PROJECT PAPER
ON A
PROPOSED ADDITIONAL CREDIT
IN THE AMOUNT OF SDR 91.1 MILLION
(US$140 MILLION EQUIVALENT)
TO THE
PEOPLE’S REPUBLIC OF BANGLADESH
FOR
EMERGENCY 2007 CYCLONE RECOVERY & RESTORATION PROJECT
ADDITIONAL FINANCING II

November 27, 2013

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CURRENCY EQUIVALENTS

(Exchange Rate Effective October 31, 2013)

Currency Unit = Bangladeshi Taka (BDT)
78 = US$1
US$1 = SDR 0.65018

FISCAL YEAR
July 1 – June 30

ABBREVIATIONS AND ACRONYMS

AF  Additional Financing
BCCRF  Bangladesh Climate Change Resilience Fund
BWDB  Bangladesh Water Development Board
CEIP  Coastal Embankment Improvement Program
CPP  Cyclone Preparedness Program
DDM  Directorate of Disaster Management
DMC  Disaster Management Committee
ECRRP  Emergency Cyclone Recovery and Restoration Project
EMF  Environment Management Framework
EMP  Environment Management Plan
FM  Financial Management
GFDRR  Global Facility for Disaster Reduction and Recovery
GoB  Government of Bangladesh
IDA  International Development Association
ISR  Implementation Status Report
JDLNA  Joint Damage Loss and Needs Assessment
KfW  Kreditanstalt fur Wiederaufbau
LGED  Local Government Engineering Department
M&E  Monitoring and Evaluation
MTR  Mid-Term Review
PCMU  Project Coordination and Monitoring Unit
PDO  Project Development Objective
RBIP  River Bank Improvement Program

Vice President: Philippe H. Le Houerou
Country Director: Johannes Zutt
Sector Director: John Henry Stein
Sector Manager: Simeon K. Ehui
Task Team Leader: Masood Ahmad, SASDA
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PEOPLE’S REPUBLIC OF BANGLADESH

EMERGENCY 2007 CYCLONE RECOVERY AND RESTORATION PROJECT—ADDITIONAL FINANCING II (P146500)

ADDITIONAL FINANCING DATA SHEET

<table>
<thead>
<tr>
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<tbody>
<tr>
<td><strong>Country Director:</strong> Johannes Zutt</td>
</tr>
<tr>
<td><strong>Sector Manager/Director:</strong> Simeon Ehui/John Henry Stein</td>
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<tr>
<td><strong>Team Leader:</strong> Masood Ahmad, SASDA</td>
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<td><strong>Project ID:</strong> P146500</td>
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<td><strong>Lending Instrument:</strong> ERL</td>
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| Environmental category: Partial Assessment |
| Expected Closing Date: December 31, 2014 |
| Joint IFC: N  Joint Level: N |

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Proposed terms:
Standard IDA terms with 40 years of maturity and 10 years of grace period

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<td><strong>Recipient:</strong> People’s Republic of Bangladesh</td>
</tr>
<tr>
<td><strong>Responsible Agency:</strong> Project Coordination and Monitoring Unit, Planning Commission</td>
</tr>
<tr>
<td>Contact Person: Dr. Md. Jahirul Islam</td>
</tr>
<tr>
<td>Designation: Director General and Project Director, ECRRP (PCMU)</td>
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<tr>
<td>Telephone No: +88 (02) 9180901</td>
</tr>
<tr>
<td>Fax No: +88 (02) 918-0911</td>
</tr>
<tr>
<td>Email: <a href="mailto:jahir200903@yahoo.com">jahir200903@yahoo.com</a></td>
</tr>
</tbody>
</table>

**Responsible Agency:** Local Government Engineering Department
Contact Person: Mr. A.F.M. Munibur Rahman  
Designation: Project Director, ECRRP (LGED)  
Telephone No.: +88 (02) 8143334  
Fax No.: + 88 (02) 8117257  
Email: munibur.lged@yahoo.com

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Designation: Project Director, ECRRP (BWDB)  
Telephone No.: + 88 (02) 9565420  
Fax No.: + 88 (02) 9565420  
Email: pdeccrrp.bwdb@gmail.com, ssiraz103@yahoo.com

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### Project Development Objective and Description

**Original project development objective:** The Project Development Objectives (PDO) will remain the same as for the original project which is “to support Government of Bangladesh efforts to facilitate restoration and recovery from the damage to livelihoods and infrastructure caused by Cyclone Sidr and to build long-term preparedness through strengthened disaster risk management.”

**Project description:**

**Component A: Recovery of Agriculture Sector and Improvement Program:** To support livelihood restoration and to introduce improved variety of crops that can be grown in saline environment.

**Component B: Reconstruction and Improvement of Multipurpose Shelters:** Construction and rehabilitation of multi-purpose shelters for providing shelter to people during disasters in particular during cyclones.

**Component C: Rehabilitation of Coastal Embankments.** Rehabilitation and improvement do polders that provide protection against high tide and cyclone surges.

**Component D: Long-Term Disaster Risk Management Program.** To support (D1) capacity building in damage needs assessment post disasters, the strengthening of emergency preparedness at the community levels; and (D2) development of project for long term disaster risk reduction.

**Component E: Monitoring and Evaluation of Project Impact.** Monitoring and evaluation of the project impact.

**Component F: Project Management, Technical Assistance, Strategic Studies and Training, and Contingent Emergency Response.**

The proposed Additional Financing (AF II) resources would be used to provide continued and additional support to components B, C, D2, E and F.

### Safeguard and Exception to Policies

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<th>Safeguard policies triggered:</th>
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<td>Projects in Disputed Areas (OP/BP 7.60)</td>
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<td>Have these been endorsed or approved by Bank management?</td>
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1. **INTRODUCTION**

1. This Project Paper seeks the approval of the Executive Directors to provide an additional credit in an amount of US$140 million to the People’s Republic of Bangladesh for the Emergency 2007 Cyclone Recovery and Restoration Project (P111272), currently supported through an IDA Credit of SDR69.3 million (US$ 109 million equivalent, Credit 4507-BD), and an Additional Financing Credit of SDR 49.4 million (US$75 million equivalent, Credit 4819-BD). This additional amount of SDR 91.1 million (US$140 million equivalent) is sought from IDA. The Additional Financing is to scale up the construction and rehabilitation of critical infrastructure in the coastal areas.

2. The proposed additional financing will help support the costs associated with the Government of Bangladesh’s (GOB) efforts to facilitate recovery from the damage and losses caused by Cyclone Sidr (2007) and Cyclone Aila (2009). The damages and losses from Cyclone Sidr alone were estimated to be US$1.7 billion. The estimated cost of most pressing needs for restoration and recovery was estimated around US$220 million, however, an IDA credit of US$109 million was made available due to shortage of IDA funds at that time. Cyclone Aila occurred in the same area as Sidr that caused additional damages. Therefore, an Additional Financing of US$75 million was approved in 2010 and US$25 million was mobilized from Bangladesh Climate Change Resilience Fund (BCCRF) in 2011. Further Additional Financing is now sought for: (a) the rehabilitation of ten polders of the coastal embankment network that could not be undertaken due higher cost than originally estimated for the “build-back-better” design (about US$57 million) adopted under the project, and design of projects for long term disaster risk reduction (US$3 million); (b) scale up efforts to strengthen the resilience of the coastal area through the construction of 100 new multipurpose cyclone shelters, the rehabilitation of 220 existing multipurpose cyclone shelters, and about 100 km of connecting roads (US$78.5 million); and (c) continued monitoring and evaluation and project management and coordination support (US$1.5 million).

3. The proposed project’s development objective and the implementation, coordination, and monitoring and evaluation (M&E) arrangements would remain unchanged. The project outputs for the relevant components have been revised. Additional Financing would continue to finance recovery and restoration in the areas most affected by Cyclones Sidr, and Aila through scaling up components to construct and rehabilitate multipurpose cyclone shelters and rehabilitation of coastal embankments.

II. **BACKGROUND AND RATIONALE FOR ADDITIONAL FINANCING**

4. **Coastal Vulnerability.** The coast of Bangladesh is approximately 710 kilometers (km) long and is home to nearly 40 million people. It is vulnerable to cyclones, flooding and tsunamis. Cyclones affect the region with strong winds, accompanied by powerful storm surges and widespread inundation over a vast area. Destruction is amplified by low-lying physical geography, high-tide at landfall, climate change, high population density, and the low-income status of Bangladesh. In 2004, the United Nations Development Program (UNDP) reported Bangladesh as the most vulnerable country in the world to tropical cyclones. The Inter-Governmental Panel on Climate Change (IPCC) projects that climate change is likely to increase both the frequency and intensity of cyclones in the Bay of Bengal and alter the depth and spatial
extent of surges in the Ganges-Brahmaputra-Meghna river basin. The Meghna estuarine region is especially vulnerable to storm surge amplification. Natural disasters, particularly cyclones, remain a persistent obstacle towards sustained growth in locally-affected areas of the coastal region. From 1990-2008, Bangladesh incurred an average annual loss of US$2 billion (1.6 percent of annual GDP) from disasters. (See Annex 3 for more details).

5. **Cyclones Sidr (2007) and Aila (2009).** On November 15, 2007, Cyclone Sidr made landfall across the southern coast of Bangladesh, causing extensive damage to lives and property. Overall, around 30 districts and 9 million people were affected by the cyclone. Damage and losses caused by Cyclone Sidr were estimated to total about Bangladesh Taka (BDT) 115.6 billion (US$1.7 billion). More than two-thirds of this was physical damage and one-third economic losses, focused on the coastal regions. The Joint Damage Loss and Needs Assessment (JDLNA) led by the Government also developed a longer term program for disaster risk reduction and improving resilience to extreme events. The estimated cost of this plan—which included both the recovery and rehabilitation of damaged infrastructure to a build back better design, as well as the longer term improvements for disaster risk reduction—was US$4 billion over a 15 year period, with a cost for the first phase of five years (2008-2013) of about US$1.6 billion. This is being undertaken under separate new operation exclusively designed for reducing the long term disaster risks.

6. The original ECRRP was designed to cover a portion of recovery and restoration costs and to target the most immediate needs in the recovery and restoration of livelihoods and critical infrastructure damaged after Cyclone Sidr. ECRRP covered restoration of the agricultural sector in the cyclone affected areas, and reconstruction of public infrastructure, including reconstruction and improvement of multi-purpose shelters and rehabilitation of coastal embankments with “build back better” designs, as well as strengthened disaster risk reduction and management systems, and technical assistance, strategic studies and training to strengthen future emergency response and preparedness to disasters. ECRRP also supported planning and design of projects for long term disaster management such as (i) strategic study of the coastal embankment network, providing recommendations for systematic upgrading over a period of twenty years (which formed the basis for the Coastal Embankment Improvement Project (Credit 52800-BD) that was recently approved by the World Bank); (ii) storage of food using modern silos; (iii) construction of new multipurpose disaster shelters; and (iv) ongoing River Bank Improvement Program studies to protect against flooding and river bank erosion, which are the main cause of loss of land and poverty in Bangladesh. The credit amounts for various credits and grants for ECRRP and disbursements as of September 2013 are given in the Table 1.

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1 A comprehensive Joint Damage, Loss and Needs Assessment (JDLNA) undertaken by a team comprised of the Government of Bangladesh (GoB) and international experts and led by the World Bank JDLNA team was led by the World Bank with participation from IFRC, ILO, UN, USAID, EC, IDB, JICA, IBIC, DFID, ADB and FAO.

2 Damage and losses were concentrated in the housing sector (50 percent of the total), production sectors (30 percent), and public sector infrastructure (16 percent). The most affected sectors were, in decreasing order, housing, agriculture, transport, water control structures, education, and industry. Damage and losses to private assets and livelihoods outweighed the losses and damage to public infrastructure significantly.
Table 1: IDA Credits and Grants for ECRRP and Amount Disbursed (in millions).

<table>
<thead>
<tr>
<th>Credit/Grant</th>
<th>Amount</th>
<th>Disbursed</th>
<th>Approval Date</th>
<th>Closing Date</th>
</tr>
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<td>100.3</td>
<td>Nov 6, 2008</td>
<td>Dec 31, 2014</td>
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<td>Additional Financing (Cr.4819)</td>
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<td>Sep 24, 2010</td>
<td>Dec 31, 2015</td>
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<tr>
<td>GFDRR TF 93588</td>
<td>3.1</td>
<td>3.1</td>
<td>Apr 16, 2009</td>
<td>June 30, 2013</td>
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<tr>
<td>BCCRF TF 99305</td>
<td>25.0</td>
<td>12.1</td>
<td>Aug 8, 2011</td>
<td>Dec 31, 2014</td>
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<tr>
<td>KfW Parallel Financing</td>
<td>4.9</td>
<td>2.6</td>
<td>Nov 2012</td>
<td>Dec 31, 2013</td>
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<tr>
<td>Total</td>
<td>216.9</td>
<td>128.1</td>
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7. **Project Development Objective:** The original project development objective (PDO) for the ECRRP is to support Government of Bangladesh efforts to facilitate restoration and recovery from the damage to livelihoods and infrastructure caused by Cyclone Sidr and to build long-term preparedness through strengthened disaster risk management. This PDO would remain unchanged. The PDO remains firmly aligned with the GoB’s objective of speedy recovery and reconstruction after Cyclone Sidr, and to improve resilience to mitigate future impacts of natural disasters. It is also closely aligned with the Government’s: (i) National Strategy for Accelerated Poverty Reduction II (NSAPRII) for FY 09-11; (ii) Bangladesh Climate Change Strategy and Action Plan (2008); and (iii) the recent draft Agriculture and Food Security Strategy and Action Plan (May 2010). The ECRRP supports and contributes to the overall goal and outcomes spelled out in these strategies namely: food security; protection to people, livelihoods and assets; comprehensive disaster risk management, and institutional strengthening and capacity building of the agencies responsible for disaster and climate change risk management and mitigation.

8. **Project Performance.** Overall, ECRRP has been showing satisfactory progress towards achievement of its development objective and outputs. The last Implementation Status Report (ISR), in September 2013, rated progress towards the development objective “Satisfactory”. The project had faced some initial delays because of complex implementation arrangements, including the coordination of five implementing agencies and lengthy procedures for selection of consultants. All of the initial implementation constraints have now been overcome and significant progress has been made under all project components. As of September 26, 2013, disbursements for the original credit are about US$100 million (91% of the original credit amount), and total disbursements are about US$128 million (about 60% of total funds). Over the past year, disbursements of the project have accelerated, with US$49 million (43% of total disbursements) disbursed during FY13. All funds are now committed and all project covenants are in compliance. The remaining works under different components are expected to be completed by the current closing dates of these credits i.e. December 31, 2014 for the Original IDA Credit 4507-BD, and December 31, 2015 for the first Additional Financing Credit 4819-BD. No extension of the closing dates are sought for these Credits.

9. **Project Restructuring:** After the original IDA Credit was approved in 2008, a grant from Global Fund for Disaster Risk Reduction (GFDRR) was added in 2009; an additional financing IDA credit was provided in 2010, a grant from BCCRF was provided in 2011 and also Kfw provided some funds in 2012 bringing the total resources for the project to US$216.9 million which is close to original estimate of US$220 million. Having all these resources made available and substantial experience in project implementation; a mid-term review was undertaken in January 2013. Based on the implementation progress of each component and
activity, the project was restructured in June 2013. The legal agreements were amended to reflect the restructured project. Key changes in the project were: (i) scale up of the construction of new multi-purpose cyclone shelters (Component B) from 110 to 230, downsizing of the rehabilitation of existing cyclone shelters (Component B) from 350 to 240; (ii) reduction of the number of polders rehabilitated to 19 from 30; and (iii) dropping off the study and technical advisory services for the establishment of a Disaster Fund (Sub-component F2) as timing for such studies was not considered right.

10. **Rationale for Additional Financing.** The primary rationale for the proposed Additional Financing is for IDA to continue its support to the Government of Bangladesh for improving and strengthening critical disaster prevention infrastructure in the coastal areas of Bangladesh. At the time of Cyclone Sidr, damages were estimated at US$1.7 billion, with significant needs in the further strengthening of coastal embankments as well as the rehabilitation and construction of improved multi-purpose cyclone shelters. The need for the additional financing is driven by: (i) a need to scale up the construction and rehabilitation of critical infrastructure in the coastal areas, in particular, cyclone shelters; and (ii) further repair works of coastal embankment on 19 polders and rehabilitation ten polders which were taken out of the project due to slow implementation of Component C.

III. **Proposed Changes:**

11. **PDO and design:** The project development objective (PDO) of the proposed additional financing would remain the same, which is: “To support Government of Bangladesh efforts to facilitate recovery from the damage to livelihoods and infrastructure caused by Cyclone Sidr and to build long-term preparedness through strengthened disaster risk management.” The design of the project would also remain unchanged from the original project components.

12. **Key Performance Indicator (KPIs):** As the original credit was implemented under a post-disaster emergency situation, the results framework presented a best guess as to the project’s proposed achievements. The results framework was further aligned to reflect the achievable targets during the first Additional Financing of the project with the understanding that a stocktaking of the project’s progress would be undertaken at the project’s Mid-Term Review (MTR). During this time, the project was proposed for restructuring, based on a revision to the project’s activities, and a reallocation across components to address financing gaps. In line with these proposed changes, the PDO level indicators were revised to align with the restructured project activities, and to strengthen attribution and ensuring realism of the end of project targets. Specifically, the PDO level indicators were revised to enhance specificity and to better monitor progress and project achievements. Proposed scaled-up operations would lead to changes in the project KPI targets and costs. The consolidated results framework including the key changes in KPI targets as a result of this proposed AF II are described in Annex 1. These revisions include: (a) an increase in the total number of new shelters to be built from 230 to 330; (b) an increase in the total number of rehabilitated shelters from 240 to 460; and (c) an increase in the targeted length of coastal embankments to be rehabilitated from 270 km to 460 km for the works on additional 10 polders. As a result of these interventions, the total number of vulnerable population targeted to be benefitted due to the rehabilitation and construction of protective infrastructures, would be about 4.2 million.
13. **Emergency Contingent Response Component.** This Additional Financing includes an additional contingent financing component that will provide a mechanism for prevention and preparedness, and allows for a rapid response in the event of an emergency, such as a natural disaster. The inclusion of this component will allow for the financing of overall emergency response, as well as specific emergency works, goods and services. The implementation arrangements and disbursement conditions have been revised to reflect the standard practices of including this component in Bank-financed operations.

14. **Project Components:** The additional financing (US$140 million) would be used to provide continued and additional support to (i) build and rehabilitate additional cyclone shelters and access road networks (Component B); (ii) rehabilitate additional coastal embankments damaged by Cyclones Sidr and Aila (Component C); (iii) preparation of future projects (component D2); (iv) monitoring and evaluation and project coordination (Component E) and (v) Project coordination and management, and contingent emergency response (Component F). Details are given below:

i. **Component B: Reconstruction and Improvement of Multipurpose Shelters (US$78.5 million).** The objective of this component (Component B) is to enhance resilience to natural disasters through the construction of shelters and access road networks. Because of the high risk of cyclones and natural disasters in Bangladesh, the need for shelters is immense. Multipurpose cyclone shelters have been proven to save lives in the event of a natural disaster, providing a safe haven for people and livestock. In addition, these buildings are constructed as multipurpose buildings, normally used as primary schools during non-disaster periods, resulting in significant social and economic benefits. Under this proposed AF II Credit, the focus would be to improve and construct shelters in nine Sidr affected districts³ where the demand for shelters is quite high. The implementation arrangements are already established and bidding documents are ready to be launched for a substantial part of these new works. Thus, it would be most appropriate and cost effective to undertake works in these nine districts under the existing project’s institutional setup, rather than initiating a new operation. This would allow improving and strengthening the resilience of the coastal population in a systematic way. Annex 3 provides an overview of the requirements of shelters in the nine districts and also the type and characteristics of the shelters being constructed. Additional financing is proposed for this component to continue support for ongoing activities under original credit and first additional financing as needed, to rehabilitate a total of 220 existing shelters, and to construct a total of 100 new shelters, as well as about 100 km of connecting roads. The revised total for this component is US$208.5 million.

ii. **Component C: Rehabilitation of Coastal Embankments (US$37.0 million).** The objective of Component C is to rehabilitate coastal embankments damaged by Cyclone Sidr. Overall, the financing needs for rehabilitating, improving and constructing coastal embankments remain very high: the JDLNA estimated the total needs in Bangladesh for reconstructing coastal embankments to be US$106 million, and this figure is corroborated by a recent study conducted by the BWDB. Thus, additional financing in the amount of US$37.0 million under this component will be used to repair and improve ten additional

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³ Bagerhat, Barguna, Barisal, Bholo, Jhalokathi, Khulna, Patuakhali, Pirojpur, Sathkira
polders. These polders were taken out of the original project during implementation due to cost increases and relatively slow implementation progress by BWDB. Funding for this component was reallocated to Component B under a restructuring of the project in 2013. Implementation progress under this component C, executed by BWDB, has now improved, and the need for the additional ten polders to be rehabilitated and strengthened remains. Additional financing is proposed for this component to continue support for ongoing activities under original credit and first additional financing as needed, and to rehabilitate remaining 10 polders. The revised total for this component is US$60.0 million.

iii. **Component D2: Preparation of Future Projects (US$3.0 million).** Additional financing is proposed for this component to continue support for ongoing activities under original credit and first additional financing as needed, and to finance the preparation studies for selected activities such as studies related to the River Bank Improvement Program (RBIP) for revamping the Brahmaputra River Bank Embankment (BRE) or other such projects agreed between Government and Association. The revised total for this component is US$9.0 million.

iv. **Component E: Project Monitoring and Evaluation (US$0.8 million).** Monitoring and evaluation (M&E) activities provide continuous feedback to the Government, the Project Steering Committee (PSC), the Project Coordination and Monitoring Unit (PCMU), and the project’s implementing agencies on the project’s performance and impact of its various components. M&E consultants hired under this component also supervise implementation of the overall EMF and S/RPF, provide careful review and monitoring of sub-project specific social and environmental management plans and impact assessments, and supervise their implementation. Additional financing is proposed for this component to continue support for ongoing activities under original credit and first additional financing as needed, and expenses in evaluating the additional activities under Components B and C. The revised total for this component is US$5.3 million.

v. **Component F: Project Management, Technical Assistance Strategic Studies and Contingent Emergency Response (US$20.7 million):** This component supports the Government in implementing the project, including coordinating all project related activities, technical assistance and training. It includes provisions for the operation of the PCMU under the Ministry of Planning. For continued the Project Management Support by PCMU (Component F1) US$0.7 million have been added bring the total for component F1 to US$5.7 million. The total allocation of funds for the Component F would be US$31.1 million.

vi. For component F5, the emergency support for future disasters, US$20 million have been allocated. Following an adverse natural or man-made event or that causes a major disaster, the Government may request the Bank to re-allocate project funds to this component to support response and reconstruction. This component would allow the

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4 Such a reallocation would not constitute a formal Project restructuring, as permitted under the particular arrangements available for contingent emergency response components (ref. Including Contingent Emergency Response Components in Standard Investment Projects, Guidance Note to Staff, April 2009, footnote 6).
Government to request the Bank to reallocate project funds and designate them as IRM funds to be engaged to partially cover emergency response and recovery costs. This component could also be used to channel additional funds should they become available as a result of the emergency. The funds allocated for the F5 component, if not used for any future disaster would be allocated to Component C for the rehabilitation of polders provided its implementation proceeds well. If deemed relevant, and in agreement with the Government, the allocation could also be used for Component B.

15. **Project Cost and Financing.** The total project cost for this AF II would be US$140 Million. The breakdown by component and financing by each source is provided in Annex 3 Table 5.

IV. **APPRaisal SUMMARY**

16. **Economic Returns and Financial Sustainability.** The original project and the first additional financing project make use of the JDNLNA report for costing estimates and financial viability. The shelters, where the bulk of the financing is allocated, are multipurpose buildings and used as the primary schools and for other community activities that alone justifies such investments. The shelters have been designed with separate facilities for boys and girls, which have positive social benefits for female school enrollment. In addition, these separate facilities are available for women and children during and after extreme weather events, which adds to the security of women post disaster. The shelters have proven to save lives as it is evident in considerable reduction in deaths during cyclones over last few decades (see Table 1 Annex 3) in particular after 1991 when the combination of the greater availability of cyclone shelters and the Cyclone Preparedness Program (CPP), a volunteer program to help local residents reach shelters, was shown to dramatically reduce the loss of life after disasters. Construction activities generate local employment and stimulate the local economy in relatively remote areas where economic activities are very minimal otherwise. The reconstruction of embankments is essential for providing protection to any livelihood and day to day activities. The benefits of close gaps in the embankments are enormous. The EIRR estimated for the reconstruction of embankments of similar polders was estimated over 20% where the costs were much higher than in the proposed AF2. The shelters are multipurpose buildings and they are maintained as schools by the education department and the local community. The choice of using shelters as primary schools is made due to consideration of sustainability of these structures and spread that suits for such use.

17. **Financial Management.** The same financial management (FM) arrangements being used in the current project, which are satisfactory to IDA, will be used under the Additional Financing II Credit. These involve multiple implementing agencies that had, at the start of the project, varying levels of capacity with respect to financial management. Thus, at project effectiveness, the risk to FM was rated as High. Since the project became effective, technical assistance has served to strengthen the FM capacity of all implementing agencies. The FM system has proven to be adequate for the project. The FM rating at the last ISR in May 2013 was “Moderately Satisfactory” due to several issues, including an audit observation pending to be resolved with the Foreign Aided Project Audit Directorate (FAPAD) related to excess payments under Component C for reconstruction of embankments managed by BWDB. It is expected that the observation will be resolved by March 31, 2014. In case of unsatisfactory resolution of the
audit observation, the amount will be declared as ineligible and would have to be refunded by the Government. There are currently no outstanding audit reports or ineligible expenditures under this project or Bank projects being implemented by the implementing entities of this project.

18. **Disbursement Arrangements.** The existing designated accounts already established under the original IDA credit and first additional financing IDA credit for various implementing agencies will continue to be used for this second additional financing, and the ceilings of these various designated accounts will remain the same as under the current project. Disbursement method established for various implementing agencies under the original project will continue for the additional financing, and the format and content of reporting on the use of Bank funds will remain the same. To date, there has been no material disbursement issue. The additional financing will be 100% financed by IDA, inclusive of taxes. Financing under the Additional Financing 2 would not be financed with proceeds by any other financier or Trust Fund (TF). The procurement plan would reflect any co-financing arrangements with the Original Credit (Cr 4507-BD) and the first Additional Financing (Cr 4819-BD). The allocation of IDA proceeds under additional financing is provided in Annex 3 Table 6.

19. **Procurement.** Procurement for the proposed additional financing would be carried out in accordance with the World Bank’s “Guidelines: Procurement under IBRD Loans and IDA Credits” dated May 2004 (Revised October January 2011); and “Guidelines: Selection and Employment of Consultants by World Bank Borrowers” dated May 2004 (Revised January 2011), and the provisions stipulated in the Legal Agreement. The procurement performance as rated in the last ISR is satisfactory. To the extent possible, NCB procurement under the additional financing will be done through electronic government procurement (e-GP). The Procurement Plan, which has been reviewed and found satisfactory to IDA, sets forth those contracts which shall be subject to the IDA’s Prior Review. All other contracts shall be subject to Post Review by the IDA. Particular method of procurement and selection of consultants will be governed by Appendix 1 of the Bank’s Guidelines and, the method of procurement and selection of consultants is identified in the IDA approved Procurement Plan. Procurement plans for LGED and BWDB will be uploaded to the online Procurement Plan Execution System (SEPA- www.sepainitiative.org).

20. **Technical.** The ECRRP funds a partial need of the recovery and restoration requirements laid out in the JDLNA. The approach of the ECRRP has been to restore livelihoods and address the restoration of critical infrastructure while aiming to mainstream long-term risk reduction through disaster risk management strategies. The Additional Financing II will continue to address the needs in critical infrastructure, as well as long-term disaster risk reduction through scaling up the existing project components. The project has established satisfactory technical capacity designs of the infrastructure and the implementation methods have been improved considerable since the start of the project following the “build-back-better” concept. The international consultants are providing satisfactory design and supervision support to BWDB and LGED for civil engineering works for rehabilitation and construction of multipurpose cyclone shelters. The M&E consultants are also assisting the PCMU in the monitoring and evaluation of the project, including compliance with social and environmental safeguards.

21. **Institutional.** The experience to date indicates that the existing implementing arrangements have improved since the start of the project and they are satisfactory for planning,
designing, implementing, coordinating and M&E of the project activities including incremental activities funded by the additional financing. The Project Coordination and Monitoring Unit (PCMU), under guidance from a Project Steering Committee (PSC), and with oversight from the Ministry of Planning, is responsible for project management, overseeing strategic studies and training, and managing the fund for future disasters during project implementation. The PCMU oversees the implementation of the project’s components through implementing partners, including LGED (Component B), BWDB (Component C and D2), and the PCMU (Components E&F). This management structure will continue to be used for implementation of activities under the Additional Financing II.

22. **Safeguards.** The safeguard category of the original IDA Credit is “B”, or Partial Assessment, since there are no major significant and irreversible adverse environmental and social issues in the project activities. To address safeguard issues, an Environmental Management Framework (EMF) and Social and Resettlement Policy Framework (SRPF) were adopted in 2009 for the original ECRRP. The EMF, along with the Bangla version, was disclosed in websites of the implementing agencies (http://www.bwdb.gov.bd and http://www.lged.gov.bd) on January 9, 2009 and in the World Bank’s InfoShop on the same date. Hard copies of the document have also been made available in the site offices of BWDB and LGED in project areas. The EMF outlines the environmental management procedures that are already practiced in original project during the construction period and also in the operation and maintenance period to minimize the negative impacts and implementation of enhancement measures. Once sites are selected for investments, site specific Environmental Impact Assessments, Management Plans, and Resettlement Action Plans (if applicable) are undertaken, disclosed and consulted with the impacted populations. Thus, consultations on each of the subprojects take place as the subproject is identified. An independent M&E Consultant under Component E of the original project is responsible to review, supervise and monitor activities for environmental and social safeguards compliance of all subprojects. This system will continue to operate under the additional financing. There are no outstanding safeguards issues. A detailed note on the application of safeguard procedures followed under the project so far and the status has been placed in the project files.

23. **Land Acquisition and Resettlement Action Plan.** The SRPF outlines a policy for land acquisition and resettlement that is in accordance with the World Bank’s operational policy (OP4.12). The objective under this approach is to minimize the need for land acquisition and any involuntary resettlement under the project’s investments, and to compensate for any land acquired or involuntary resettlement in the case that land acquisition is necessary in accordance with the World Bank’s operational policy (OP4.12). The SRPF has been modified to provide for the latest language being used now for Bank-financed projects in Bangladesh to include a definition of squatters and encroachers. The revised SRPF has been disclosed in websites of the implementing agencies (http://www.bwdb.gov.bd and http://www.lged.gov.bd).

24. In general, land acquisition is expected to be avoided at the time of approval of the original credit, as most of the works slated under Components B and C were indicated as repair and rehabilitation of existing shelters and embankments, respectively. The possibility of land acquisition is there and has to be provided in the project to properly locate the shelters in case land is not available at suitable location and for rehabilitating embankments. Under the original project, in accordance with the Investment Project Financing (IPF) instructions (effective from
April 08, 2013) for selected expenditures, approval was obtained from the Regional Vice President (RVP) (dated May 09, 2013) to allow for reimbursements of land acquisition and involuntary resettlement costs incurred or to be incurred, under the terms of the IDA Financing Agreement. The same arrangements would continue for the reimbursements of the eligible land acquisition and resettlement costs under the proposed Additional Financing II.

25. **Governance and Accountability.** The lessons learned over the last five years to improve the project implementation and safeguard against potential governance issues have been incorporated in the project design, implementation and monitoring procedure. Third party monitoring is also carried out by the M&E consultants and separate NGOs recruited by the Bank. The key features of the governance and accountability plan that may be highlighted are: (a) proper procurement packages of works to attract good, professional contractors with track record and capacity to execute these works professionally. Some of the packages include over 20 shelters for example and polders include all works related to 4 polders etc. (b) the works are designed by reputable consulting firms and the consultants are designated as the Engineer in the contracts to supervise implementation of works; (c) M&E consultants carry out independent monitoring of the works and progress; (d) for third party monitoring, an NGO recruited by the Bank; and (e) Bank team consisting of international and national staff and consultants undertakes regular visits to the site to carry out supervision and check on quality of implementation. For this AFII, E-Procurement would be used by LGED and BWDB for components B and C of the project for as many national level procurement contracts as possible.

26. **Risks.** With implementation experience gained so far and relatively smooth implementation and improved implementation arrangements based on lessons learnt, the project risk is rated as “moderate”.

27. **Covenants:** All existing covenants for ECRRP will apply for implementation of activities under Additional Financing. No exceptions to Bank policies or procedures are sought.
## Annex 1: Results Framework and Monitoring

### Bangladesh: Emergency 2007 Cyclone Recovery & Restoration Project—Additional Financing II

#### Results Framework

<table>
<thead>
<tr>
<th>PDO</th>
<th>Current (PAD)</th>
<th>Proposed change*</th>
<th>Comments/ Rationale for Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>PDO of the project is to support GoB’s efforts to facilitate restoration and recovery from the damage to livelihoods and infrastructure caused by Cyclone Sidr and build long-term preparedness through strengthened disaster risk reduction and management”</td>
<td>No Change</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### PDO indicators

<table>
<thead>
<tr>
<th>Current (PAD)</th>
<th>Proposed change*</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Number of cyclone affected population benefitted due to rehabilitation and construction of protective infrastructure (e.g. embankments, disaster shelters)</td>
<td>Increase in end of project target from 2.48 million to 4.2 million</td>
</tr>
<tr>
<td>2. Number of cyclone affected HHs whose livelihoods have been recovered due to distribution of inputs, technology and training</td>
<td>No Change</td>
</tr>
<tr>
<td>Improved capacity and preparedness for disaster risk management in the government (DDM) and communities (DMCs)</td>
<td>No Change</td>
</tr>
</tbody>
</table>

#### Intermediate Results indicators

<table>
<thead>
<tr>
<th>Current (PAD)</th>
<th>Proposed change*</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Number of newly constructed shelters with improved design standards and connectivity with the community;</td>
<td>Increase in end of project target from 230 to 330</td>
</tr>
<tr>
<td>2. Numbers of shelters repaired and improved upon with improved connectivity (such as access roads) with the community;</td>
<td>Increase in end of project target from 240 to 460</td>
</tr>
</tbody>
</table>

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Component C
### Revisions to the Results Framework

<table>
<thead>
<tr>
<th><strong>Length of coastal embankments including appurtenant structures rehabilitated</strong></th>
<th><strong>10 additional polders with likely increase in end of project target from 270 km to 460 km</strong></th>
</tr>
</thead>
</table>

#### Component E

| 1. Timely submission of quarterly M&E reports | No change |
| 2. Household survey completed at MTR and once in every year thereafter. | No change |

#### Component F

| 1. PCMU to capture the results of the project components and submit report at MTR and at project closing | No change |
| 2. Funding available for emergency response | Incorporates the capacity to deliver additional funds for post disaster response |

*Indicate if the indicator is Dropped, Continued, New, Revised, or if there is a change in the end of project target value*
REVISED PROJECT RESULTS FRAMEWORK

**Project Development Objective (PDO):** The Project Development Objectives (PDO) will remain the same as for the original project which is “to support Government of Bangladesh efforts to facilitate restoration and recovery from the damage to livelihoods and infrastructure caused by Cyclone Sidr and to build long-term preparedness through strengthened disaster risk management.”

<table>
<thead>
<tr>
<th>PDO Level Results</th>
<th>Core</th>
<th>UOM</th>
<th>Baseline -2009</th>
<th>Progress To Date Aug-2013</th>
<th>Cumulative Target Values</th>
<th>Frequency</th>
<th>Data Source/Methodology</th>
<th>Responsibility for Data Collection</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Number of cyclone affected population benefitted due to rehabilitation and construction of protective infrastructure (e.g. embankments, disaster shelters)</td>
<td>Number</td>
<td>1.30 mill</td>
<td>2.10 mill</td>
<td>2.30 mill</td>
<td>2.9 mill</td>
<td>3.6. mill</td>
<td>4.2 mill</td>
<td>Quarterly and annually</td>
<td>Quarterly implementation progress reports.</td>
</tr>
<tr>
<td>2. Number of cyclone affected HHs whose livelihoods have been recovered due to distribution of inputs, technology and training.</td>
<td>Number</td>
<td>0</td>
<td>Crops (C): 198,058 HH Livestock (L): 32,250 HH Fisheries (F): 25,018 HH</td>
<td>C: 224,000 HH L: 33,000 HH F: 26,700 HH</td>
<td>C: 224,000 HH L: 33,000 HH F: 26,700 HH</td>
<td>Quarterly</td>
<td>Data collection under M&amp;E</td>
<td>FAO,M&amp;E consultants</td>
<td></td>
</tr>
<tr>
<td>3. Improved capacity and preparedness for disaster risk management in the government (DDM) and communities (DMCs)</td>
<td>Text</td>
<td>Limited Capacity</td>
<td>Early Warning System (EWS) set up</td>
<td>Emergency equipment and EWS in use</td>
<td>D-Forms updated post-disaster and used to guide</td>
<td>Improved response during emergencies</td>
<td>Improved response during</td>
<td>Quarterly and Annually</td>
<td>Field visits and Quarterly progress reports</td>
</tr>
</tbody>
</table>
## Intermediate Results and Indicators

<table>
<thead>
<tr>
<th>Intermediate Results Indicators</th>
<th>Core</th>
<th>Unit of Measurement</th>
<th>Baseline -2009</th>
<th>Progress To Date (Aug-2013)</th>
<th>Target Values</th>
<th>Frequency</th>
<th>Data Source/Methodology</th>
<th>Responsibility for Data Collection</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Number of Agriculture Equipment (Power tillers, Power threshers, Hand sprayer) distributed</td>
<td>Number</td>
<td>0</td>
<td>1,910</td>
<td>2,530</td>
<td>2,530</td>
<td>2,530</td>
<td>2,530</td>
<td>Quarterly</td>
<td>FAO, M&amp;E consultants, PCMU</td>
</tr>
<tr>
<td>2. Improved rice seeds distributed</td>
<td>Number</td>
<td>0</td>
<td>500 MT</td>
<td>500 MT</td>
<td>500 MT</td>
<td>500 MT</td>
<td>500 MT</td>
<td>Quarterly</td>
<td></td>
</tr>
<tr>
<td>3. Total fertilizers distributed</td>
<td>Number</td>
<td>0</td>
<td>6,682 MT</td>
<td>6,682 MT</td>
<td>6,682 MT</td>
<td>6,682 MT</td>
<td>6,682 MT</td>
<td>Quarterly</td>
<td></td>
</tr>
<tr>
<td>4. Number of livestock (cow, goat/sheep) distributed</td>
<td>Number</td>
<td>0</td>
<td>12,340</td>
<td>9,827</td>
<td>16,000</td>
<td>19,000</td>
<td>19,000</td>
<td>Quarterly</td>
<td></td>
</tr>
<tr>
<td>5. Number of dairy production facilities (cattle sheds and portable poultry sheds) distributed</td>
<td>Number</td>
<td>0</td>
<td>23,754</td>
<td>32,300</td>
<td>32,300</td>
<td>32,300</td>
<td>32,300</td>
<td>Quarterly</td>
<td></td>
</tr>
<tr>
<td>6. Number of Aquaculture packages (Carp, Golda, Bagda+Tilapia) distributed</td>
<td>Number</td>
<td>0</td>
<td>24,850</td>
<td>24,850</td>
<td>24,850</td>
<td>24,850</td>
<td>24,850</td>
<td>Quarterly</td>
<td></td>
</tr>
<tr>
<td>7. Mechanized fishing boats distributed</td>
<td>Number</td>
<td>0</td>
<td>42</td>
<td>93</td>
<td>93</td>
<td>93</td>
<td>93</td>
<td>Quarterly</td>
<td></td>
</tr>
<tr>
<td>8. Number of Farmers’ Field School (FFS) formed</td>
<td>Number</td>
<td>0</td>
<td>2,685</td>
<td>2,850</td>
<td>2,850</td>
<td>2,850</td>
<td>2,850</td>
<td>Quarterly</td>
<td></td>
</tr>
</tbody>
</table>

Component A: Activities under component A would be completed by 30 June 2014. The targets for this component have been included here for the purpose of the completeness of the RF.
<table>
<thead>
<tr>
<th>Component B:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Number of newly constructed shelters with improved design standards and connectivity with the community;</td>
</tr>
<tr>
<td>Number</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>2. Numbers of shelters repaired and improved upon with improved connectivity (such as access roads) with the community;</td>
</tr>
<tr>
<td>Number</td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Component C:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Length of coastal embankments including appurtenant structures rehabilitated</td>
</tr>
<tr>
<td>Number</td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Component D:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Number of emergency vehicles procured for effective communication and response to disasters</td>
</tr>
<tr>
<td>Number</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>2. Detailed multi-hazard models are used to generate maps</td>
</tr>
<tr>
<td>Text</td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>
## Component E:

1. Timely submission of quarterly M&E reports

<table>
<thead>
<tr>
<th></th>
<th>Text</th>
<th>No report</th>
<th>Quarterly progress reports being submitted</th>
<th>12</th>
<th>12</th>
<th>12</th>
<th>12</th>
<th>Quarterly and Annually</th>
<th>Quarterly progress reports.</th>
<th>M&amp;E Consultants, PCMU</th>
</tr>
</thead>
</table>

2. Household survey completed at MTR and once in every year thereafter.

<table>
<thead>
<tr>
<th></th>
<th>Text</th>
<th>Baseline survey done in 2010</th>
<th>HH survey report submitted prior to MTR</th>
<th>3</th>
<th>3</th>
<th>3</th>
<th>3</th>
<th>Annual</th>
<th>Questionnaire and field visits</th>
<th>M&amp;E Consultants, PCMU</th>
</tr>
</thead>
</table>

## Component F:

1. PCMU to capture the results of the project components and submit report at MTR and at project closing

<table>
<thead>
<tr>
<th></th>
<th>Text</th>
<th>No results report</th>
<th>Results captured and report submitted</th>
<th>N/A</th>
<th>N/A</th>
<th>N/A</th>
<th>Final report on results submitted</th>
<th>Twice</th>
<th>Annual implementation progress reports, filed visits.</th>
<th>PCMU</th>
</tr>
</thead>
</table>

2. Funding available for emergency response

<table>
<thead>
<tr>
<th></th>
<th>Triggered [Y/N]</th>
<th>N/A</th>
<th>N/A</th>
<th>N/A</th>
<th>N/A</th>
<th>N/A</th>
<th>N/A</th>
<th>N/A</th>
<th>PCMU</th>
<th>Only triggered during disaster</th>
</tr>
</thead>
</table>
## ANNEX 2
### OPERATIONAL RISK ASSESSMENT FRAMEWORK (ORAF)

<table>
<thead>
<tr>
<th>Project Development Objective(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>PDO Level Results Indicators:</td>
</tr>
<tr>
<td>1. Number of cyclone affected population benefitted due to rehabilitation and construction of protective infrastructure (e.g. embankments, disaster shelters)</td>
</tr>
<tr>
<td>2. Number of cyclone affected HHs whose livelihoods have been recovered due to distribution of inputs, technology and training</td>
</tr>
<tr>
<td>3. Improved capacity and preparedness for disaster risk management in the government (DDM) and communities (DMCs)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Risk Category</th>
<th>Risk Rating</th>
<th>Risk Description</th>
<th>Proposed Mitigation Measures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project Stakeholder Risks</td>
<td>Moderate</td>
<td>Project stakeholders are expected to be broadly supportive of the project. The Bank has been engaged in disaster risk reduction efforts in shelters and embankments and additional financing is expected to further extend these investments</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Continued dialogue with relevant stakeholders, including Government agencies, donors, CSOs, private sector and local communities through communications, consultations, and frequent follow up</td>
</tr>
<tr>
<td>Implementing Agency Risks</td>
<td>Substantial</td>
<td>Both LGED and BWDB have been engaged in the construction and rehabilitation of cyclone shelters and coastal embankments, respectively, under an existing IDA credit. Governance risks, particularly with respect to contract management and procurement are present. Financial Management: LGED and BWDB have relatively good capacity in financial management. Skilled FM staff has been made available to the project under a dedicated project implementation unit (PIU) within each agency. Currently, there are no overdue audits, and FM arrangements have been satisfactory.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Project implementation will be supported by a dedicated Project Implementation Unit that will receive technical assistance and adequate budget to implement the project. Financial Management Specialists have already been recruited within the respective PIUs to undertake project FM functions and to prepare quarterly IFRs. At present there are no overdue audits, and FM arrangements have been deemed satisfactory.</td>
</tr>
</tbody>
</table>
Procurement: The procurement of these works is likely to pose risks with respect to bidding, evaluation of bids and contract management. Procurement risks will be mitigated through the current arrangements present under the ECRRP project, which include international consultants reviewing the procurement packages, thorough review by the World Bank team of the procurement documents and bid evaluation report and checking the performance of the contractors selected. So far under ECRRP no major issue has been found in procurement of packages. In case of BWDB contracts there are issues related to contract management which have been addressed through dialogue, field checking by the Bank team and discussion with the Ministry of Water Resources and the Planning Commission in particular through intervention of PCMU.

<table>
<thead>
<tr>
<th>Project Risks</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Design</td>
<td>Moderate</td>
<td>The project design is based on a tested approach that includes updated and socially sensitive designs for multipurpose cyclone shelters. The rehabilitation and strengthening of embankments follows a detailed assessment that will strengthen the resilience of the coastal populations</td>
<td>The design will continue to be communicated through engagement with local stakeholder groups to discuss any issues.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Social and Environmental</td>
<td>Substantial</td>
<td>The construction phases may cause unforeseen environmental or social impacts. Interventions in the polder systems may result in social tensions at the local level</td>
<td>Site specific EMPs, SMPs and RAPs will be prepared in line with the project’s ESMF and SRPF. Local stakeholders will be organized into polder committees with the objectives of resolving local issues, and coming to joint decisions over the operation of critical water management infrastructure. Thorough social assessment would be done and Social Assessment would be prepared.</td>
</tr>
<tr>
<td>• Program and Donor</td>
<td>Moderate</td>
<td>While several donors are active in disaster risk reduction efforts, the Bank has been the lead</td>
<td>Continued engagement with lead donors and international agencies working in the coastal areas.</td>
</tr>
</tbody>
</table>
financier on the construction of multipurpose cyclone shelters and in the rehabilitation of coastal embankments.

<table>
<thead>
<tr>
<th>Delivery Quality</th>
<th>Substantial</th>
</tr>
</thead>
<tbody>
<tr>
<td>The GoB has indicated a strong commitment to the recovery and reconstruction efforts, and to improving disaster mitigation and risk reduction. The GoB remains committed to improving and extending shelters and to rehabilitating coastal embankments in the whole coastal area.</td>
<td></td>
</tr>
<tr>
<td>Continued engagement with the GoB will be undertaken on the project’s objectives, progress and results</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Overall Risk Rating at Preparation</th>
<th>Overall Risk Rating During Implementation</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Moderate</td>
<td>Moderate</td>
<td></td>
</tr>
</tbody>
</table>
ANNEX 3:
COASTAL VULNERABILITY, DEMAND FOR THE CYCLONE SHELTERS AND DESIGN

1. Coastal Vulnerability The longitudinal position of Bangladesh, combined with its proximity to the Bay of Bengal and the Indian Ocean, generate a tropical monsoon-type climate, prone to cyclones, flooding and drought. Bangladesh is also at risk for earthquakes and tsunamis, sitting at or near the juncture of several active tectonic boundaries. The summers are generally hot and rainy, while the winters are slightly cooler and dry. The dry season is from November to February, and average rainfall totals less than 10 mm in January, the driest month. The monsoon season is from June through August, where average rainfall totals increase to a peak of over 500 mm in July, the wettest month. Most regions accrue more than 1,500 mm of annual rainfall, making Bangladesh one of the wettest and most fertile climates in the world. Cyclones typically affect Bangladesh in the fall and spring, the intervals between the dry season and the monsoon season. North Indian Ocean tropical cyclogenes occurs at least 500 km from the equator, a necessary prerequisite for a strong enough Coriolis force to sustain a low pressure center. Intensification of the storm transpires as gradient wind balance concentrates latent heat near the core. Cyclones move northward where, almost every year, at least one makes landfall in Bangladesh.

2. The coast of Bangladesh is approximately 710 km long and is home to nearly 40 million people. Cyclones affect the region with strong winds accompanied by a powerful storm surge and widespread inundation over a vast area. In 2007, Cyclone Sidr had a diameter of nearly 1,000 km² at landfall. Destruction is amplified by low-lying physical geography, high-tide at landfall, climate change, high population density, and the low-income status of Bangladesh. The Meghna estuarine region is especially vulnerable to storm surge amplification. Table 1 lists devastating cyclones in Bangladesh over the past 50 years.

<table>
<thead>
<tr>
<th>Month/Year</th>
<th>Maximum Wind speed (km/hr)</th>
<th>Storm Surge height (meters)</th>
<th>Death Toll</th>
</tr>
</thead>
<tbody>
<tr>
<td>May 1965</td>
<td>161</td>
<td>3.7-7.6</td>
<td>19,279</td>
</tr>
<tr>
<td>December 1965</td>
<td>217</td>
<td>2.4-3.6</td>
<td>873</td>
</tr>
<tr>
<td>October 1966</td>
<td>139</td>
<td>6.0-6.7</td>
<td>850</td>
</tr>
<tr>
<td>November 1970</td>
<td>224</td>
<td>6.0-10.0</td>
<td>300,000</td>
</tr>
<tr>
<td>May 1985</td>
<td>154</td>
<td>3.0-4.6</td>
<td>11,069</td>
</tr>
<tr>
<td>April 1991</td>
<td>225</td>
<td>6.0-7.6</td>
<td>138,882</td>
</tr>
<tr>
<td>May 1997</td>
<td>232</td>
<td>3.1-4.6</td>
<td>155</td>
</tr>
<tr>
<td>November 2007 (Sidr)</td>
<td>223</td>
<td>3.5-6.0</td>
<td>3,363</td>
</tr>
<tr>
<td>May 2009 (Aila)</td>
<td>92</td>
<td>--</td>
<td>190</td>
</tr>
</tbody>
</table>

Source: Bangladesh Meteorological Department (BMD) 2007 and Government of Bangladesh (GoB) 2008

3. Cyclone Preparedness Program (CPP). After the severe cyclone in 1970, which killed an estimated 300,000 people, Bangladesh in 1972 developed a strong Cyclone Preparedness Program (CPP) with the help of the United Nations and of the Red Cross. It is a joint program of
Government of Bangladesh and the Bangladesh Red Crescent Society. CPP works for disaster management, especially in early warning system, search and rescue, evacuation, sheltering, first aid, relief distribution and rehabilitation activities. CPP is considered a model program in the world and has won the “Smith Tumsaroch Award-1998” for its Outstanding Performance in disaster management. The CPP has over 200 government staff and about 50,000 volunteers (about 16,000 female volunteers) over 3,000 units, and it operates in 322 union parishads and 37 upazilas of Bangladesh’s coastal districts. The key aim of the CPP is to mobilize people at the time of the cyclone and to move them to shelters where they will be relatively protected from the storm surge, which is generally very large. Thus cyclone shelters are vital infrastructure in coastal areas of Bangladesh, and the main reason for reducing death tolls during cyclones in recent years.

4. **Number of Shelters Required.** A 2009 survey conducted by the Center for Environment and Geographic Information Systems (CEGIS) found there to be a total of 2,917 existing cyclone shelters in 16 high-risk coastal districts of Bangladesh. Of those, only 2,583 were estimated to be in usable condition (many still need upgrading and renovations). 246 shelters were deemed completely not useable and 88 were washed away, destroyed or dismantled. The existing shelter capacity is grossly inadequate compared to the requirements. Under ECRRP, studies have been carried out to estimate the projected demand for shelters in each district. Based on this analysis, the demand for shelters that need to be upgraded and new shelters in nine Sidr-affected districts (where ECRRP is operating currently) is provided in Table 1 below. The Priority 1 and 2 shelters are identified using a multifactor scoring system such as location in disaster zone, levels of surge, distance from existing shelters, population in the location and views of the stakeholders, etc. The locations scoring higher than 70 points (out of 100) are ranked as Priority 1 and those scoring between 40 and 70 as Priority 2. A GIS map marking location of each existing and proposed location of shelters has been developed under ECRRP.

5. The additional financing would be used to rehabilitate/upgrade about 220 shelters and build about new 100 shelters in Priority 1 locations in these districts. While demand is very high, it is not practical to build all these shelters in one go. Given the institutional, contracting and transportation capacity in the coastal area and financing requirements the aim of building about 100 to 150 shelters annually would be realistic to achieve. Thus the Government should have constant program of building shelters in coastal areas.
### Table 2 Existing and Required Shelters

<table>
<thead>
<tr>
<th>District</th>
<th>Area Sq KMs</th>
<th>Population Millions</th>
<th>Existing Shelters</th>
<th>Requiring Rehabilitation</th>
<th>New Shelters Required</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>By 2020 By 2025</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Priority 1</td>
<td>Priority 2</td>
</tr>
<tr>
<td>Bagerhat</td>
<td>3,761</td>
<td>1.7</td>
<td>241</td>
<td>48</td>
<td>50</td>
</tr>
<tr>
<td>Barguna</td>
<td>1,291</td>
<td>0.9</td>
<td>263</td>
<td>106</td>
<td>106</td>
</tr>
<tr>
<td>Barisal</td>
<td>2,534</td>
<td>2.5</td>
<td>184</td>
<td>42</td>
<td>112</td>
</tr>
<tr>
<td>Bhola</td>
<td>1,989</td>
<td>1.9</td>
<td>587</td>
<td>236</td>
<td>268</td>
</tr>
<tr>
<td>Jhalkati</td>
<td>736</td>
<td>0.7</td>
<td>24</td>
<td>7</td>
<td>33</td>
</tr>
<tr>
<td>Khulna</td>
<td>2,089</td>
<td>2.8</td>
<td>198</td>
<td>160</td>
<td>34</td>
</tr>
<tr>
<td>Patuakhali</td>
<td>2,491</td>
<td>1.6</td>
<td>112</td>
<td>259</td>
<td>160</td>
</tr>
<tr>
<td>Pirojpur</td>
<td>1,240</td>
<td>1.2</td>
<td>129</td>
<td>33</td>
<td>115</td>
</tr>
<tr>
<td>Sathkira</td>
<td>2,275</td>
<td>0.2</td>
<td>60</td>
<td>16</td>
<td>94</td>
</tr>
<tr>
<td>Total</td>
<td>18,406</td>
<td>13.5</td>
<td>1,798</td>
<td>907</td>
<td>972</td>
</tr>
</tbody>
</table>

Of total 798 about 220 need major repairs
Population as of 2010 census

6. This program would have considerable spill-over (wider economic) effects on the coastal region. Cyclone shelters are constructed for multipurpose use. A 2009 CEGIS field investigation on normal time use of shelters shows that, among the 2,583 shelters, 82% was used as education centers, 8% as offices, 1% as community centers, 1% as health centers and 6% do not have any normal time use. This provides valuable infrastructure upgrades to rural regions. Schools with better access and facilities will promote education enrollment. Connecting roads will support a better connected transportation and emergency network. This will provide more opportunities for income generating activities, and increasing livelihood. The best would be to build primary school shelters as they have widest spread until the demand for such schools is fully met.

7. **Type of Shelters and their Characteristics.** Five types of shelters were designed for implementation under ECRRP. However, Type 4 was not used very much. The pictures of the options available are provided in the attachment. Under ECRRP Type 3 shelters are constructed the most (about 102), with Type 1, 2, and 5 constructed on 70, 3 and 53 sites respectively. The selection of the type to be built is made based on the site condition, land availability, and stake holders consultations. The table below provides an overview of the shelter types developed under the ECRRP:
### Table 3: Types and Options for Multipurpose Cyclone Shelters developed under ECRRP

<table>
<thead>
<tr>
<th>Key Features//Option Type</th>
<th>TYPE 1</th>
<th>TYPE 2</th>
<th>TYPE 3</th>
<th>TYPE 4 1/</th>
<th>TYPE 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Floor Area (m²)</td>
<td>300.5</td>
<td>342.91</td>
<td>290.57</td>
<td>396.37</td>
<td>301.21</td>
</tr>
<tr>
<td>Number of Floors</td>
<td>2</td>
<td>2</td>
<td>3</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Number of Classrooms</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>5</td>
<td>3</td>
</tr>
<tr>
<td>Teachers Rooms</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>First-Aid Room</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Room for Pregnant Women</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Store Room</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Toilet (male)</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Toilet (female)</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Tube well</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Rainwater collection tank</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Water filter</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Solar panel</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Water pump</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Capacity (persons)</td>
<td>1,300</td>
<td>1,500</td>
<td>1,300 2/</td>
<td>1,750</td>
<td>1,300</td>
</tr>
<tr>
<td>Capacity (livestock)</td>
<td>-</td>
<td>-</td>
<td>200</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

1/ Option 4 is the least or not used option as (a) the plinth size and U shaped structure requires significant land; and (b) in the event of a cyclone, the free flow of high-speed winds is restricted due to the U-shaped structure, possibly placing addition wind pressure on the structure.

2/ In reality over 4,000 people use these shelters and there is overcrowding. They use the space in hallways and stairs also.

8. The shelters are constructed so that they double as primary schools when they are not in use for a disaster. The shelters are constructed with separate bathrooms for men and women. Safe water supply is ensured, water treatment for wastewater is included and solar panels are provided. In addition, connections to existing roads are ensured by constructing a link, if needed. The class rooms are provided with furniture and other teaching tools. Generally, one floor is constructed for livestock and animals and top floor for human shelter. Floors have mosaic finish and bathrooms have tiles for easy maintenance and cleaning, etc. The shelters are designed to withstand wind speeds of 260 km/hour and placed higher than the expected surge level. The foundation is constructed to bear vertical additions in the future, if necessary.

9. Type 3 is used more and liked most as it also accommodates livestock on the first floor. Type 4 uses a lot of space and is not used and this and other type need a separate “killa” space for animals which is costly and not feasible due to limited land. So where shelter for animals is a consideration Type 3 is used mostly. Type 2 also uses more space and land is a constraint at most sites. The design of the shelter is customized for each site making it suitable for each site and acceptable for local communities. This is a dynamic process and new designs are developed as new shelters are built.
10. **Polders that would be considered under AF.** The Additional Financing would be used to rehabilitate and improve ten remaining polders which have not been rehabilitated earlier, and/or are not included in the Coastal Embankments Improvement Project (CEIP). The list of polders likely to be included in the AF is given in the Table 4 below:

<table>
<thead>
<tr>
<th>District</th>
<th>Polder</th>
<th>Gross Area of the Polder (Ha)</th>
<th>Population (thousand)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Barguna</td>
<td>39/1A</td>
<td>11,740</td>
<td>18.20</td>
</tr>
<tr>
<td></td>
<td>44B</td>
<td>17,000</td>
<td>45.50</td>
</tr>
<tr>
<td></td>
<td>41/4</td>
<td>1,741</td>
<td>45.00</td>
</tr>
<tr>
<td></td>
<td>41/5</td>
<td>3,880</td>
<td>53.20</td>
</tr>
<tr>
<td></td>
<td>45</td>
<td>4,089</td>
<td>8.795</td>
</tr>
<tr>
<td></td>
<td>43/1</td>
<td>16,275</td>
<td>6.75</td>
</tr>
<tr>
<td>Perojpur</td>
<td>39/1C</td>
<td>5,873</td>
<td>42.25</td>
</tr>
<tr>
<td></td>
<td>39/1B</td>
<td>9,700</td>
<td>69.70</td>
</tr>
<tr>
<td>Patuakhali</td>
<td>55/2D</td>
<td>5,700</td>
<td>25.00</td>
</tr>
<tr>
<td></td>
<td>55/3</td>
<td>9,885</td>
<td>21.00</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td>85,883</td>
<td>335.40</td>
</tr>
</tbody>
</table>

11. **Project Cost and Financing by Component:** The total project cost is now US$356.9 million with addition of US$140 million under this AF 2. The additional financing added to components B, C, D2, E and F1 and F5 as given in the Table 5 below.
Table 5: Proposed Allocation of Funds by Project Components (US$ Millions)

<table>
<thead>
<tr>
<th>Project Components</th>
<th>Original IDA Credit</th>
<th>GFDRR</th>
<th>Additional Financing Credit</th>
<th>BCCRF</th>
<th>KfW Credit</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Recovery of Agriculture Sector and Improvement Program (FAO)</td>
<td>16.0</td>
<td>1.96</td>
<td>13.0</td>
<td></td>
<td></td>
<td>30.96</td>
</tr>
<tr>
<td>B. Reconstruction and Improvement of Multipurpose Shelters (LGED)</td>
<td>51.0</td>
<td>1.0</td>
<td>48.0</td>
<td>25.0</td>
<td>4.9</td>
<td>78.5</td>
</tr>
<tr>
<td>C. Rehabilitation of Coastal Embankments (BWDB)</td>
<td>20.0</td>
<td>3.0</td>
<td></td>
<td></td>
<td></td>
<td>37.0</td>
</tr>
<tr>
<td>D. Long-Term Disaster Risk Management Program</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>D1. Disaster risks mitigation and reduction (DDM)</td>
<td>6.0</td>
<td>4.0</td>
<td></td>
<td></td>
<td></td>
<td>10.0</td>
</tr>
<tr>
<td>D2. Preparation of future projects for the river bank improvement, coastal embankment improvement programs and Gorai River Restoration (BWDB) a/</td>
<td>5.0</td>
<td>1.0</td>
<td></td>
<td></td>
<td>3.0</td>
<td>9.0</td>
</tr>
<tr>
<td>D3. Preparation of future projects for disaster shelters and up-gradation of the rural road network (LGED)</td>
<td>2.0</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2.0</td>
</tr>
<tr>
<td>Sub-Total D</td>
<td>13.0</td>
<td>0.0</td>
<td>5.0</td>
<td>0.0</td>
<td>0.0</td>
<td>3.0</td>
</tr>
<tr>
<td>E. Monitoring and Evaluation of Project Impact</td>
<td>3.0</td>
<td>1.5</td>
<td></td>
<td></td>
<td>0.8</td>
<td>5.3</td>
</tr>
<tr>
<td>F. Project Management, Technical Assistance, Strategic Studies and Training, and Emergency Support for Future Disasters (PCMU)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>F1. Project Management Support</td>
<td>3.0</td>
<td>2.0</td>
<td></td>
<td></td>
<td>0.7</td>
<td>5.7</td>
</tr>
<tr>
<td>F2. Establishment of Disaster Response Fund</td>
<td>0.0</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.0</td>
</tr>
<tr>
<td>F3. Strategic Studies</td>
<td>2.0</td>
<td>1.0</td>
<td></td>
<td></td>
<td>3.0</td>
<td></td>
</tr>
<tr>
<td>F4. Technical Assistance and Financial Audit</td>
<td>1.0</td>
<td>1.4</td>
<td></td>
<td></td>
<td>2.4</td>
<td></td>
</tr>
<tr>
<td>F5. Emergency support for Future disasters b/</td>
<td>0.0</td>
<td>0.0</td>
<td></td>
<td></td>
<td>20.0</td>
<td>20.0</td>
</tr>
<tr>
<td>Sub-Total F</td>
<td>6.0</td>
<td>0.0</td>
<td>4.4</td>
<td>0.0</td>
<td>0.0</td>
<td>31.1</td>
</tr>
<tr>
<td>Total</td>
<td>109.0</td>
<td>2.96</td>
<td>75.0</td>
<td>25.0</td>
<td>4.9</td>
<td>140.0</td>
</tr>
</tbody>
</table>

a/ Component D.2 in this Project Paper is referred to in the Financing Agreement as Part D.4, and Component F.5 in this Project Paper is referred to in the Financing Agreements as Part F.2. Despite this discrepancy, the Project Paper will continue to refer to this activity as Components D.2 and F.5 for comparison and consistency purposes with the previous Project Paper and other documents.
Table 6: Allocation of IDA Credit Proceeds

<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
<th>Allocated IDA Proceeds (US$ million)</th>
<th>SDR Equivalent Amount @ 1 US$ = SDR 0.65018 (millions)</th>
<th>Financing %age</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Works Goods, Works, Consultancy Services, Incremental Operating Costs including Training, and Resettlement Costs Component B (LGED)</td>
<td>70.0</td>
<td>44.5</td>
<td>100</td>
</tr>
<tr>
<td>2.</td>
<td>Works Goods, Works, Consultancy Services, Incremental Operating Costs including Training, and Resettlement Costs Component C and D4a (BWDB)</td>
<td>40.0</td>
<td>26.0</td>
<td>100</td>
</tr>
<tr>
<td>3.</td>
<td>Works Goods, Works, Consultancy Services and Incremental Operating Costs including Training Component E&amp;F (PCMU)</td>
<td>1.0</td>
<td>0.7</td>
<td>100</td>
</tr>
<tr>
<td>4.</td>
<td>Emergency Expenditures under F2a</td>
<td>20.0</td>
<td>13.0</td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td>Unallocated</td>
<td>9.0</td>
<td>5.9</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total IDA Financed</td>
<td>140.0</td>
<td>91.1</td>
<td></td>
</tr>
</tbody>
</table>

a/ Component D.2 in this Project Paper is referred to in the Financing Agreement as Part D.4, and Component F.5 in this Project Paper is referred to in the Financing Agreements as Part F.2. Despite this discrepancy, the Project Paper will continue to refer to this activity as Components D.2 and F.5 for comparison and consistency purposes with the previous Project Paper and other documents.
Photos of various types of Shelters

VIEW OF DIFFERENT OPTIONS CONSIDERED FOR NEW SHELTERS IN EMERGENCY 2007 CYCLONE RECOVERY & RESTORATION PROJECT (ECRRP-2007)