,800 ha
(b) Number of people benefiting from increased resilience to climate change ( <i>as relates to PPCR core indicator A1.3</i> )	760,000
(c) Increased cropping intensity inside the polder area (%)	180
(d) Quick availability of funds to execute emergency response operations (only to be triggered in the case of a major emergency)	N/A

**15. Co-Financing:**

	Amount (in USD million):	Type of contribution:
• Government		
• MDB	375,000,000	IDA Credit
• Private Sector (please specify)		
• Bilateral (please specify)		
• Others (please specify)		
<b>Co-Financing Total:</b>	<b>375,000,000</b>	

**16. Expected Board/MDB Management<sup>4</sup> approval date:**

Expected WB Board approval: June 20, 2013

<sup>3</sup> Ibid.

<sup>4</sup> In some cases activities will not require MDB Board approval.