FRERMIP
Flood and Riverbank Erosion Risk Management Investment Program

Reference:
ISPMC – FRERMIP
354
21 May 2017

ISPMC JV NHC-EMM
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To
Mr. A M Aminul Haque,
Project Director,
Flood and Riverbank Erosion Risk Management Investment Program
152/3/B Bir Uttam, Kazi Nuruzzaman Road, Panthopath,
Firoz Tower, (12th Floor) Dhaka-1205, Bangladesh

Subject : **Submission of Quarterly Progress Report No. 07 January-March 2017.**

Reference: **As per Institutional Strengthening and Project Management Consulting Services Contract, Clause 9 (i), Page 35**

Dear Sir,

Please find enclosed Quarterly Progress Report No. 07 for the period January to March 2017 for the Flood and Riverbank Erosion Risk Management Investment Program (FRERMIP) – Project 1. This report has been prepared in close discussion with your office, using information available in the Development Project Performa and considering the Facility Administration Memorandum.

The quarterly progress report documents the status of project and progress made during the reporting quarter. When required, it identifies changes to the key assumptions and possible risks to project implementation. This report was prepared by ISPMC with contributions, assistance and cooperation of the Bangladesh Water Development Board (BWDB).

We look forward to further comments from BWDB, ADB and others on this report.

Yours sincerely,
JV Northwest Hydraulic Consultants – Euroconsult Mott MacDonald

Knut Oberhagemann
Team Leader

Distribution
As per enclosed Distribution List

PMO-FRERMIP * PROJECT DIRECTOR *

FRERMIP
Flood and Riverbank Erosion Risk Management Investment Program

Bangladesh Water Development Board
Asian Development Bank

Flood and Riverbank Erosion Risk Management Investment Program – Project 1

ADB Loan No. 3138-BAN (SF)

Institutional Strengthening and Project Management Consultants (ISPMC)

QUARTERLY PROGRESS REPORT NO. 07

FOR

JANUARY-MARCH 2017

Prepared by:

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    (Attn.: Mr. Pieter de Vries)

ABBREVIATIONS AND ACRONYMS

ADB (BRM)	-	Asian Development Bank (Bangladesh Resident Mission)
BDT	-	Bangladesh Taka
BWDB	-	Bangladesh Water Development Board
CbFRM	-	Community-based Flood Risk Management
CEGIS	-	Center for Environmental and Geographic Information Services
DG	-	Director General
DDM	-	Department of Disaster Management
DPP	-	Development Project Performa
EKN	-	Embassy of the Kingdom of the Netherlands
GOB	-	Government of Bangladesh
GON	-	Government of the Netherlands
ha	-	hectare
km	-	Kilometer
Mil	-	Million (1,000,000)
IWM	-	Institute of Water Modeling
INGO	-	Implementation Non-Government Organization
ISPMC	-	Institutional Strengthening and Project Management Consultants
MIS	-	Management Information Systems
MoDM	-	Ministry of Disaster Management
MoWR	-	Ministry of Water Resources
O&M	-	Operation and Maintenance
PD	-	Project Director (BWDB and DDM)
PMO	-	Project Management Office (BWDB)
PMU	-	Project Management Unit (DDM)
PPTA	-	Project Preparatory Technical Assistance
QPR	-	Quarterly Progress Report
SMO	-	Sub-Project Management Office
ToR	-	Terms of Reference
USD	-	United States Dollars
JVT	-	Joint Verification Team
DC	-	District Commissioner
LA	-	Land Acquisition
GRC	-	Grievance Redress Committee
PAP	-	Project Affected People
ID	-	Identification
PVAT	-	Property Valuation Assessment Team

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Table 1 Project Progress at a Glance

1. Basic Data

ADB Loan Agreement Number	3138-BAN(SF)
ADB Grant Agreement Number	0396-BAN(EF)
Project Name	Flood and Riverbank Erosion Risk Management Investment Program - Project 1
Country	Bangladesh
Borrower	People's Republic of Bangladesh
Executing Agency	Bangladesh Water Development Board
Implementing Agency	Department of Disaster Management

2. Financing

Modality and Sources	Projects ($ million)			Amount ($ million)
	I	II	III	
Asian Development Bank (ADB)	65	100	90	255
Government of The Netherlands (GON)	15.3	0	0	15.3
Government of Bangladesh (GOB)	23.3	45.3	34.8	103.4
Total	103.6	145.3	124.8	373.7

3. Milestones

Milestone	Date of		
	Approval	Signing	Effectiveness
ADB Loan Agreement	2014 June 27	2014 August 14	2014 August 15

Milestone	Project		
	I	II	III
Estimated Completion Date	2019 June 30	2021 December 31	2023 June 30

Milestone	Date
Last ADB Review Mission	9-11 November & 4-8 December 2016

4. Assets and Physical Progress

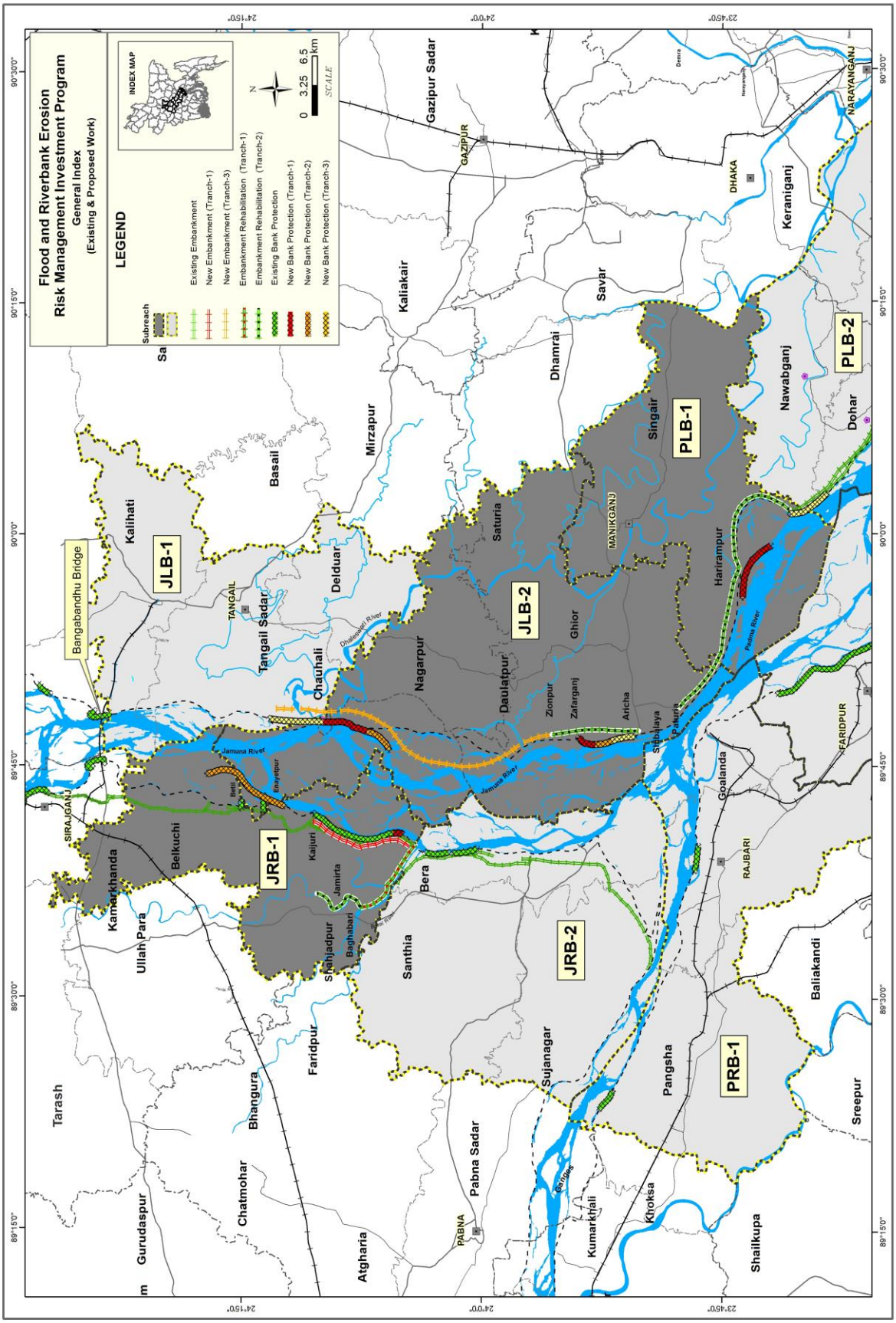
Proposed Project Assets	Goods	Services	Works	eXtra	Total	Available
Project Program Best Estimate (Tk Mil)	1388	1381	3595	1329	7693	8286

Primary Component	Secondary Component		Assigned Weight (%)	Progress Actual (%)	Progress Weighted (%)
1. Establishment & Recruitment	1.1	PMO Establishment and Staffing	2	100	2
	1.2	ISPMC Consultants Recruitment	2	100	2
	1.3	NGO Recruitment	2	50	1
2. Implementation; Tranche-1	2.1	Detailed Design	2	100	2
	2.2	Tender Documents Preparation	6	65	4
	2.3	Tendering and Contract Award	6	60	4
	2.4	Land Acquisition and Resettlement	8	35	3
	2.5	Project Management	6	55	3
	2.6	Physical Completion of Works	32	60	19
	2.7	Financial Disbursements	4	25	1
3. Knowledge Base & Capacity	3.1	Knowledge Base & Tech. Studies	4	50	2
	3.2	CBFRM Activities	6	10	1
	3.3	MIS Project Mgmt Module	4	10	0
4. River Study, Piloting & Master Plan	4.1	Long-term stabilization study	4	80	3
	4.2	Land recovery piloting	2	25	1
5. Preparation; Project-2	5.1	Feasibility Study; Project-2	6	30	2
	5.2	Detailed Design; Project-2	4	0	0
Totals			**100**		**49**

5. Financial Progress

Financial Indicator	BDT Million	US$ Million	% of Total
Estimated Project Cost (Source: DPP Page 1	8,286	103.57	100
Physical Progress	4,216	52.7	50
PMO Expenditures	3,493	43.7	42
ADB Disbursement	2,968	37.92	36
Total Reimbursement	1,848	23.1	22

Figure 1 Project Location Map



1. INTRODUCTION

1.1 *Background*

The people in Bangladesh are often detrimentally affected by flooding and riverbank erosion along its four main rivers: Jamuna, Ganges, Padma and Meghna. Over 5,000 hectares (ha) of floodplain land is lost annually due to riverbank erosion, affecting over 55,000 people[1]. The risk associated with flooding and riverbank erosion increases with the growth of the population, and the high population density of Bangladesh restricts the scope for moving people away from disaster prone areas. Riverbank erosion increasingly threatens embankments required for flood protection. The threat of flooding and riverbank erosion discourages investment and leads to lower economic growth in riverine areas. Effective riverbank erosion and flood protection management is essential for the economic growth and poverty reduction in affected areas.

Starting in 2004, geotextile bag revetments were used systematically to protect long reaches of the Pabna Irrigation and Rural Development Project (PIRDP) and Meghna-Dhonagoda Irrigation Project (MDIP) against riverbank erosion. Between 2004 and 2011, this protection method was used along 17 km of the lower Jamuna River and some 11 km around the MDIP. Geobag revetments were incorporated into the Guideline for Riverbank Protection approved by BWDB in 2010. Following a feasibility study completed in December 2013, the Government of Bangladesh (GOB) and Asian Development Bank (ADB) agreed to continue riverbank protection for more systematic river stabilization along the lower Jamuna and upper Padma rivers from Bangabandhu (Jamuna) Bridge to Chandpur including reclaiming floodplain land lost during the widening process since the 1960s.

The Project Preparatory Technical Assistance (PPTA) implemented from 2012 to 2013 provides the key concept for FRERMIP and is documented in the Final Report, Feasibility Study, 2013 (**Ref.** 5). The ADB Facility Administration Memorandum, June 2014 (**Ref.** 1) is the key document prescribing the loan objectives and procedural details.

The loan for Project-1 of the Flood and Riverbank Erosion Risk Management Investment Program (FRERMIP) was signed on 14 August 2014, and the contract with the main consultant (ISPMC) was signed on 8 September 2015. This first project lays the foundation for systematic river stabilization supported by FRERMIP over three successive projects to be implemented over a period of around ten years. The first project, scheduled to be completed in June 2019, will provide structural and non-structural flood and riverbank erosion risk management measures in three high priority sub-project areas (**Figure 1**). Subsequent projects will extend the protected reaches with the goal to substantially stabilize the lower Jamuna and parts of the Padma River, based on an adaptive approach with designs adjusted to changing river conditions.

FRERMIP will provide a defined boundary between river and floodplain, and thus contribute to a more secure and improved livelihood for people living along the main rivers of Bangladesh, which will trigger faster economic growth and accelerate poverty reduction. The outcome of the program will be reduced flood and riverbank erosion risks in the sub-project reaches.

1.2 *The Project*

The project has three funding partners, two international donors, plus the local counterpart: Asian Development Bank (ADB), Government of Netherlands (GON) and Government of Bangladesh (GOB).

[1] Provided by Dr. M. Sarker based on his River Study Technical Note 2: Holistic River Morphology Analysis for the Brahmaputra River System

The project scope and implementation arrangements have not changed from those outlined in the ADB Report and Recommendation of the President (**Ref.** 2). The anticipated outputs of the project are still to provide:

1. flood and riverbank erosion risk mitigation functioning at priority river reaches
2. a strengthened institutional system for flood and riverbank erosion risk management
3. an operational program management system

Under Project-1, 17.8 km of riverbank protection[2] and 23 km of flood embankments (rehabilitation and new; refer to the Project Map, **Figure 1**) will be implemented. Project outputs will also include community capacity development for flood risk management activities, and a livelihood enhancement component for project-affected people.

The project will result in an improved knowledge base and enhanced institutional capacity in sustainable asset management, and better strategic management of the main rivers. The project will actively promote a sound and sustainable program management system which will facilitate the implementation process. **Table 1** placed at the beginning of the report, provides a summary of project information including salient reference data, estimates of project assets and physical progress, and a reimbursement summary in Bangladesh Taka (BDT) and US dollars (USD).

Delays in the bidding process for key work contracts, namely 23 km of embankment construction, requires that Project-1 will be extended by a minimum of one construction season, until June 2019. The Project Management Office (PMO) has revised the current DPP to this end. The adjustment also addresses the reduced loan funds by reducing or cancelling individual activities and increasing to budget to actual resettlement and construction cost. The PMO expects that the modified Project outputs can be fully achieved by the original scheduled closing date of 30 June 2019.

1.3 *Overall Progress*

The Project-1 has been very successful in building riverbank protection during the dry season 2015/16. The progress during 2016/17 dry season is also satisfactory. In total, 17 km riverbank protection (underwater with temporary or permanent wave protection above low water level) is planned to be substantially completed by July 2017. The preparation of concrete blocks for permanent wave protection progresses well at Chauhali and Zaffarganj with around 90% and 67% of the total required quantities cast. Permanent wave protection was under implementation along 3.5km at Chauhali and 0.8km at Zaffarganj as of 31 March 2017. **Appendix-G** provides some photographs of the ongoing activities.

The overall weighted project progress is presented in **Table 1** and shows that the progress achieved to the end of the reporting period is around 49%. The progress was computed by identifying major project activities and assigning a weighting factor to each which quantifies the time/effort/resources required to complete the individual tasks. Compared with the total estimated projected cost, the physical progress is 50%, PMO expenditure 42%, ADB (plus GON) disbursement 36%, and total reimbursement 22%.

1.4 *This Report*

Quarterly Progress Report No. 7 covers the period 01 January to 31 March 2017. The report describes activities carried out during the quarter, which included primarily project implementation, river study, and feasibility study activities.

[2] The length of protection work has increased from 15 to 17 km due to changes in the river morphology at Chauhali and Harirampur between the feasibility study and work start.

2. PROJECT ACTIVITIES

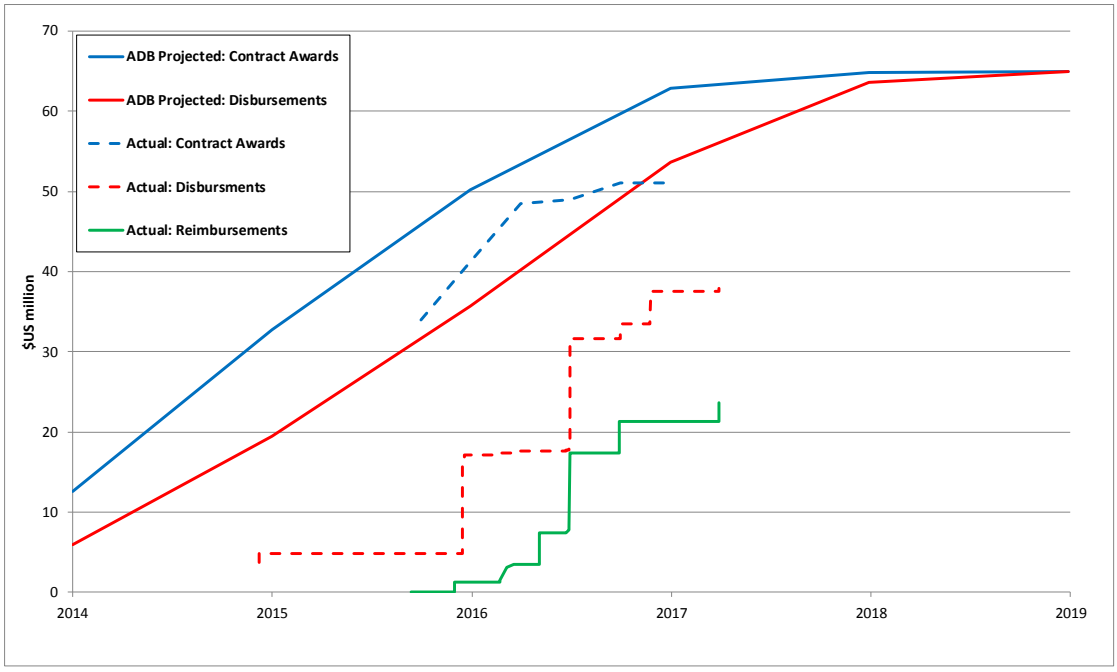
2.1 *INTRODUCTION*

The BWDB FRERMIP Project Management Office (PMO) started functioning in April 2014. That office was initially engaged in preconstruction and procurement activities, and since November 2015 with construction activities at three sites (through two Sub-Project Management Offices (SMOs). To date, a total of 18 km of riverbank protection has been constructed under the project: 7.2 km at Chauhali, 2.0 km at Zaffarganj and 8.8 km at Harirampur. During the reporting period, construction activities resumed at two sites: Chauhali and Zaffarganj. The need for adaptation work of the underwater protection and additional repair works to the temporary wave protection at Harirampur has been assessed based on 2016 flood season bathymetric surveys compared with 2017 dry season surveys.

The Institutional Strengthening and Project Management Consultants (ISPMC) have been working since September 2015 and has completed the following activities: prepared the Project Inception Report, supported overall project management and capacity building activities, advised on design and construction issues, and prepared the terms of reference for several supporting studies. The River Stabilization Study and Initial River Management Master Plan have been presented at a National Workshop on 7 December 2016 and will be finalized after additional team resources will become available through the first variation order formalizing changes identified during project inception. The River Study Task Team plans to complete a total of nearly 40 Technical Notes. The ISPMC team has completed the preliminary site selection for Project-2, identifying the specific subproject areas and physical works, conducting a preliminary economic analysis, and compiling necessary information required for the feasibility study. The feasibility study is expected to be completed after additional resources become available through the first contract variation.

The current status of implementation activities is discussed in the following sections, and summary and detailed tables are provided in **Appendix-A** and **Appendix-B**, respectively. The history of contractual awards and disbursements as projected by ADB and as actually achieved is shown in **Figure 2,** along with actual total reimbursements.

Figure 2 Contract, Disbursement and Reimbursement History



2.2 *PROJECT ASSET IMPLEMENTATION*

2.2.1 Introduction

Tables A-1 and A-2 show the type, number and total cost of assets currently included in the program. The cost of the proposed 23 Km of embankment (plus associated structures) has recently been revised to BDT 1,210 million based on detailed cost estimates from the PMO and the Koitola SMO (**Table A-5**). The 18 km of riverbank revetment included in the current work program is expected to cost BDT 1,886 million, plus BDT 1,112 million for geo-bags. Details on an individual contract basis are provided in **Table B-4**. This detailed table also shows that the best estimate of final cost for all project assets currently identified is BDT 8,194 million (Goods BDT 1,374 million, Services BDT 1,233 million and Works BDT 3,494 million, plus BDT 2,094 million of additional assets included in the DPP).

Using cross-link tables that connect these category items (and Asset Types) with other financial indicators, it is relatively easy to produce tables which show project progress based on ADB Financial Categories (**Table A-3**) or DPP Components (**Table A-4 and A-5**). Note that **Table A-5** also contains the revised DPP.

The PMO expects to spend around BDT 2,032 million during the 2016/17 fiscal year, BDT 381 million under Revenue Categories, and BDT 1,651 million under Capital Categories. The Capital Categories mostly related to the ongoing riverbank protection work at Chauhali and Zaffarganj, and land acquisition for the embankment in Koijuri (subproject JRB-1).

The total cost of the project is revised under the Revised DPP.

2.2.2 Design Activities

The Design Circle-I has completed all designs and drawings required for the 2016/17 construction program including 12.5 km of new embankment, 10.5 km of embankment re-construction, and 4 appurtenant regulators. A summary of the design progress for the 2016/17 fiscal year is given in **Table 2** and details for each individual asset are available in **Table B-1**.

Table 2 2016/17 Design Progress Summary

Recipient Executing Agency	Total Packages	Design Data Collected/Submitted			Design under Process	
		Survey	Hydrology	Geotech	Design	Drawings
Koitola SMO	9	9	9	9	9	9
Manikganj SMO	1	1	1	1	1	1
Totals	**10**	**10**	**10**	**10**	**10**	**10**

2.2.3 Bidding Activities

No major contracts have been awarded during this quarter. The 5 contract tenders for Koitola embankment that were received in the previous quarter have been abandoned and will be retendered during the upcoming quarter.

A summary of tendering progress, by primary component, is given in
Table 3. Bidding progress details, on an individual contract package basis, are given in **Table B-2.** These tables only include new contracts for the 2016/17 fiscal year.

Table 3 2016/17 Tendering Progress Summary

Component	Expression of Interest Received	Tender Notice	Tender Received	Notice of Award Issued
Goods; B: Materials	na	1	1	0
Goods; C: Vehicles & Equipment	na	0	0	0
Services; D: Consulting Services	1	0	0	0
Works; A: Civil Works	na	5	5	0
Totals	**1**	**6**	**6**	**0**

na – not applicable

2.2.4 Implementation Activities

During the reporting quarter, the CC block construction manufacturing and placing progress was good at Chauhali (49% of the total number of blocks cast during this quarter) with an overall progress of 90% and satisfactory at Zafforganj (40% of the total number of blocks cast during this quarter) with an overall progress of 50%. At Chauhali, the on-going work dominantly concentrates on the construction of permanent wave protection along the above-water slope, which started on 7 November 2016. At Zafforganj, on-going work includes both geo bag dumping under water, and construction of permanent protection along the above-water slope. Geo bag dumping and casting of concrete blocks at Zafforganj started in December 2016. Geo-bag dumping was completed on 24-02-2017. The CC block placing work on the slope above-water slope was started from 17 March 2017. Charts showing construction progress over time for geo bag dumping and concrete block casting are shown in **Appendix-D**, for both sites. Concrete block casting at Zafforganj was deliberately deferred until the 2016/17 construction season in order to complete as much geo bag revetment work as possible during the 2015/16 construction season.

Major construction issues during this quarter:

On 23rd February 2017 a slope failure occurred at Chauhali affecting the nearly completed permanent protection work in between Ch 4.365 km and Ch 4.445 km. The failure affected both above and underwater protection. After that occurrence, the BWDB officials visited the site and suggested to rebuild the slope and carry on the permanent protective works as per design. At that time, the water level of River Jamuna at Chauhali was 4.61 m. Further analysis of the failure revealed that no geotechnical design had been done during the detailed design phase without which the slope stability remains uncertain, and the contractor had been asked to bulldoze the temporary wave protection into the river along the low water line, which provides a latent risk due to the unstable layer of loose soil mixed with mostly destroyed geobags. Diving investigations revealed slope stability issues in other areas. The ISPMC provided adaptation suggestions subject to further refinement through river survey and diving investigations.

Table 4 shows the implementation progress summary, including all on-going (new for FY 2016/17 and carry-over contracts) and completed contracts. The best estimate has been updated according to the revised DPP. Details on an individual contract basis are available in **Table B-3**.

Table 4 Implementation (Physical) Progress Summary

Component	On-going & Complete Contracts	Best Estimate of Final Cost (BDT Mil)	Value of Cumulative Progress to Date (BDT Mil)	Projected Cumulative Progress to Next Qtr. (BDT Mil)
Goods; B: Materials	4	1,328	1,188	1,293
Goods; C: Vehicles & Equip.	10	46	46	46

Services; D: Consult. Service	6	1,212	553	661
Services; G: Program Mngt.	4	3	3	3
Works; A: Civil Works	11	3,493	1,512	1,744
Totals	**35**	**6,082**	**3,302**	**3,747**

2.2.5 Environmental Management

The first semi-annual EMP compliance monitoring report for the period January-June 2016 of the ISPMC was finalized in mid-January 2017 and sent to the PMO for review. It was submitted to ADB at the end of January 2017. The second semi-annual EMP compliance report for the period July-December 2016 was also sent to ADB in early February 2017 reflecting the substantially reduced construction activities during the flood season. In response to the 1st semi-annual report ADB suggested additional items to be included, which will be complied with from the next reports.

The first EMP compliance monitoring visit by the ISPMC for Chauhali was conducted on 5 January 2017 and to Zafarganj on 10 January 2017; the next round is planned to take place in early-April 2017.

2.2.6 Resettlement Services

The activities on resettlement (payment of compensation) is in progress during the quarter in terms of addressing the social safeguard compliance of ADB policy. Most of the area to be acquired (except additional areas due to bank failure during last flood in Chauhali) have been demarcated and land acquisition is being processed and necessary arrangements for paying compensation to the households affected by dislocation of structures are at an advanced stage. During the quarter the RP of Zafarganj and Chauhali were submitted to ADB and one RP has been approved. An additional RP is required in Zafarganj for 0.4km. The Resettlement Plan (RP) prepared during the PPTA for the embankment works at Koijuri to Baghabari (23 km) is being updated by the INGO. The INGO mobilized a team in Shahjadpur and is conducting the necessary surveys to identify the APs and issue ID cards prior to payment of compensation and assist the DC.

During the quarter, the ISPMC participated in two resettlement coordination meetings on 8 February and 26 February 2017 that were held to review the INGO's progress, and plan future actions to facilitate preparation of RPs and necessary surveys prior to embankment construction work. These meetings were attended by the PD and the Chief Resettlement Officer PMO, INGO staff, ISPMC representatives, and SMO Executive Engineers.

The INGO did not submit any monthly report during this quarter as per contract obligations despite agreeing during the coordination meetings. The last monthly progress report was submitted in December 2016.

During the quarter, ADB Country Director sent a letter about social safeguard policy and need of compliance. This letter was followed by taking actions to accelerate the compensation process. A plan of action was made to pay the resettlement benefits to the APs in Zafarganj and Chauhali based on the RPs within April 2017. The plan designed for identification and payment of compensation to APs was finalized for Zafargonj. Similar plan for Chauhali works sites is planned for April 2017.

Resettlement activities performed during the reporting quarter and projected for the next quarter, at each site, are summarized in **Table 5**. During the quarter, the regular supervision from ISPMC was limited awaiting the approval of the replacement National Resettlement Specialist.

Table 5 Resettlement Activities

Sites	Resettlement Activities	Progress During Current Quarter	Projected Progress During Next Quarter
Chauhali	• Riverbank Protection Resettlement Impacts	• Surveys completed • LA plan to DC office already submitted and DC office issued 3-dhara notice to eligible persons. • Formation of Safeguard Committees (JVT, PVAT, GRC) - Done • RP submitted to PMO & ADB, as per monthly report - Waiting for ADB's approval	• Completion & Approval of final RP from ADB • Information campaign – will be started and keep going • Issuance of ID cards to PAPs – Will be completed • Start Payment of Compensation - Will be started and completed
Zaffarganj	• Riverbank Protection Resettlement Impacts	• Survey completed • LA plan to DC office already submitted and DC office issued 3-dhara notice to eligible persons. • Formation of Safeguard Committees (JVT, PVAT, GRC) - Done • RP submitted to PMO & ADB, as per monthly report – Partially approved (1.40 Km approved) and 0.60 km is waiting for ADB's approval	• Completion & Approval of final RP for 0.60 km • Information campaign – Completed • Issuance of ID cards to PAPs – Completed • Start Payment of Compensation - Will be started and completed
Harirampur	• Riverbank Protection Resettlement Impacts	• Collection of maps and delineation of land to be acquired - Done • Preparation of LA plan – Under Process • Socio-economic Surveys started – Done	• Completion of Surveys - Done • Preparation & Approval of RP – Draft submission • Start Payment of Compensation – Planning process

Sites	Resettlement Activities	Progress During Current Quarter	Projected Progress During Next Quarter
Koijuri to Baghabari, Shahjadpur, Sirajganj	• Embankment Construction Resettlement Impacts • Resettlement Site Preparation • Relocation of PAP	• Conducted socio-economic, census and land price surveys - Done • Discussion on proposed resettlement sites - Ongoing • Agreement on ID cards for PAPs – Not yet started • Formation of Safeguard Committees (JVT, PVAT, GRC) - Done	• Finalization of updated RP - Will be started and completed • Issuance of ID cards to PAPs - Will be started and completed • Information campaign – Ongoing • Start Payment of Compensation with DC – Will be issued 6-dhara • Finalize relocation sites – Work will be in progress • Assist resettlement of PAPs – Work will be started

2.2.7 Livelihood Development

The main objective of the Income Livelihood Restoration Plan (ILRP) is to improve, or at least restore, the income and livelihood of all project affected people.

An INGO will be engaged to implement the ILRP under the Livelihood Development support study. The initial Livelihood Development ToR dated 22 February 2016 was revised and resubmitted to the PMO on 25 May 2016, and subsequently forwarded to ADB for their concurrence. According to the recent ADB Review Mission, the ADB Resident Mission was expected to approve or send comments on the draft ToR to the PMO by 20 December 2016, which unfortunately have not been received by the end of the reporting quarter.

Gender and Development

Gender issues were considered during preparation of the ILRP and the Livelihood Development ToR as well as various aspects had been considered from gender point of view during preparation of draft Gender Action Plan (GAP). Attention also given to the men and women who are affected for river bank protection work implementing by the project. To understand the situation of the vulnerable people three case studies are attached with this report in **Appendix-E** respectively from Chauhali, Zafargonj and Harirampur sites.

2.2.8 Flood Risk Management

Community-Based Flood Risk Management (CbFRM)

The new Project Manager has been assigned in the reporting quarter with the main task to resolve the impeding issues in line with the previously mentioned recommendations of the aid memoire.

To this end, a number of meetings were held with the Project Manager at the ministry. As a follow up, Proposal Evaluation Committee (PEC) formed earlier had two meetings to evaluate all 42 EoIs (38 submitted directly to DDM in copies and 4 were submitted through ADB's website) on 7 & 27 March. Out of the number of long listed EoIs, 9 EoIs were seen non-complying ADB's guideline with respect to either non-declaration of Eligibility Criteria attached with the EoI form or non-submission of the agreement copy of the partners in case of JV or non-submission of concurrence to EoI validity on the expiry of 60 days after EoI submission date. After thorough evaluations of 33 valid EoIs of the organizations, based on ADB's guideline and criteria, PEC on its last meeting date unanimously shortlisted maximum 6 organizations eligible (see **Table 6** below) to request for technical and financial proposals.

Table 6 List of Eligible Organizations

Name of the Consultant (Full Name not Acronym)	Country of Incorporation	Type of Association (Lead/JV member or Sub-consultant.)	Type of the legal entity
Bangladesh Disaster Preparedness Center	Bangladesh	Not applicable	NGO
BURO Bangladesh	Bangladesh	Not applicable	NGO
Voluntary Organization for Social Development	Bangladesh	Not applicable	NGO
Christian Commission for Development in Bangladesh	Bangladesh	Lead	NGO
Grant Thornton Consulting Bangladesh Limited	Bangladesh	JV member	Private
Sheba Manab Kallyan Kendra	Bangladesh	Not applicable	NGO
Grassroots Health and Rural Organization for Nutrition Initiative	Bangladesh	Not applicable	NGO

At this stage DDM is expected to send all the necessary documents attached with the submission form -1 to ADB through PMO, including the EoI evaluation report and draft RFP, for ADB's clearance. Once such clearance is available, DDM will be able to issue RFP to aforementioned shortlisted NGOs/organizations in the next quarter and simultaneously concentrate on resolving other pending issues, such as, procurement of equipment for PIU and CbFRM accounts management for the entire project period to be easier for both for PIU and PMO in accordance with the ADB guidelines and requirements.

Regional Flood Forecast Response Plan

The Flood Forecast Response Plan (FFRP) was revised to include 'automatic' Water Level Triggers based on the current BWDB Flood Forecasting & Warning Centre Danger Level at Baghabari (which is in itself an indication of the consequences of failure). There is a rationale for the Water Level Triggers, which would automatically initiate individual specific Flood Action Plans. These Trigger Levels will need to be adjusted (raised) once the proposed 23 km Kaijuri Embankment has been implemented, to reflect the reduced flood risk.

Organized and conducted a FFRP Workshop in Shahjadpur Upazila for 35 members of the existing Upazila Disaster Management Committee on 06 March. The FFRP PowerPoint Presentation was first prepared in English and then translated into Bangla, to better serve the needs of the local Upazila

Committee. The new Project Manager for the Department of Disaster Management (Ms. Nurun Nahar Chowdhury) was unable to attend the FFRP Workshop, but the ISPMC International Flood Risk Management Specialist did meet with her at her office to explain the Plan. Based on feedback from the Workshop, an English version of the FFRP was revised and redistributed. Although the main report has been finished, the Appendices still need further review. Once the entire report has been finalized, it will also be translated into Bangla.

2.2.9 Management Information Systems (MISs)

FRERMIP Implementation Database

The Financial Progress Tables (Tables A-3 through A5; and B-6 through B-8) have been modified to better satisfy the requirements of the FRERMIP PMO Accounts Officer. In addition the method used to measure ISPMC implementation progress has been simplified.

Asset MIS (Support Study S-09, S-07 under Revised DPP)

During preparation of the Asset MIS ToR, it was learned that a comprehensive Scheme Database Inventory and Mapping System (SIMS) has already been developed under the Water Management Improvement Project (WMIP). Rather than duplicating work, the proposed support study was redefined to complement the existing SIMS by adding a risk-based O&M module which would prioritize all monitoring and O&M activities based on risk reduction. This addition will allow SIMS to more fully satisfy its potential as a '**management'** information system (MIS).

An initial draft of the proposed Asset MIS ToR was submitted to the BWDB FRERMIP PMO on 07 November. In mid-December, the PMO provided valuable comments, and the ToR was subsequently revised. The final Asset MIS ToR was submitted to the PMO on 12 February 2017. The final Asset MIS ToR now includes a post-development support component and the purchase of one computer for each of the 63 BWDB O&M Divisions.

ADB is still evaluating the Asset MIS ToR. Contractual procedures will likely take almost 1 year to complete. Once the Support Study has been awarded, the ISPMC International MIS Specialist will return to Bangladesh to provide guidance and oversight to the successful consultant.

River Survey Database

Several changes have been made during the reporting quarter:

- Added functionality to generate custom database backups and to display the number of surveys and geometric elements for the current project
- Restored all 1500 Sirajganj surveys
- Added additional functionality to the QGIS interface including background Google Earth satellite images and cross-section labels
- Visited Sirajganj BRE Division to demonstrate River Survey database, and collect all 2016 surveys, plus typical cross-section locations

2.3 *OTHER PROJECT ACTIVITIES*

2.3.1 Supporting Studies

As specified in the original DPP (Ref. 4), there are a total of nine supporting studies (service contracts) funded under FRERMIP to help implement and expedite project outputs. Implementation Non-

Government Organizations (INGOs) or consulting firms would be engaged to complete these supporting studies.

According to the revised DPP, three Support Studies are deferred until Project-2 (Participatory O&M, ADP MIS and Environmental Management Services) due to slower than anticipated implementation, lengthy contractual procedures, and a potential project cost over-run. Among the remaining service contracts, three have been awarded and being implemented. The status of all support studies is summarized in **Table 7.**

Table 7 Status of Supporting Studies

Pkg.	Study Name	Present Status
S-02	Resettlement Plan Implementation	Resettlement INGO signed contract with BWDB on 16 March 2016, and work is ongoing.
S-03	Livelihood Development Services	ToR submitted to PMO on 25 May 2016. ADB concurrence under process (**Section 2.2.7**).
S-04	Community-based Flood Risk Management (CbFRM) Services	EOI received on 26 April 2016, and evaluation under process (**Section 2.2.8**).
S-05	Multi-Beam Eco Sounding Survey	ToR under preparation. A demonstration survey was performed in October-November 2016.
S-06	Erosion Prediction Services	CEGIS signed current contract with BWDB on 10 May 2016, and work is ongoing.
S-07	ADP MIS	Draft Asset MIS ToR rewritten to complement existing SIMS system by adding a risk-based O&M module. PMO comments were received in mid-December (**Section 2.2.9**).

2.3.2 Capacity Building

The current primary activity going on under the Capacity Building Program is the preparation of training courses. A summary of the Training Program progress is shown in **Table 8**. The full Capacity Building program was initially provided in the Inception Report and has been revised, the updated program is given in **Appendix-F.**

Table 8 Summary of Capacity Building Progress

Type of Training	Course Implementation Progress				
	Total	Discussed	Prepared	Approved	Completed
Capacity Building PMO					
A. Local Training (14 Modules)	34	34	34	4	4
B. Overseas Training (3 Modules)	3	2	2	1	1
C. Overseas Tours (3 Modules)	3	3	2	1	1
PMO Totals	**40**	**39**	**38**	**6**	**6**
Capacity Building ISPMC					
Line 1:					
A. Workshops	7	7	4	4	4
B. Training	7	7	5	4	4
C. Seminars	1	0	0	0	0
Line- 2:					
A. Conferences	1	1	1	1	1
B. Study Tours	1	1	0	0	0
ISPMC Totals	**17**	**16**	**10**	**9**	**9**

Local Training during this quarter:
During the reporting quarter, 1 Local Training (#2) on River Training Technique training session was organized and conducted under the Capacity Building Component and Training course on "River Training Techniques" for BWDB Engineers under the FRERMIP Project-1 and was conducted by: Department of Water Resources Engineering, BUET including lecture provided from BWDB and ISPMC specialists (**Table 9**). The Total cost of 2 Batches was BDT=1,518,029 (Fifteen Lac Eighteen Thousand Twenty-Nine).

Table 9 Local Trainings of This Quarter

Date	Description	Trainees	Venue
12-16 Feb, 2017	River Training Technique (Batch-1)	20	DWRE, BUET
18-23 Feb, 2017	River Training Technique (Batch-2)	20	DWRE, BUET

Probable International Conference next quarter:
"International Conference on The Status and Future of the World's Large Rivers" is to be held on 18-21 April in New Delhi with two papers from FRERMIP to be presented.

2.3.3 River Study Teams

River Study
An internal coordination meeting between international specialists was held at the office of Deltares in Delft, the Netherlands, 9-11 January 2017. Discussions in the meeting concerned the planning components of FRERMIP as well as the Feasibility Study.

The study team continued with reduced capacity as the input of the task team leader was exhausted. This notwithstanding, the team has prepared as first deliverable a strategic framework, which was the core of the presentation during the December 2016 workshop. The team is awaiting the approval of the first zero-cost variation order to complete the other two deliverables, namely the river stabilization plan and the preliminary master plan. The variation order will provide the necessary resources for some of the additional works identified at inception and to provide resources for the principal authors of the two documents.
Important activities during the quarter pertained to:

(i) A number of international specialist met at the office of Deltares in Delft, the Netherlands, from 9-11 January 2017 to discuss extensively the modelling activities but also remaining works to complete a number of drafted technical notes.

(ii) The study team continued extensive bifurcation investigations consisting of morphological, as well as schematic nd specific numerical modelling with focus on the Lower Jamuna River. This work is relevant for the long term stabilization plan, as well as the planning of Project-2 works as first step towards a more stable left branch of the Lower Jamuna.

(iii) The study team progressed substantially on the sediment budgeting, with the important findings that despite of the very large sediment transport of the Brahmaputra System, systematic river stabilization will exhaust this transport capacity for rebuilding the lost floodplains.

(iv) The SESA document was further refined and Client has started the review process.

Pilot Works

The second technical advisory committee met on 19 January and discussed pilot works alternatives proposed by the ISPMC. The meeting concluded that grout-filled jute mattresses should be piloted on high priority given their importance for the river stabilization strategy. The meeting also concluded to pursue top-blocked semi-permeable spurs, strongly backed by the member of the RNE. While the ISPMC had advised against this technology after extensive study including field investigations, designs and cost estimates, as not relevant for the river stabilization plan of the Brahmaputra System, the committee believes that this technology can be used in smaller rivers in Bangladesh. As follow on activity, the ISPMC has liaised with the Blue Gold project, also strongly advised by the RNE to pursue top-blocked semi-permeable spurs. The Blue Gold project plans a workshop towards the end of April to discuss the way forward on this technology.

2.3.4 Feasibility Study

The work on the feasibility study continued focused on desk studies and awaiting the resources for field surveys contained in the first zero-cost variation order. The site selection was more refined based on an economic feasibility study as well as more intensive numerical modelling of the implications of technical alternatives. Environmental public consultation meetings on the Tranche 2 works were held in Ratankandi in JRB-1 on 22 February 2017 and in Chauhali in JLB-2 on 15 March 2017. At the end of the reporting period the public consultation activities for the Tranche 2 works were still ongoing.

An updated document on site selection including numerical modelling results and economic feasibility considerations is expected during the next quarter for decision by Client and ADB and subsequent preparation of updated feasibility study and detailed designs.

3. ADMINISTRATIVE ARRANGEMENTS

3.1 *Establishment of Project Offices*

The PMO and two ISPMC offices are fully operational. The project management team of the ISPMC and the BWDB PMO Office are both located in the Firoz Tower, 152/3/B Bir Uttam, Kazi Nuruzzaman Road (Green Road), Dhaka-1205. The ISPMC River Study and Feasibility teams are located at the Banani Office: House 47 (8th Floor) Road 27, Banani, Dhaka.

Appendix-C Table C-1: Utilization of Consultant Person-Months details the time spent by all international and national specialists to the end of the reporting period. A total of 24 international specialists have expended 84 person-months (47% of total), and 35 national specialists have expended 220 person-months (45% of total), up to the end of the March 2017.

3.2 *Important Events*

Date	Event
19 January	2nd Technical Advisory Committee meeting on pilot works
2 February	Meeting with Prof. Shamsul Alam, Planning Commission on Delta Plan and FRERMIP River Management (strategic framework)
19 February	Chauhali diving investigation in failure zones
13 March	Coordination of pilot works with Blue Gold
22 March	Chauhali diving investigation in failure zones
25 March	Site visit with 1st Secretary RNE
30 March	Hariampur diving investigations

4. FINANCIAL ARRANGEMENTS

4.1 *Statements of Expenditure*

Using the project implementation database, and with help from the FRERMIP PMO, the ISPMC tracks fiscal progress compared to Annual Development Plan (ADP) targets, BWDB PMO expenditures paid to contractors and suppliers, all reimbursement bill applications approved by ADB, and all ADB (and GON) disbursements (deposits) to the project.

Table A-5 shows the fiscal (ADP) target and progress, plus the cumulative totals to date for progress, expenses and reimbursements, for all DPP categories. The 2016/17 fiscal targets have recently been revised and are not expected to change again during the current fiscal year.

BWDB PMO expenditures by individual contract are provided in **Table B-5**. Only the total expenditure values are exactly correct. The individual donor values have been calculated using total expenditure values and the percent distribution by financial component.

Financial reimbursement on an individual contract basis is shown in **Table B-6.** The table shows the total bill claim amount, plus the reimbursed amount (BDT) by both ADB and GON. A summary of reimbursement applications for line of credit (L/C), direct payment and imprest amounts is shown in **Table B-7.** This table also shows the total bill amount claimed and the reimbursement amounts paid by ADB and GON in both BDT and US$.

Reimbursement values (BDT) are also summarized by ADB Financial Category **(Table A-3),** and by DPP Component **(Table A-4 and A-5)**.

Table B-8 shows the total ADB (plus GON) disbursement to the project. Total disbursement is the addition of all deposits to the ADB Loan Account and the Grant Imprest Account, plus the ADB and GON portions of all reimbursed Direct Payment and L/C applications.

A summary of the financial progress in available in **Table 1 Progress at a Glance** which shows that the progress of PMO expenditure is 44%, the ADB disbursement is 36% and the total reimbursement is 22%. The history of project disbursements and reimbursements (US$) is shown in **Figure 2 Contract, Disbursement and Reimbursement History**.

5. ISSUES FOR DISCUSSION AND AGREEMENT

5.1 *Compliance with Covenants*

The loan covenants are provided in the Loan Agreement, Program Agreement, and Grant Agreement (**Ref.** 3) and are in general being followed. With respect to Schedule 5, land acquisition and resettlement, the preparation of resettlement and land plans remains on the critical path as the completion of the above-water construction works at Chauhali and Zaffarganj are expected to contribute to the stability. The more so as the temporary protection works at Chauhali has shown some significant erosion and slope instability problems in places. Both sites are intended to be completed during the dry season 2016/17, while the land acquisition and resettlement plans remain to be completed and compensation to be paid.

5.2 *Construction of Permanent Wave Protection*

At Chauhali and Harirampur surficial erosion occurred due to the failure of the single-layer temporary wave protection. This resulted in the erosion of the floodplain, typically above the placed underwater protection, with around 3 to 5m water depth below low water level. As one consequence the land acquisition process had to be adopted and incorporate the additionally eroded areas. The lesson learned is that single-layer temporary wave protection is insufficient in areas under direct flow attack. Following the JMREMP concept from the early 2000s, double layer temporary wave protection is required here.

A number of geotechnical failures at Chauhali during the end of 2016 and in early 2017 indicates the need for systematic geotechnical investigations. As such the provided final designs from the BWDB Design Office remain incomplete. The ISPMC continues pursuing subsoil investigations as per direction of the technical committee from 4 February 2016. The current observations of soil stability are in line with the general knowledge about subsoil stability: the right bank provides the most stable conditions with no failures experienced during the work of JMREMP, while the younger subsoil on the left bank is more prone to geotechnical failure. Depending on the subsoil investigations, this indicates the need to design flatter slopes and wider berms for the protection above low water.

5.3 *Performance of Geobags*

Geobag aprons perform as expected, confirmed through detailed systematic river survey and diving investigations. Aprons launch on 1V:2H slopes even on relatively recent and loose deposits. The bathymetric surveys as well as the diving investigations do not indicate the occurrence of static flow slides associated with rapid scouring. It appears that the larger 250kg bags lead to slightly larger gaps between individual bags as opposed to the smaller 126kg bags used earlier. However, diving investigations provided first indications that launched geobags overlap in slightly, for example launching over part of a corner, which would increase the stability of the slope.

Notwithstanding the good performance, the ISPMC recommends adaptation works, in increasing the coverage of the launched slope to three layers and adding another apron at the toe to defend the work against further scouring and avoid that the scour approaches the bankline too closely. This is the more important at Chauhali and Zaffarganj, where the subsoil in places appears to be rather weak and susceptible to failure.

5.4 *Project Management and Scheduling*

After promotion the responsible ADB senior water resources specialist has left and the project is awaiting the fielding of a new specialist. Interim arrangements assure continuous project implementation. The interim arrangement entails that all aspects pertaining to the ongoing implementation are handled by the Bangladesh Resident Mission, whereas all aspects pertaining to the Study Team as well as the preparation of Project-2 are guided from Manila. The BRM informed the project team that due to the changes in their management team, the feasibility study for Project-2 is not expected to be processed before the end of this calendar year. This provides more flexibility also given that the Client has not approved the first zero-cost variation order pertaining to changes identified in the inception report. The approval is expected during the next quarter.

5.5 *Construction Schedule for Embankment*

After cancellation of the five procurement packages for embankment works, the PMO attempts to re-tender the works including e-tender. The ISPMC suggested to consider incorporating fish passes into the embankment as well as reviewing the technical specifications to achieve international level standard.

5.6 *Revised Development Project Performa (rDPP)*

The PMO continues processing of the rDPP, adjusting the budget and time to reflect latest developments. This focusses mainly on the reduction of the loan budget, the reallocation of different line items to reflect the actual contract costs and extend the construction season until June 2019 to allow two seasons for embankment construction (**Table A-5**).

6. REFERENCES

1. ADB, 2014: Facility Administration Manual, Bangladesh: Multi-Project Financing Facility - Flood and Riverbank Erosion Risk Management Investment Program, 2014 June

2. ADB, 2014: Report and Recommendation of the President to the Board of Directors, Proposed Multi-Project Financing Facility People's Republic of Bangladesh: Flood and Riverbank Erosion Risk Management Investment Program, 2014 June

3. ADB, 2014: Loan Agreement, Program Agreement, and Grant Agreement; Flood and Riverbank Erosion Risk Management Investment Program – Project-1, between the People's Republic of Bangladesh and Asian Development Bank, 2014 August 14

4. BWDB, 2014: Development Project Proposal, Flood and Riverbank Erosion Risk Management Investment Program – Project 1, 2014 May

5. NHC, 2013: Project Preparatory Technical Assistance 8054 BAN, Main River Flood and Bank Erosion Risk Management Program, Main Report, 2013 December

TABLES

Appendix-A Work Program Summaries

Table A-1 Project Program Summary

Quantity (Units)

Component	Asset Type	Units	BWDB	DDM	MAN	KOI	TAN	Totals
A: Civil Works								
A1: Embankment Works	Cons/ReCon: Embank	km	0.0	0.0	0.0	10.5	0.0	**10.5**
	New: Embank	km	0.0	0.0	0.0	12.5	0.0	**12.5**
	New: Infrastr	BDTM	0.0	0.0	5.0	0.0	0.0	**5.0**
	New: Regulator	No	0.0	0.0	0.0	4.0	0.0	**4.0**
A2: Riverbank Prot Works	New: Revetment	km	0.0	0.0	9.0	0.0	7.0	**16.0**
A3: Emerg & Adaptation	Emerg: AdpRivProt	BDTM	54.0	0.0	0.0	0.0	0.0	**54.0**
A4: Pilot Land Recovery	New: RivTrnWrk	BDTM	380.0	0.0	0.0	0.0	0.0	**380.0**
B: Materials								
B1: Geotextile, Civil Works	Procure: GeoBag	Mil	0.0	0.0	2.7	0.0	1.9	**4.7**
B2: Geotextile, Emerg	Procure: GeoBag	Mil	0.0	0.0	0.9	0.0	0.0	**0.9**
C: Vehicles & Equipment								
C1: Vehicles/Transport	Procure: Veh/Trans	No	12.0	0.0	0.0	0.0	0.0	**12.0**
C2: Office Equipment	Procure: Equip	BDTM	8.9	0.0	0.0	0.0	0.0	**8.9**
C3: Survey Equipment	Procure: Equip	BDTM	8.9	0.0	0.0	0.0	0.0	**8.9**
C4: DDM Office Eqpt	Procure: Equip	BDTM	0.0	0.6	0.0	0.0	0.0	**0.6**
D: Consulting Services								
D1: ISPM; Consultant Serv.	Service: Feasi.Stud	BDTM	173.0	0.0	0.0	0.0	0.0	**173.0**
	Service: Instit.Cap	BDTM	387.0	0.0	0.0	0.0	0.0	**387.0**
	Service: Riv.Stabil	BDTM	458.0	0.0	0.0	0.0	0.0	**458.0**
D2: INGO BWDB	Service: Liveli.Sup	BDTM	65.1	0.0	0.0	0.0	0.0	**65.1**
	Service: Resettle.S	BDTM	17.5	0.0	0.0	0.0	0.0	**17.5**
D3: INGO DDM	Service: CBFRM	BDTM	0.0	66.9	0.0	0.0	0.0	**66.9**
D4: Survey & Investigation	Service: Eros.Pred	BDTM	88.5	0.0	0.0	0.0	0.0	**88.5**
E: Capacity Development								
E1: BWDB Training & Study	Service: Training	BDTM	68.4	0.0	0.0	0.0	0.0	**68.4**
E3: MIS Development	Service: Instit.Cap	BDTM	12.9	0.0	0.0	0.0	0.0	**12.9**
F: Land Acqn & Resettle								
F1: Land Compensation	Compensate: Land.Acqu	BDTM	884.8	0.0	0.0	0.0	0.0	**884.8**
F2: Resettle Benefits	Compensate: Resettle.B	BDTM	29.7	0.0	0.0	0.0	0.0	**29.7**
G: Program Management								
G1: Staff Salaries BWDB	Service: Prog.Mngt	BDTM	83.7	0.0	0.0	0.0	0.0	**83.7**
G2: Office Opns BWDB	Service: Prog.Mngt	BDTM	49.6	0.0	0.0	0.0	0.0	**49.6**
G3: Office Opns DDM	Service: Prog.Mngt	BDTM	0.0	12.1	0.0	0.0	0.0	**12.1**
G4: BWDB River Surveys	Service: Riv.Surv	BDTM	8.1	0.0	0.0	0.0	0.0	**8.1**
	Service: LandSurvey	BDTM	0.2	0.0	0.0	0.0	0.0	**0.2**
X: Misc. Costs								
X1: Misc. Costs	Compensate: CD&SD	BDTM	72.3	0.0	0.0	0.0	0.0	**72.3**
	Compensate: Interest	BDTM	199.2	0.0	0.0	0.0	0.0	**199.2**

Abreviations:
DDM - Department of Disaster Managment
MAN - Manikganj SMO
KOI - Koitola SMO
TAN - Tangail SMO

The unit BDTM refers to an estimated tost cost of Bangladesh Taka 1 Million.

Table A-2 Project Cost Summary

Cost (BDT Mil)

Component	Asset	BWDB	DDM	MAN	KOI	TAN	Totals
A: Civil Works							
A1: Embankment Works	Cons/ReCon: Embank	0	0	0	508	0	**508**
	New: Embank	0	0	0	472	0	**472**
	New: Infrastr	0	0	7	0	0	**7**
	New: Regulator	0	0	0	230	0	**230**
A2: Riverbank Prot Works	New: Revetment	0	0	1,010	0	832	**1,842**
A3: Emerg & Adaptation	Emerg: AdpRivProt	54	0	0	0	0	**54**
A4: Pilot Land Recovery	New: RivTrnWrk	380	0	0	0	0	**380**
							3,493
B: Materials							
B1: Geotextile, Civil Works	Procure: GeoBag	0	0	788	0	365	**1,153**
B2: Geotextile, Emerg	Procure: GeoBag	0	0	175	0	0	**175**
							1,327
C: Vehicles & Equipment							
C1: Vehicles/Transport	Procure: Veh/Trans	35	0	0	0	0	**35**
C2: Office Equipment	Procure: Equip	4	0	0	0	0	**4**
C3: Survey Equipment	Procure: Equip	7	0	0	0	0	**7**
C4: DDM Office Eqpt	Procure: Equip	0	1	0	0	0	**1**
							46
D: Consulting Services							
D1: ISPM; Consultant Serv.	Service: Feasi.Stud	170	0	0	0	0	**170**
	Service: Instit.Cap	387	0	0	0	0	**387**
	Service: Riv.Stabil	461	0	0	0	0	**461**
D2: INGO BWDB	Service: Liveli.Sup	65	0	0	0	0	**65**
	Service: Resettle.S	16	0	0	0	0	**16**
D3: INGO DDM	Service: CBFRM	0	64	0	0	0	**64**
D4: Survey & Investigation	Service: Eros.Pred	48	0	0	0	0	**48**
							1,211
E: Capacity Development							
E1: BWDB Training & Study	Service: Training	64	0	0	0	0	**64**
E3: MIS Development	Service: Instit.Cap	13	0	0	0	0	**13**
							77
F: Land Acqn & Resettle							
F1: Land Compensation	Compensate: Land.Acqu	1,650	0	0	0	0	**1,650**
F2: Resettle Benefits	Compensate: Resettle.B	30	0	0	0	0	**30**
							1,680
G: Program Management							
G1: Staff Salaries BWDB	Service: Prog.Mngt	84	0	0	0	0	**84**
G2: Office Opns BWDB	Service: Prog.Mngt	31	0	0	0	0	**31**
G3: Office Opns DDM	Service: Prog.Mngt	0	5	0	0	0	**5**
G4: BWDB River Surveys	Service: Riv.Surv	8	0	0	0	0	**8**
	Service: LandSurvey	0	0	0	0	0	**0**
							128
X: Misc. Costs							
X1: Misc. Costs	Compensate: CD&SD	32	0	0	0	0	**32**
	Compensate: Interest	199	0	0	0	0	**199**
							231
Grand Totals		**3,737**	**70**	**1,979**	**1,210**	**1,197**	**8,193**

Abreviations:
DDM - Department of Disaster Managment
MAN - Manikganj SMO
KOI - Koitola SMO
TAN - Tangail SMO

Table A-3 ADB Categories: Reimbursed Amount, by Dono

all Values in BDT Mil

Code	Categories	Total Cost Est.	Value of Physical Progress	PMO Expenses	Reimbursed Amount		
					ADB	GON	Total
Component							
1	Works	3,493.1	1,512.4	1,271.3	593.5	0.0	**593.5**
2	Materials	1,327.4	1,187.7	1,042.2	899.9	0.0	**899.9**
3A	Vehicles - BWDB	34.5	34.5	34.9	1.5	0.0	**1.5**
3B	Equipment - BWDB	11.1	11.1	11.1	10.6	0.0	**10.6**
3C	Equipment -DDM	0.5	0.0				
4	Resettlement	29.7	0.0				
5	Training	76.8	25.6	17.8	15.2	0.0	**15.2**
6A	Consulting Services - Project Management - BWDB	1,018.2	529.7	300.5	46.1	262.6	**308.7**
6B	Consulting Services - NGO Services - BWDB	128.8	23.1	16.3	11.5	0.0	**11.5**
6C	Consulting Services - Project Management - DDM	64.4	0.0				
7A	Project Management - BWDB	38.9	17.3	10.2	7.3	0.0	**7.3**
7B	Project Management - DDM	5.1	0.0	0.0			
8	Interest	199.2	10.0	10.0			
9	Unallocated	1,765.7	865.2	779.1			
Grand Total		**8,193.4**	**4,216.5**	**3,493.4**	**1,585.7**	**262.6**	**1,848.2**

Table A-4 DPP Categories: Reimbursed Amount, by Dono

all Values in BDT Mil

Code	Categories	Total Cost Est.	Value of Physical Progress	PMO Expenses	Reimbursed Amount		
					ADB	GON	Total
Revenue Component							
4826	Interest & Service Charge for Netherland Grant	199.2	10.0	10.0			
4840	Capacity Development Program	76.8	25.6	17.8	15.2	0.0	**15.2**
4849	Resettlement Support Program	29.7	0.0				
4874	ISPMC; Implementation Consultant Services	386.9	193.5	114.2	17.5	99.8	**117.3**
4874	ISPMC; River Stabilization and Land Recovery Study	461.2	276.7	136.1	20.9	118.9	**139.8**
4874	ISPMC; Feasibility of Tranch-2/3 Project	170.0	59.5	50.2	7.7	43.8	**51.6**
4874	Resettlement Implementation Support	16.2	5.8	4.7	1.4	0.0	**1.4**
4874	Livelihood Support Program	64.7	0.0				
4874	Community-based Flood Management Program (DDM)	64.4	0.0				
4886	Land/River Survey and Data Processing	8.0	2.5	2.5	0.4	0.0	**0.4**
4886	Survey and Investigation Data Processing	47.9	17.2	11.5	10.1	0.0	**10.1**
4700	PMO Salaries and Allowances	83.7	40.2				
4800	PMO Operational Expenses	30.9	14.8	7.7	6.9	0.0	**6.9**
4899	PMU DDM Oprational Expenses	5.1	0.0	0.0			
Revenue Totals		***1,644.7***	***645.8***	***354.8***	***80.2***	***262.6***	***342.8***
Capital Component							
6807	Transport Vehicles (Jeep 5, Motorcyle 10 and Speed Boat 1)	34.5	34.5	34.9	1.5	0.0	**1.5**
6819	Computer and Office Equipment BWDB	4.4	4.4	4.4	4.2	0.0	**4.2**
6819	Computer and Office Equipment DDM	0.5	0.0				
6851	Survey Equipment	6.7	6.7	6.7	6.4	0.0	**6.4**
6901	Land Acquisition (136 ha)	1,650.0	825.0	779.1			
7016	Construction of Inspection Bangalow at Manikganj	7.0	0.0				
7041	Regulator (new 4 and repair 3) in JRB1	229.9	0.0				
7081	Embankment (23 km) along RB Jamuna and LB Baria-Hurasagar, with Road (5 km)	980.4	0.0				
7081	Protective Works at RB Jamuna at Kaijuri, LB Jamuna at Chaulhali, Jafforganj & Harirampur (15 km)	3,169.4	2,700.1	2,313.5	1,493.4	0.0	**1,493.4**
7081	Land Recovery/River Training Works	379.8	0.0				
7081	Adaptive Protection and Emergency	54.0	0.0				
7091	CD and SD	32.0	0.0				
Capital Totals		***6,548.7***	***3,570.7***	***3,138.6***	***1,505.5***	***0.0***	***1,505.5***
Grand Total		**8,193.4**	**4,216.5**	**3,493.4**	**1,585.7**	**262.6**	**1,848.2**

Table A-5 DPP Categories: Key Physical and Financial Indicators

all Values in BDT Mil

Code	Categories	Total Cost		Total to Date		
		Budget	Revised Est.	Progress	Expenses	Reimburs
Revenue						
4826	Interest & Service Charge for Netherland Grant	199.2	199.2	10.0	10.0	0.0
4840	Capacity Development Program	104.4	76.8	25.6	17.8	15.2
4849	Resettlement Support Program	29.7	29.7	0.0	0.0	0.0
4874	ISPMC; Implementation Consultant Services	406.4	386.9	193.5	114.2	117.3
4874	ISPMC; River Stabilization and Land Recovery Study	484.0	461.2	276.7	136.1	139.8
4874	ISPMC; Feasibility of Tranch-2/3 Project	178.1	170.0	59.5	50.2	51.6
4874	Resettlement Implementation Support	17.5	16.2	5.8	4.7	1.4
4874	Livelihood Support Program	65.1	64.7	0.0	0.0	0.0
4874	Environmental Management Program	59.8	0.0	0.0	0.0	0.0
4874	Community-based Flood Management Program (DDM)	66.9	64.4	0.0	0.0	0.0
4874	Particiatory Regular O&M Training Support	24.0	0.0	0.0	0.0	0.0
4886	Land/River Survey and Data Processing	8.0	8.0	2.5	2.5	0.4
4886	Survey and Investigation Data Processing	86.7	47.9	17.2	11.5	10.1
4700	PMO Salaries and Allowances	83.7	83.7	40.2	0.0	0.0
4800	PMO Operational Expenses	49.6	30.9	14.8	7.7	6.9
4899	PMU DDM Oprational Expenses	12.1	5.1	0.0	0.0	0.0
		1,875.1	***1,644.7***	***645.8***	***354.8***	***342.8***
Capital						
6807	Transport Vehicles (Jeep 5, Motorcyle 10 and Speed Boat 1)	64.1	34.5	34.5	34.9	1.5
6819	Computer and Office Equipment BWDB	8.9	4.4	4.4	4.4	4.2
6819	Computer and Office Equipment DDM	0.6	0.5	0.0	0.0	0.0
6851	Survey Equipment	8.9	6.7	6.7	6.7	6.4
6901	Land Acquisition (136 ha)	884.8	1,650.0	825.0	779.1	0.0
7016	Construction of Inspection Bangalow at Manikganj	5.0	7.0	0.0	0.0	0.0
7041	Regulator (new 4 and repair 3) in JRB1	140.6	229.9	0.0	0.0	0.0
7081	Embankment (23 km) along RB Jamuna and LB Baria-Hurasagar, with Road (5 km)	788.8	980.4	0.0	0.0	0.0
7081	Protective Works at RB Jamuna at Kaijuri, LB Jamuna at Chaulhali, Jafforganj & Harirampur (15 km)	3,266.0	3,169.4	2,700.1	2,313.5	1,493.4
7081	Land Recovery/River Training Works	379.8	379.8	0.0	0.0	0.0
7081	Adaptive Protection and Emergency	279.1	54.0	0.0	0.0	0.0
7091	CD and SD	72.3	32.0	0.0	0.0	0.0
		5,899.0	***6,548.7***	***3,570.7***	***3,138.6***	***1,505.5***
Totals		**7,774.0**	**8,193.4**	**4,216.5**	**3,493.4**	**1,848.2**

Appendix-B Work Program Details

Table B-1 Design Progress Details

Description	Total	Design Data Collection			Prog (%)		Remarks
		Surv	Hydraul	Geotech	Desn	Dwg	
Component A: Civil Works							
Koitola SMO							
Cons/ReCon: Embank: 4.8 km: Embankment Reconst. (4.8 km): Baghabari - Verakhola; km 12.5-17.3		c	c	na	100	100	Desn. & Dwg. Complete
Cons/ReCon: Embank: 5.7 km: Embankment Reconst. (5.7 km): Baghabari - Verakhola; km 17.3-23		c	c	na	100	100	Desn. & Dwg. Complete
New: Embank: 5 km: Embankment (5 km): Kaijuri - Bhatpara; km 0-5		c	c	na	100	100	Desn. & Dwg. Complete
New: Embank: 3.5 km: Embankment (3.5 km): Bhatpata - Gala; km 5-8.5		c	c	na	100	100	Desn. & Dwg. Complete
New: Embank: 4 km: Embankment (4 km): Gala - Verakhola; km 8.5-12.5		c	c	c	100	100	Desn. & Dwg. Complete
New: Regulator: 1 No: Kaijuri Reg 2V 1.5x1.8m		c	c	c	100	100	Desn. & Dwg. Complete
New: Regulator: 1 No: Rohindakandi Reg 2V 1.5x1.8m		c	c	c	100	100	Desn. & Dwg. Complete
New: Regulator: 1 No: Verakhola Reg 2V 1.5x1.8m		c	c	c	100	100	Desn. & Dwg. Complete
New: Regulator: 1 No: Andhar Manik Reg 4V 1.5x1.8m		c	c	c	100	100	Desn. & Dwg. Complete
Koitola SMO Totals	***9***	***9***	***9***	***9***	***9***	***9***	
Manikganj SMO							
New: Infrastr: 5 BDTM: Construction of Inspection Bungalow		c	na	na	100	100	Dwgs Complete
Manikganj SMO Totals	***1***	***1***	***1***	***1***	***1***	***1***	
Component Totals	***10***	**10**	**10**	**10**	**10**	**10**	

Legend:
n - not commenced c - completed
p - partially completed na - not applicable/required

Table B-2 Tender Progress Details

Package Code	Description	Dates												
		ISPMC ToR	ADB ToR	EoI Notice	EoI Received	BWDB EoI Eval	ADB EoI Eval.	ADB Bid Doc.	Tender Notice	Tender Received	Eval. Comp.	ADB Concur.	Appr.Compl. Authority	Notif. Award
Goods; B: Materials														
G-04	Supply of Geobags; Chauhali-Harirampur-Koijuri-Benotia							13Sep16	27Sep16	14Nov16	19Dec16	20Jan17		12Feb17
Component Totals		***0***	***0***	***0***	***0***	***0***	***0***	***1***	***1***	***1***	***1***	***1***	***1***	***1***
Goods; C: Vehicles & Equipment														
G-09	2017 Supply of Office Equip; DDM;													
Component Totals		***0***	***0***	***0***	***0***	***0***	***0***	***0***	***0***	***0***	***0***	***0***	***0***	***0***
Services; D: Consulting Services														
S-03	Livelihood Development;	25May16												
S-04	Community Based Flood Risk Mngmt;	30Sep15	01Mar16	28Mar16	26Apr16									
Component Totals		***2***	***1***	***1***	***1***	***0***	***0***	***0***	***0***	***0***	***0***	***0***	***0***	***0***
Works; A: Civil Works														
W-01	Embankment, & 2 Reg.; km 0-5							04Oct16	10Nov16	21Dec16				
W-02	Embankment; km 5-8.5							04Oct16	10Nov16	21Dec16				
W-03	Embankment; 8.5-12.5							04Oct16	10Nov16	21Dec16				
W-04	Embankment & 1 Regulator; km 12.5-17.3							04Oct16	10Jan17	21Dec16				
W-05	Embankment & 1 Regulator; km 17.3-23							04Oct16	10Nov16	21Dec16				
W-15	Construction of Inspection Bungalow;													
Component Totals		***0***	***0***	***0***	***0***	***0***	***0***	***5***	***5***	***5***	***0***	***0***	***0***	***0***
Project Totals		**2**	**1**	**1**	**1**	**0**	**0**	**6**	**6**	**6**	**1**	**1**	**0**	**1**

Abbreviations: **ADB - Asian Development Bank** **BDT - Bangladesh Taka** **Comp. - Completion** **Concur. - Concurrence** **Doc. - Document** **Eval. - Evaluation** **EoI - Expression of Interest** **Notif. - Notification**

Table B-3 Implementation Progress Details, by Contract

Contract Code	Description	Contractor	Best Estimate of Final Cost (BDT Mil)	Value of Cumulate Progress during Mth%	30-Apr-2017 Current Mth (%)	30-Apr-2017 Current Mth (BDT Mil)	31-May-2017 Next Mth (%)	31-May-2017 Next Mth (BDT Mil)	Remarks
Goods									
B: Materials									
G-01	Supply of Geobags: Chouhali, Sirajganj	BJ Geo-Textile	365.0	100	100	365.0	100	365.0	Implemenation Complete
G-02	Supply of Geobags: Zaforganj, Harirampur, Manikganj	BJ Geo-Textile	472.6	100	100	472.6	100	472.6	Implemenation Complete
G-03	Supply of Geobags: Harirampur, Manikganj	DFL-DCTL(JV)	315.1	100	100	315.1	100	315.1	Implemenation Complete
G-04	Supply of Geobags: Chauhali-Harirampur-Koijuri-Benotia		174.7	20	20	34.9	80	139.7	Implementation Started
Component Totals			***1,327.4***			***1,187.7***		***1,292.5***	
C: Vehicles & Equipment									
G-05	2016 Supply of Jeep:	Pacific Motors Ltd.	5.5	100	100	5.5	100	5.5	Implemenation Complete
G-06.1	2015 Supply of Jeeps:	Progoti Industries	20.8	100	100	20.8	100	20.8	Implemenation Complete
G-06.2	2016 Supply of Jeep:	Progoti Industries	6.9	100	100	6.9	100	6.9	Implemenation Complete
G-06.3	2016 Supply of Motorcycles:	Atlas Bangladesh Ltd.	1.3	100	100	1.3	100	1.3	Implemenation Complete
G-07.1	2015 Office Equipment: BWDB PMO	Logitech Computer Ltd.	2.2	100	100	2.2	100	2.2	Implemenation Complete
G-07.2	2016 Office Equipment: BWDB PMO	Source & Service	2.2	100	100	2.2	100	2.2	Implemenation Complete
G-08	2016 Supply of Survey Equipments:	Logitech Computers Ltd.	6.7	100	100	6.7	100	6.7	Implemenation Complete
G-09	2017 Supply of Office Equip; DDM:		0.5	0	0	0.0	0	0.0	Contract Not Yet Started
Component Totals			***46.1***			***45.6***		***45.6***	
Goods Totals			***1,373.5***			***1,233.3***		***1,338.1***	
Services									
D: Consulting Services									
S-01	ISPMC; Tranche 1:	NHC (JV) Mott MacDonald	1,018.2	52	52	529.7	62	631.5	Satisfactory Progress
S-02	Resettlement Implementation Support:	VRDS-HCL-JV	16.2	36	36	5.8	45	7.3	Implementation Started
S-03	Livelihood Development:		64.7	0	0	0.0	0	0.0	Contract Not Yet Started
S-04	Community Based Flood Risk Mngmt:		64.4	0	0	0.0	0	0.0	EoI Received
S-06.1	2015 Erosion & Morphological Chg:	CEGIS	4.6	100	100	4.6	100	4.6	Implemenation Complete
S-06.2	2016 Erosion Prediction:	CEGIS	25.3	50	50	12.6	70	17.7	Implementation Started
Component Totals			***1,193.4***			***552.8***		***661.1***	
G: Program Management									
S-05.1	River Survey Work: left bank Padma & Jamuna	M/S Hasib Enterprise	0.1	100	100	0.1	100	0.1	Implemenation Complete
S-05.2	Survey Work for Land Acquisition: Hat-Pachi to Dombaria	Md. Salim Ektiar	0.2	100	100	0.2	100	0.2	Implemenation Complete
S-05.3	Land/River Survey Work: Jamuna at Chouhali 7km	M/S Biplob Enterprise	0.1	100	100	0.1	100	0.1	Implemenation Complete
S-05.4	2017 Bathymetric River Survey: Dhaka, Pabna and Mymenshingh	RAC Office	2.0	100	100	2.0	100	2.0	Implemenation Complete
Component Totals			***2.5***			***2.5***		***2.5***	
Services Totals			***1,195.9***			***555.3***		***663.6***	
Works									
A: Civil Works									
W-01	Embankment, & 2 Reg.: km 0-5		296.2	0	0	0.0	0	0.0	Tender Received
W-02	Embankment: km 5-8.5		133.3	0	0	0.0	0	0.0	Tender Received
W-03	Embankment: 8.5-12.5		130.3	0	0	0.0	0	0.0	Tender Received
W-04	Embankment & 1 Regulator: km 12.5-17.3		334.6	0	0	0.0	0	0.0	Tender Received
W-05	Embankment & 1 Regulator: km 17.3-23		315.9	0	0	0.0	0	0.0	Tender Received
W-06	Revetment: Jamuna at Chauhali, R1; km 0-2.5	I-J (JV)	386.9	90	90	348.2	100	386.9	Construction Started
W-07	Revetment: Jamuna at Chauhali, R2; km 2.5-7.0	I-J (JV)	445.2	90	90	400.6	100	445.2	Construction Started
W-08	Revetment: Jamuna at Zaffarganj, km 6.1-8.1	WEL-NZK-PTSL (JV)	492.8	50	50	246.4	80	394.2	Construction Started
W-09	Revetment: Padma at Harirampur, R1; km 0-3.5	M.M.Builders & Engineers Lt	268.9	100	100	268.9	100	268.9	Construction Complete
W-10	Revetment: Padma at Harirampur, R2; km 3.5-7	M.M.Builders & Engineers Lt	248.3	100	100	248.3	100	248.3	Construction Complete
W-15	Construction of Inspection Bungalow:		7.0	0	0	0.0	0	0.0	Dwgs Complete
Component Totals			***3,059.3***			***1,512.4***		***1,743.5***	
Works Totals			***3,059.3***			***1,512.4***		***1,743.5***	
ProjectTotals			**5,628.7**			**3,301.0**		**3,745.1**	

Table B-4 Project Program, by Contract

Code	Description	Cost (BDT Mil)
Goods		
Component B1: Materials Geotextile, Civil Works		
G-01	Geobags 1.25x1.00m; Chouhali, Sirajganj	364.97
G-02	Geobags 1.25x1.00m; Zaforganj & Harirampur, Manikganj	472.64
G-03	Geobags 1.25x1.00m; Harirampur, Manikganj	315.11
		1,152.72
Component B2: Materials Geotextile, Emerg		
G-04	Supply of Geobags; Chauhali & Harirampur	174.67
Component C1: Vehicles & Equipment Vehicles/Transport		
G-05	2016 Supply of Jeep;	5.49
G-06.1	2015 Supply of Jeeps;	20.78
G-06.2	2016 Supply of Jeep;	6.93
G-06.3	2016 Supply of Motorcycles;	1.31
		34.51
Component C2: Vehicles & Equipment Office Equipment		
G-07.1	Supply of Office Equip.; BWDB PMO	2.20
G-07.2	2016 Office Equipment; BWDB PMO	2.18
		4.37
Component C3: Vehicles & Equipment Survey Equipment		
G-08	Supply of Survey Equipments;	6.75
Component C4: Vehicles & Equipment DDM Office Eqpt		
G-09	Supply of Computers & Photocopiers;	0.51
Goods Total		**1,373.53**
Services		
Component D1: Consulting Services ISPM; Consultant Serv.		
S-01	Implementation Consultant Services; Feasibility Study Tranche-2; River Stabilization & Land Recovery;	1,018.19
Component D2: Consulting Services INGO BWDB		
S-02	Resettlement Plan;	16.20
S-03	Livelihood Development;	64.73
		80.93
Component D3: Consulting Services INGO DDM		
S-04	Cb Flood Risk Mngmt;	64.40
Component D4: Consulting Services Survey & Investigation		
S-05.6	;	18.00
S-06.1	2015 Erosion & Morphological Chg; Jamuna, Ganges, Padma R	4.60
S-06.2	2016 Erosion Prediction;	25.25
		47.85
Component E3: Capacity Development MIS Development		
S-07	MIS Development, Support 1;	12.88
Component G4: Program Management BWDB River Surveys		
S-05.1	River Survey Work; Padma LB & Jamuna LB	0.15
S-05.2	Survey Work for Land Acquisition; Hat-Pachi to Dombaria	0.20
S-05.3	Land/River Survey Work; Jamuna at Chouhali 7km	0.15
S-05.4	Bathymetric River Survey; Dhaka, Pabna and Mymenshingh	1.99
S-05.5	2018 Bathymetric River Survey;	5.51
		8.00
Services Total		**1,232.24**
Works		
Component A1: Civil Works Embankment Works		
W-01	Embankment (5 km); Kaijuri - Bhatpara; km 0-5 Kaijuri Reg 2V 1.5x1.8m; Rohindakandi Reg 2V 1.5x1.8m;	296.21
W-02	Embankment (3.5 km); Bhatpata - Gala; km 5-8.5	133.31
W-03	Embankment (4 km); Gala - Verakhola; km 8.5-12.5	130.26
W-04	Embankment Reconst. (4.8 km); Baghabari - Verakhola; km 12.5-17.3 Verakhola Reg 2V 1.5x1.8m;	334.56

Table B-4 Project Program, by Contract

Code	Description	Cost (BDT Mil)
Works		
Component A1: Civil Works Embankment Works		
W-05	Embankment Reconst. (5.7 km); Baghabari - Verakhola; km 17.3-23 Andhar Manik Reg 4V 1.5x1.8m;	315.95
W-15	Construction of Inspection Bungalow;	7.00
		1,217.28
Component A2: Civil Works Riverbank Prot Works		
W-06	Revetment (2 km); Chauhali; km 0- 2.5	386.94
W-07	Revetment (4.5 km); Chauhali; km 2.5-7.0	445.15
W-08	Revetment (2 km); Zaffarganj; km 6.1-8.1	492.80
W-09	Revetment (3.5 km); Harirampur; km 0-3.5	268.85
W-10	Revetment (3.5 km); Harirampur; km 3.5-7	248.28
		1,842.02
Component A3: Civil Works Emerg & Adaptation		
W-11	Emergency/Adaptive 1; Riverbank Protection	17.82
W-12	Koijhuri-Benotia Revetment; Riverbank Protection	18.36
W-13	Emergency/Adaptive 3; Riverbank Protection	17.82
		54.00
Component A4: Civil Works Pilot Land Recovery		
W-14	River Training Pilot Work; & Land Recovery	379.80
Works Total		**3,493.11**
eXtra		
Component E1: Capacity Development BWDB Training & Study		
X-05	BWDB Training and Study Tours;	63.90
Component F1: Land Acqn & Resettle Land Compensation		
X-07	Land Compensation;	1,650.00
Component F2: Land Acqn & Resettle Resettle Benefits		
X-08	Resettlement Benefits;	29.70
Component G1: Program Management Staff Salaries BWDB		
X-02	BWDB Staff Salaries;	83.67
Component G2: Program Management Office Opns BWDB		
X-03	BWDB Office Operations;	30.94
Component G3: Program Management Office Opns DDM		
X-04	DDM Office Operations;	5.10
Component X1: Misc. Costs Misc. Costs		
X-01	ADB Interest & Service Charge;	199.20
X-09	CD and SD;	32.03
		231.23
eXtra Total		**2,094.53**
Project Total		***8,193.41***

Table B-5 BWDB PMO Expenditure Summary, by Contract

all Values in BDT

Code	Description	ADB	GON	GOB	Total
Goods					
B1	***Geotextile, Civil Works***				
G-01	Supply of Geobags; Chouhali, Sirajganj	314,186,252	0	0	314,186,252
G-02	Supply of Geobags; Zaforganj, Harirampur, Manikganj	406,878,635	0	0	406,878,635
G-03	Supply of Geobags; Harirampur, Manikganj	305,806,221	0	0	305,806,221
Component Total		***1,026,871,108***	***0***	***0***	***1,026,871,108***
B2	***Geotextile, Emerg***				
G-04	Supply of Geobags; Chauhali-Harirampur-Koijuri-Benotia	15,301,650	0	0	15,301,650
Component Total		***15,301,650***	***0***	***0***	***15,301,650***
C1	***Vehicles/Transport***				
G-05	2016 Supply of Jeep;	1,940,400	0	4,989,600	6,930,000
G-06.1	2015 Supply of Jeeps;	5,940,900	0	15,276,600	21,217,500
G-06.2	2016 Supply of Jeep;	1,537,200	0	3,952,800	5,490,000
G-06.3	2016 Supply of Motorcycles;	366,940	0	943,560	1,310,500
Component Total		***9,785,440***	***0***	***25,162,560***	***34,948,000***
C2	***Office Equipment***				
G-07.1	2015 Office Equipment; BWDB PMO	2,087,749	0	109,882	2,197,630
G-07.2	2016 Office Equipment; BWDB PMO	2,066,333	0	108,754	2,175,087
Component Total		***4,154,081***	***0***	***218,636***	***4,372,717***
C3	***Survey Equipment***				
G-08	2016 Supply of Survey Equipments;	6,409,650	0	337,350	6,747,000
Component Total		***6,409,650***	***0***	***337,350***	***6,747,000***
Goods Total		***1,062,521,929***	***0***	***25,718,546***	***1,088,240,475***
Services					
D1	***ISPM; Consultant Serv.***				
S-01	ISPMC; Tranche 1;	39,070,534	222,401,500	39,070,534	300,542,567
Component Total		***39,070,534***	***222,401,500***	***39,070,534***	***300,542,567***
D2	***INGO BWDB***				
S-02	Resettlement Implementation Support;	4,131,467	0	617,346	4,748,813
Component Total		***4,131,467***	***0***	***617,346***	***4,748,813***
D4	***Survey & Investigation***				
S-06.1	2015 Erosion & Morphological Chg;	4,002,000	0	598,000	4,600,000
S-06.2	2016 Erosion Prediction;	6,016,050	0	898,950	6,915,000
Component Total		***10,018,050***	***0***	***1,496,950***	***11,515,000***
G4	***BWDB River Surveys***				
S-05.1	River Survey Work; left bank Padma & Jamuna	122,778	0	16,742	139,520
S-05.2	Survey Work for Land Acquisition; Hat-Pachi to Dombaria	170,702	0	23,278	193,980
S-05.3	Land/River Survey Work; Jamuna at Chouhali 7km	128,040	0	17,460	145,500
S-05.4	2017 Bathymetric River Survey; Dhaka, Pabna and Mymenshingh	1,753,294	0	239,086	1,992,380
Component Total		***2,174,814***	***0***	***296,566***	***2,471,380***
Services Total		***55,394,865***	***222,401,500***	***41,481,395***	***319,277,760***
Works					

Table B-5 BWDB PMO Expenditure Summary, by Contract

all Values in BDT

Code	Description	ADB	GON	GOB	Total
A2	***Riverbank Prot Works***				
W-06	Revetment; Jamuna at Chauhali, R1; km 0-2.5	197,576,758	0	19,540,558	217,117,316
W-07	Revetment; Jamuna at Chauhali, R2; km 2.5-7.0	313,249,756	0	30,980,745	344,230,501
W-08	Revetment; Jamuna at Zaffarganj, km 6.1-8.1	178,177,827	0	17,621,983	195,799,810
W-09	Revetment; Padma at Harirampur, R1; km 0-3.5	244,469,460	0	24,178,298	268,647,758
W-10	Revetment; Padma at Harirampur, R2; km 3.5-7	223,389,944	0	22,093,511	245,483,455
Component Total		***1,156,863,744***	***0***	***114,415,096***	***1,271,278,840***
Works Total		***1,156,863,744***	***0***	***114,415,096***	***1,271,278,840***
eXtra					
E1	***BWDB Training & Study***				
X-05	BWDB Training and Study Tours;	16,762,594	0	1,069,953	17,832,547
Component Total		***16,762,594***	***0***	***1,069,953***	***17,832,547***
F1	***Land Compensation***				
X-07	Land Compensation;	0	0	779,076,000	779,076,000
Component Total		***0***	***0***	***779,076,000***	***779,076,000***
G2	***Office Opns BWDB***				
X-03	BWDB Office Operations;	6,772,022	0	923,458	7,695,480
Component Total		***6,772,022***	***0***	***923,458***	***7,695,480***
G3	***Office Opns DDM***				
X-04	DDM Office Operations;	506	0	69	575
Component Total		***506***	***0***	***69***	***575***
X1	***Misc. Costs***				
X-01	ADB Interest & Service Charge;	10,000,000	0	0	10,000,000
Component Total		***10,000,000***	***0***	***0***	***10,000,000***
eXtra Total		***33,535,123***	***0***	***781,069,479***	***814,604,602***
Project Total		**2,308,315,662**	**222,401,500**	**962,684,516**	**3,493,401,677**

The donor values are calculated using Total Expenditure and percent distribution by Financial Component.

Table B-6 Reimbursement Summary, by Contract

Code	Description	Total Bill Amount (BDT	Reimbursed Amount (BDT		
			ADB	GON	Total
Goods					
B1	***Geotextile, Civil Works***				
G-01	Supply of Geobags; Chouhali, Sirajganj	314,572,776	314,572,776	0	314,572,776
G-02	Supply of Geobags; Zaforganj, Harirampur, Manikganj	407,379,210	407,379,210	0	407,379,210
G-03	Supply of Geobags; Harirampur, Manikganj	177,971,890	177,971,890	0	177,971,890
		899,923,875	***899,923,875***	***0***	***899,923,875***
C1	***Vehicles/Transport***				
G-05	2016 Supply of Jeep;	5,490,000	1,537,200	0	1,537,200
C2	***Office Equipment***				
G-07.1	2015 Office Equipment; BWDB PMO	2,197,630	2,087,749	0	2,087,749
G-07.2	2016 Office Equipment; BWDB PMO	2,175,087	2,066,333	0	2,066,333
		4,372,717	***4,154,081***	***0***	***4,154,081***
C3	***Survey Equipment***				
G-08	2016 Supply of Survey Equipments;	6,747,000	6,409,650	0	6,409,650
Goods Total		***916,533,592***	***912,024,807***	***0***	***912,024,807***
Services					
D1	***ISPM; Consultant Serv.***				
S-01	ISPMC; Tranche 1;	161,110,011	46,127,399	262,571,347	308,698,746
D2	***INGO BWDB***				
S-02	Resettlement Implementation Support;	1,620,000	1,409,400	0	1,409,400
D4	***Survey & Investigation***				
S-06.1	2015 Erosion & Morphological Chg;	4,600,000	4,002,000	0	4,002,000
S-06.2	2016 Erosion Prediction;	7,000,000	6,090,000	0	6,090,000
		11,600,000	***10,092,000***	***0***	***10,092,000***
G4	***BWDB River Surveys***				
S-05.1	River Survey Work; left bank Padma & Jamuna	141,500	124,520	0	124,520
S-05.2	Survey Work for Land Acquisition; Hat-Pachi to Dombaria	200,000	176,000	0	176,000
S-05.3	Land/River Survey Work; Jamuna at Chouhali 7km	149,860	131,877	0	131,877
		491,360	***432,397***	***0***	***432,397***
Services Total		***174,821,371***	***58,061,196***	***262,571,347***	***320,632,543***
Works					
A2	***Riverbank Prot Works***				
W-06	Revetment; Jamuna at Chauhali, R1; km 0-2.5	118,484,581	103,954,982	0	103,954,982
W-07	Revetment; Jamuna at Chauhali, R2; km 2.5-7.0	164,933,965	139,627,859	0	139,627,859
W-08	Revetment; Jamuna at Zaffarganj, km 6.1-8.1	55,783,860	50,763,313	0	50,763,313
W-09	Revetment; Padma at Harirampur, R1; km 0-3.5	145,585,898	132,483,167	0	132,483,167
W-10	Revetment; Padma at Harirampur, R2; km 3.5-7	197,499,011	166,627,945	0	166,627,945
		682,287,315	***593,457,265***	***0***	***593,457,265***
Works Total		***682,287,315***	***593,457,265***	***0***	***593,457,265***
eXtra					
E1	***BWDB Training & Study***				
X-05	BWDB Training and Study Tours;	16,191,964	15,220,446	0	15,220,446
G2	***Office Opns BWDB***				
X-03	BWDB Office Operations;	7,840,785	6,899,890	0	6,899,890
eXtra Total		***24,032,748***	***22,120,336***	***0***	***22,120,336***
Project Total		**1,797,675,027**	**1,585,663,603**	**262,571,347**	**1,848,234,951**

Table B-7 Reimbursement Summary, by Application

Acct. Type	Applic. No.	Date	Page	Cat	Rate of US	Total Bill Amount (BDT)	Total Bill Amount (US$)	Reimburs	ADB Reimbursed Amount (BDT)	ADB Reimbursed Amount (US$)	Grant Applic. No.	Reimburs	GoN Reimbursed Amount (BDT)	GoN Reimbursed Amount (US$)	Total Reimbursed Amount (BDT)	Total Reimbursed Amount (US$)
L/C	**BW001**	**30-Jun-16**	**01**	**2**	77.80	721,064,886	9,268,186	100	721,064,886	9,268,186		0	0	0	721,064,886	9,268,186
Imprest	**BW006**	**14-Sep-15**	**01**	**7A**	77.80	596,191	7,663	88	524,648	6,744		0	0	0	524,648	6,744
			02	**6B**	77.80	4,600,000	59,126	87	4,002,000	51,440		0	0	0	4,002,000	51,440
			03	**3B**	77.80	2,197,630	28,247	95	2,087,749	26,835		0	0	0	2,087,749	26,835
			04	**7A**	77.80	457,804	5,884	88	402,868	5,178		0	0	0	402,868	5,178
			05	**7A**	77.80	200,000	2,570	88	176,000	2,262		0	0	0	176,000	2,262
			06	**7A**	77.80	149,860	1,926	88	131,877	1,695		0	0	0	131,877	1,695
						8,201,485	***105,416***		***7,325,141***	***94,153***			***0***	***0***	***7,325,141***	***94,153***
Imprest	**BW008**	**03-Dec-15**	**01**	**1**	78.74	77,441,455	983,509	91	70,471,724	894,993		0	0	0	70,471,724	894,993
			02	**2**	78.74	23,896,480	303,486	100	23,896,480	303,486		0	0	0	23,896,480	303,486
						101,337,935	***1,286,995***		***94,368,204***	***1,198,479***			***0***	***0***	***94,368,204***	***1,198,479***
Dir.Pay.	**BW009**	**23-Feb-16**	**01**	**6A**	77.57	18,202,930	234,649	13	2,366,381	30,504	**BW010**	74	13,470,168	173,641	15,836,549	204,145
Imprest	**BW011**	**07-Mar-16**	**01**	**1**	78.74	154,166,642	1,957,920	91	125,963,608	1,599,741		0	0	0	125,963,608	1,599,741
			02	**2**	78.74	887,099	11,266	100	887,099	11,266		0	0	0	887,099	11,266
			03	**6A**	78.40	4,597,309	58,639	13	597,650	7,623	**ED002**	74	3,402,009	43,393	3,999,659	51,016
			04	**7A**	78.74	800,964	10,172	88	704,848	8,952		0	0	0	704,848	8,952
						160,452,013	***2,037,997***		***128,153,205***	***1,627,582***			***3,402,009***	***43,393***	***131,555,214***	***1,670,975***
Dir.Pay.	**BW012**	**20-Mar-16**	**01**	**6A**	77.57	30,049,770	387,364	13	3,512,027	45,273	**ED003**	74	19,991,540	257,706	23,503,567	302,979
Imprest	**BW013**	**05-May-16**	**01**	**1**	78.60	242,232,508	3,083,883	91	207,335,427	2,639,716		0	0	0	207,335,427	2,639,716
			02	**2**	78.40	97,265,910	1,240,637	100	97,265,910	1,240,637		0	0	0	97,265,910	1,240,637
			03	**5**	78.60	624,855	7,950	94	587,364	7,473		0	0	0	587,364	7,473
			04	**7A**	78.74	173,409	2,202	88	152,600	1,938		0	0	0	152,600	1,938
						340,296,682	***4,334,672***		***305,341,300***	***3,889,763***			***0***	***0***	***305,341,300***	***3,889,763***
Dir.Pay.	**BW014**	**23-Jun-16**	**01**	**5**	78.40	7,966,561	101,614	94	7,488,568	95,517		0	0	0	7,488,568	95,517
Dir.Pay.	**BW015**	**29-Jun-16**	**01**	**6A**	77.57	37,052,991	477,641	13	4,336,393	55,899	**ED004**	74	24,684,081	318,196	29,020,474	374,096
Dir.Pay.	**BW016**	**29-Jun-16**	**01**	**6A**	77.57	30,310,811	390,729	13	3,552,983	45,801	**ED005**	74	20,224,672	260,711	23,777,655	306,512
Imprest	**BW017**	**29-Sep-16**	**01**	**1**	78.40	208,446,710	2,658,759	91	189,686,506	2,419,471		0	0	0	189,686,506	2,419,471
			02	**2**	78.40	56,809,500	724,611	100	56,809,500	724,611		0	0	0	56,809,500	724,611

Table B-7 Reimbursement Summary, by Application

Acct. Type	Applic. No.	Date	Page	Cat	Rate of US	Total Bill Amount (BDT)	Total Bill Amount (US$)	Reimburs	ADB Reimbursed Amount (BDT)	ADB Reimbursed Amount (US$)	Grant Applic. No.	Reimburs	GoN Reimbursed Amount (BDT)	GoN Reimbursed Amount (US$)	Total Reimbursed Amount (BDT)	Total Reimbursed Amount (US$)
Imprest	**BW017**	**29-Sep-16**	**03**	**3A**	78.40	5,490,000	70,026	28	1,537,200	19,607		0	0	0	1,537,200	19,607
			04	**3B**	78.40	8,922,087	113,802	95	8,475,983	108,112		0	0	0	8,475,983	108,112
			05	**5**	78.40	6,096,985	77,768	94	5,731,166	73,102		0	0	0	5,731,166	73,102
			06	**6A**	78.40	36,141,795	460,992	13	4,698,433	59,929	**ED006**	74	26,744,928	341,134	31,443,362	401,063
			08	**6B**	78.40	8,620,000	109,949	87	7,499,400	95,656		0	0	0	7,499,400	95,656
			09	**7A**	78.40	1,584,307	20,208	88	1,394,190	17,783		0	0	0	1,394,190	17,783
			10	**7A**	78.40	1,585,375	20,222	88	1,395,130	17,795		0	0	0	1,395,130	17,795
			11	**7A**	78.40	1,595,731	20,354	88	1,404,243	17,911		0	0	0	1,404,243	17,911
			12	**7A**	78.40	304,456	3,883	88	267,922	3,417		0	0	0	267,922	3,417
			13	**7A**	78.40	884,047	11,276	88	777,961	9,923		0	0	0	777,961	9,923
						336,480,994	***4,291,849***		***279,677,635***	***3,567,317***			***26,744,928***	***341,134***	***306,422,563***	***3,908,451***
Dir.Pay.	**BW019**	**09-Jan-17**	**01**	**5**	78.95	1,503,562	19,044	94	1,413,349	17,902		0	0	0	1,413,349	17,902
Dir.Pay.	**BW021**	**26-Feb-17**	**01**	**6A**	77.57	4,754,404	61,292	13	27,063,531	348,892	**ED009**	74	154,053,949	1,985,999	181,117,480	2,334,891
Project Totals						**1,797,675,027**	**22,997,450**		**1,585,663,603**	**20,285,268**			**262,571,347**	**3,380,780**	**1,848,234,951**	**23,666,048**

Table B-8 ADB & GON Disbursement Details

ADB Disbursements

ADB Loan Account

Appl. No	Date	US$	Rate	BDT
WL001	09-Dec-2014	3,682,433.00	77.85	286,677,409
Wl007	17-Dec-2015	11,069,711.00	78.70	871,186,256
BW008	20-Dec-2015	1,198,478.59	78.70	94,320,265
BW013	30-Jun-2016	3,889,762.94	78.40	304,957,414
BW011	02-Oct-2016	1,627,548.73	78.40	127,599,820
BW017	27-Nov-2016	3,567,316.77	78.65	280,569,464
		25,035,251.03		**1,965,310,629**

Grant Imprest Account

Appl. No	Date	US$	Rate	BDT
WG002	09-Dec-2014	1,189,354.00	77.85	92,591,209
WG007	17-Dec-2015	20,651.00	78.70	1,625,234
WG008	04-Oct-2016	319,995.00	78.40	25,087,608
ED002	24-Nov-2016	43,392.97	78.63	3,411,989
ED006	24-Nov-2016	341,134.29	78.63	26,823,389
		1,914,527.26		**149,539,429**

Reimbursement

Dir.Pay Applic	Date	Category	ADB & GoN	
			US$	(BDT)
BW009/BW010	23-Feb-2016	6A	204,145	15,836,549
BW012/ED003	20-Mar-2016	6A	302,979	23,503,567
BW014	23-Jun-2016	5	95,517	7,488,568
BW015/ED004	29-Jun-2016	6A	374,096	29,020,474
BW016/ED005	29-Jun-2016	6A	306,512	23,777,655
BW001 (LC)	30-Jun-2016	2	9,255,825	720,177,803
BW019		5	19,044	1,503,562
BW021/ED009		6A	410,184	31,819,987
Totals			**10,968,302**	**853,128,165**

Total Disbursement

Currency	ADB & GON
BDT Mil	2,968
US$ Mil	37.92

Total Disbursement is the sum of the ADB Loan and Grant Imprest Account deposits, plus the total ADB & GoN Reimbursment amount.

Appendix-C Administrative Details

Table C-1 Utilization of Consultant Person-Months

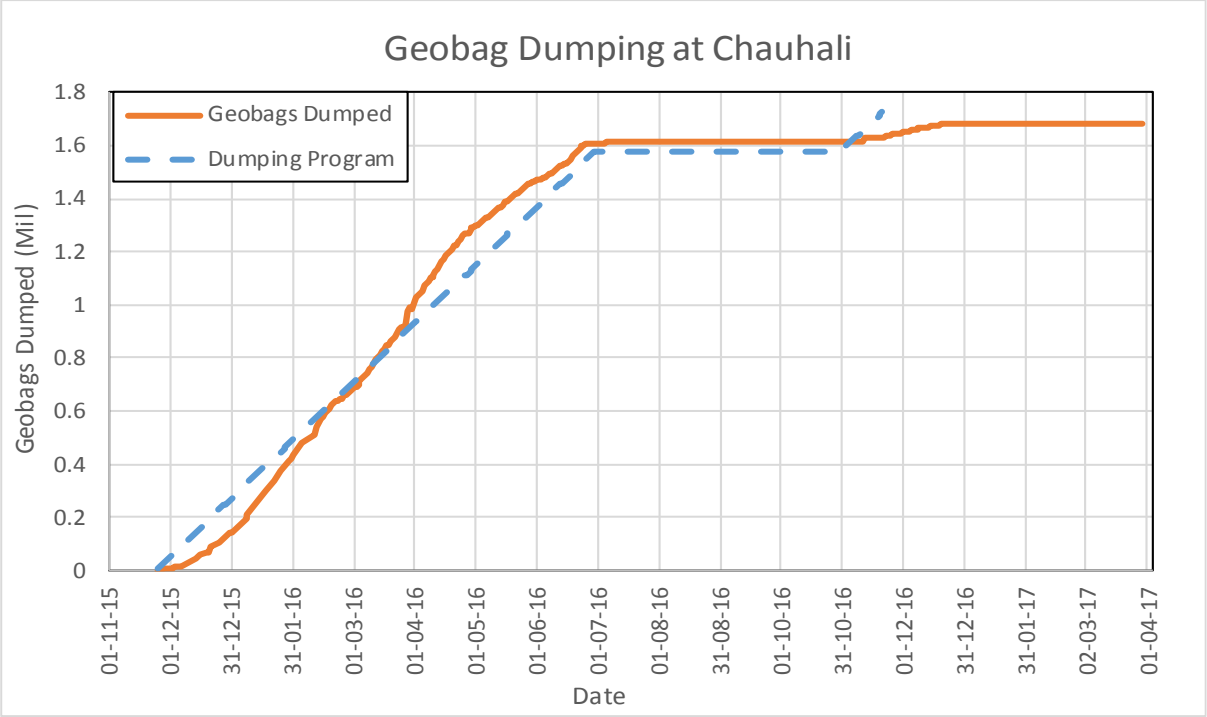
No.	Position	Firm	Name	Person-Months		
				Contrac	Used	Balance
	MAIN TEAM - INTERNATIONAL					
I-1	Team Leader / River Mangement Specialist	NHC	Knut Oberhagemann	35.0	14.24	20.76
I-2	Institutional Development Specialist	EMM	Robert A. van de Putte	5.0	1.45	3.55
I-3	Morphologist	DELTARES	EriK Mosselman	5.0	1.72	3.28
I-4	River Engineer	NHC	Bruce Walsh	10.0	1.80	8.20
I-5	Construction / Quality Control Engineer	EMM	R. Mahendrarajah	24.0	0.00	24.00
I-6	Flood Disaster Risk Management Specialist	NHC	Dave Burkholder	12.0	6.78	5.22
I-7	Social Development / Resettlement Specialist	EMM	Jean Louis Leterme	8.0	7.16	0.84
I-8	Economist	NHC	John D. M. Roe	3.0	2.47	0.53
I-9	Financial Management Specialist	EMM	J. Spurr	1.5	0.00	1.50
I-10	Hydrologist	NHC	Derek Stuart	3.0	1.69	1.31
I-11	Environmental Specialist	EMM	Wandert Benthem	7.0	2.25	4.75
I-12	Information and Data Management Specialist	NHC	Dave Burkholder	4.0	4.01	-0.01
I-13	Int'l Construction Advisor-Engineer	NHC	Graeme Vass	3.0	3.00	0.00
I-13	Junior Engineer	NHC	Jesper Mathiesen	4.0	3.99	0.01
I-13	Numerical Modeller	NHC	Angela Thompson	5.0	5.56	-0.56
			Totals	**129.50**	**56.13**	**73.37**
	MAIN TEAM - NATIONAL				0.00	
N-1	DTL / Flood & Erosion Risk Management Spec.	EMM	Sharif Al Kamal	41.5	17.23	24.27
N-2	Institutional / Capacity Development Specialist	RPMC	Dr. M. A. Qassem	10.0	9.80	0.20
N-3	River Engineer (Morphologist)	CEGIS	Dr. Maminul Haque Sarker	8.0	6.83	1.17
N-4	Community-based Flood Risk Mngt. Spec.	RPMC	Quazi Towfique Islam	36.0	16.80	19.20
N-5	Resettlement Specialist	EMM	Shireen Akhter	15.0	1.86	13.14
N-6	Project Economist	RPMC	Amiul Islam	7.0	7.00	0.00
N-7	Procurement Specialist	RPMC	A. Abdullah Chowdhury	10.0	0.00	10.00
N-8	Construction Engineer	RPMC	Mirza Harunar Rashid	32.0	14.45	17.55
N-9	Financial Management Specialist	EMM	Md. Habibur Rahman/**Ektedar Rahman**	12.0	2.72	9.28
N-10-1	River Engineer Flood Management Infr.- 1	RPMC	Mukhles uz zaman	12.5	12.49	0.01
N-10-2	River Engineer Flood Management Infr. -2	RPMC	Md. Motiur Rahman	12.5	9.50	3.00
N-11	Social Development and Gender Specialist	EMM	Ruh Afza Ruhi/**Begum S. Nahar**	12.0	6.18	5.82
N-12	Environment Specialist	RPMC	Dr. Md. Nurul Islam/**Md. Amir Faisal**	16.0	7.96	8.04
N-13	Training Coordinator	EMM	Jahangir Kabir/ **Shameem Ahmed**	14.0	13.24	0.76
N-14	Information and Data Management Specialist	EMM	Asrafuzzamen	15.0	0.00	15.00
N-15	Hydraulic Structural Engineer	RPMC	Md. Dabir Uddin	10.0	0.00	10.00
N-16	Road Engineer	RPMC	Zakir Hossain	6.0	1.53	4.47
N-17	Geotechnical Engineer	EMM	Md. Korban Ali	7.0	0.00	7.00
N-18-1	Site Engineer 1 (PRB-1)	RPMC	Md. Nurul Amin	36.0	16.14	19.86
N-18-2	Site Engineer 2 (JLB-2 Chauhali)	RPMC	KM Nazmul Haque/ **Ekram Sarder**	36.0	8.20	27.80
N-18-3	Site Engineer 3 (JLB-2 Zaffarganj)	EMM	Md Faridul Alam	36.0	11.47	24.53
N-18-4	Site Engineers 4 (PLB-1 Harirampur)	EMM	Abdul Jalil/**Saiful Islam**	36.0	8.04	27.96
			Totals	**420.50**	**171.44**	**249.06**
					-	

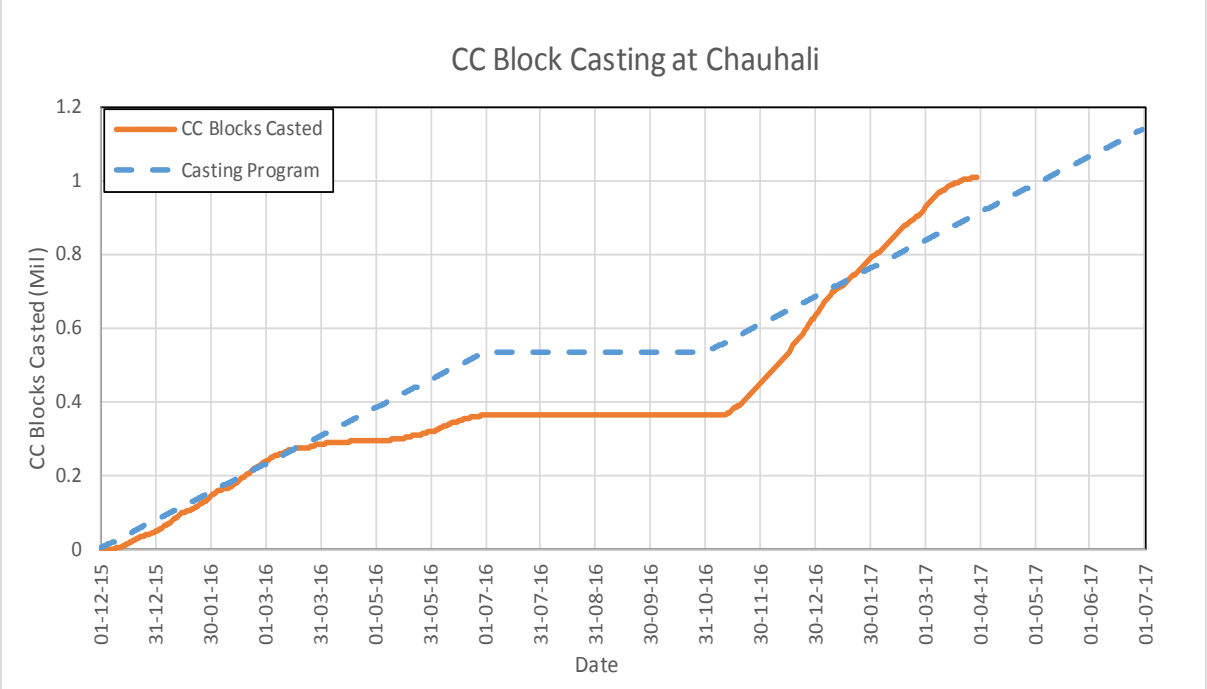
Table C-1 Utilization of Consultant Person-Months continued ... 0.0

	RIVER STUDY TEAM - INTERNATIONAL					
IR-1	Task Leader / Flood & River Management Spec.	NHC	Carsten Stuab	10.0	10.24	-0.24
IR-2	Institutional Development Specialist	EMM	Robert A. van de Putte	3.0	0.33	2.67
IR-3	Morphologist	DELTARES	Sanjay Giri	7.0	2.56	4.44
IR-4	River Engineer (River Training)	NHC	Gerritt Klaassen	7.0	4.67	2.33
IR-5	Water Resources Management Specialist	DELTARES	W. J. Oliemans	5.0	1.16	3.84
IR-6	Economist	EMM	Alexander Mueller/**John D.M. Roe**	4.0	0.00	4.00
IR-7	Social / Regional Development Specialist	NHC	Mark Hopkins	5.0	5.01	-0.01
IR-8	Environmental Specialist	EMM	Wandert Benthem	4.0	1.88	2.12
IR-9	Hydrologist	NHC	Malcolm Leytham	5.0	1.80	3.20
			Totals	**50.00**	**27.65**	**22.35**
	RIVER STUDY TEAM - NATIONAL					
NR-1	Water Resources Management Specialist	RPMC	G M Akram Hossain	10.0	9.97	0.03
NR-2	Flood Management Specialist	RPMC	Md. Makbul Hossain	6.0	7.55	**-1.55**
NR-3	River Engineer (Morphologist)	CEGIS	Dr. Maminul Haque Sarker	9.0	2.66	6.34
NR-4	Economist	EMM	Dr. Shaker Ahmed	4.0	0.00	4.00
NR-5	Regional / Spatial Planner	RPMC	Dr. Shamim M Haque	4.0	3.37	0.63
NR-6	Institutional Development Specialist	RPMC	Dr. M. A. Qassem	4.0	4.00	0.00
NR-7	River Engineer	RPMC	Md. Motiur Rahman Jewel	8.0	7.84	0.16
NR-8	Hydrologist	EMM	Imdadul Haque Siddiqui	6.0	0.00	6.00
NR-9	Social Development and Gender Specialist	EMM	Ruh Afza Ruhi/**Begum S. Nahar**	5.0	4.27	0.73
NR-10	Environment / Climate Change Specialist	EMM	Md. Rakibul Haque	5.0	0.00	5.00
NR-11	Water Supply and Water Quality Specialist	EMM	Md. Mozammel Hossain/ **Dr. Khairul Bashar**	5.0	2.07	2.93
NR-12	Agriculture Specialist	RPMC	Dr Quazi Reasul Islam	4.0	3.34	0.66
NR-13	Fishery Specialist	RPMC	Dr. Md. S. Howlader	3.0	3.00	0.00
			Totals	**73.00**	**48.08**	**24.92**

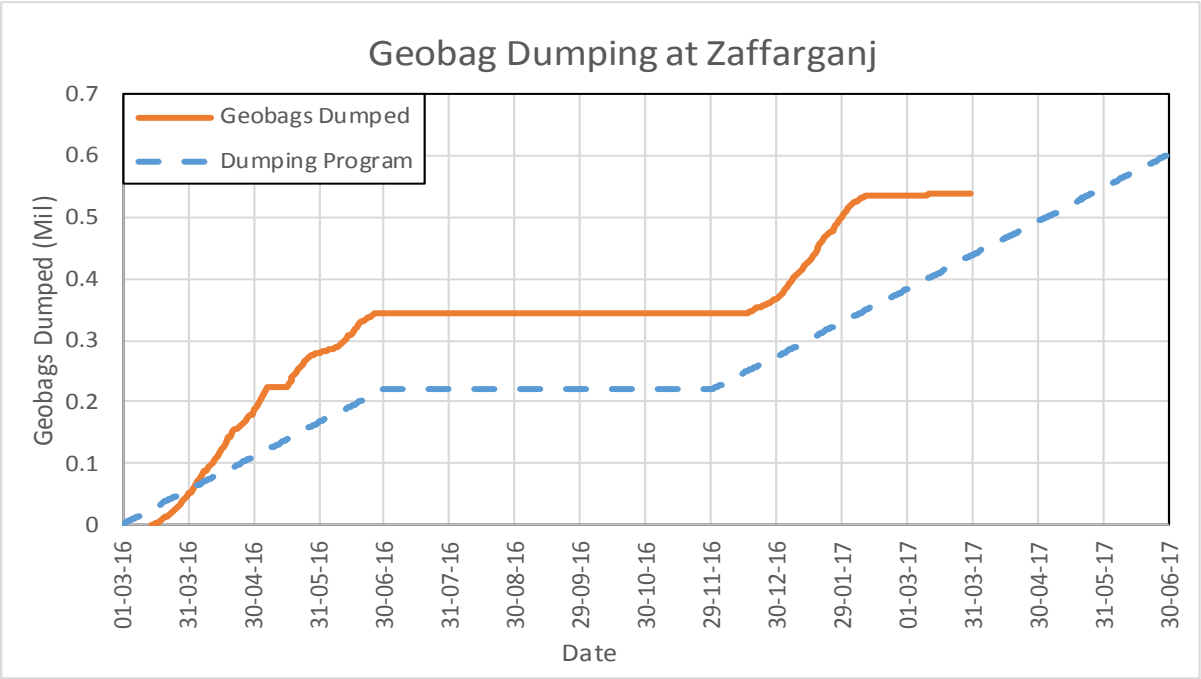
Appendix-D Construction Progress Charts

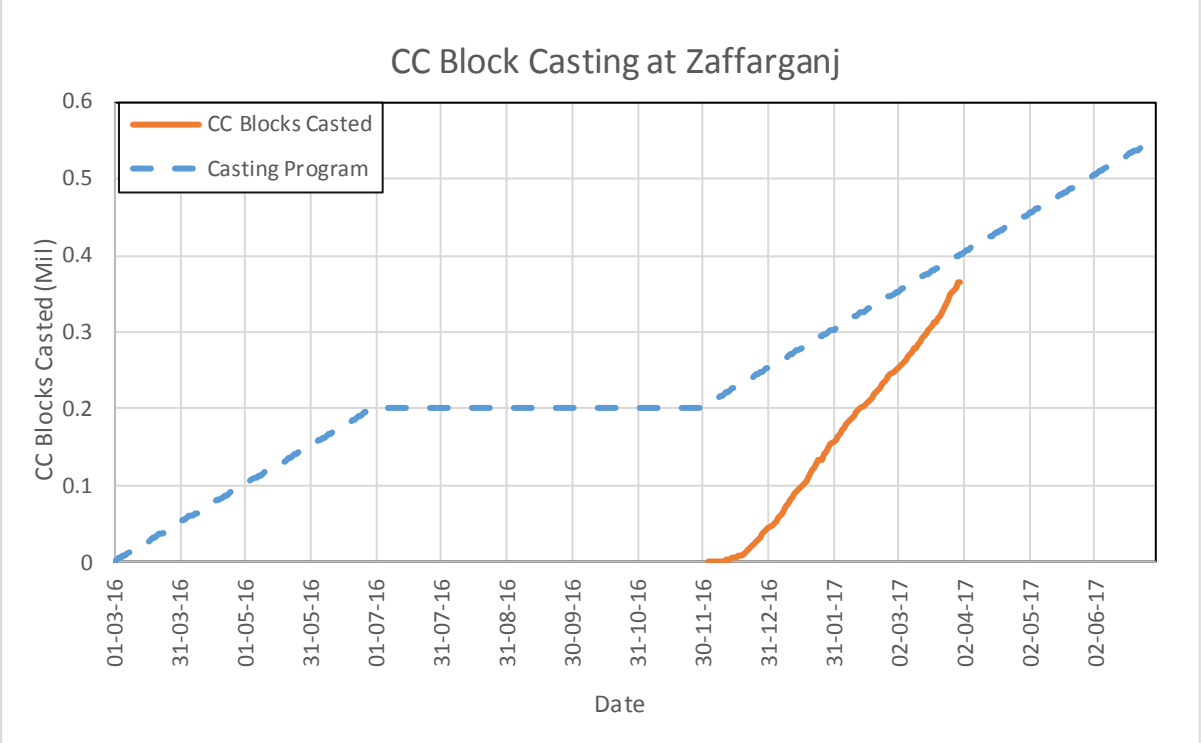
Chauhali





Zaffarganj


Geobag Dumping at Zaffarganj
Geobags Dumped
Dumping Program
Geobags Dumped (Mil)
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
01-03-16
31-03-16
30-04-16
31-05-16
30-06-16
31-07-16
30-08-16
29-09-16
30-10-16
29-11-16
30-12-16
29-01-17
01-03-17
31-03-17
30-04-17
31-05-17
30-06-17
Date


CC Block Casting at Zaffarganj
CC Blocks Casted
Casting Program
CC Blocks Casted (Mil)
0.6
0.5
0.4
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0.1
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01-03-16
31-03-16
01-05-16
31-05-16
01-07-16
31-07-16
31-08-16
30-09-16
31-10-16
30-11-16
31-12-16
31-01-17
02-03-17
02-04-17
02-05-17
02-06-17
Date

Appendix-E Livelihood Support

Gender issues were considered during preparation of the ILRP and the Livelihood Development ToR as well as various aspects had been considered from gender point of view during preparation of draft Gender Action Plan (GAP). Attention also given to the men and women who are affected for river bank protection work implementing by the project. To understand the situation of the vulnerable people three case studies are attached with this report respectively from Chauhali, Zafargonj and Harirampur sites.

These case studies are representing the situation of the affected people specifically women who are more vulnerable and had to take extra burden of sudden shifting of their houses and assets. It is also women's responsibility to cope with new places, new neighbours and make that children are safe and secured. They have to face problems not only for losing lands but also due to lose their services and facilities those were available in their houses or surroundings but demolished for shifting; for example: bulldozed of Hand Tube Well causes lack of drinking water and water for domestic use; destroyed of homestead garden and trees cause of having vegetables and fruits, etc. An INGO need to be engaged as soon as possible to implement the ILRP under the Livelihood Development supports study, so that necessary supports on livelihood development could be provided to these vulnerable groups of people as per project guidelines.

Case study 1: Ujala Khatun, Chauhali, Sirajgonj

Ujala Khatun, wife of Md. Abdul Wahab, lives in Chauhali left bank of Jamuna River (current location about 200 Meter towards downstream from the construction contractor's site office of Chauhali). She has four daughters, all of them are married and living with their in-laws family. She has no son; her husband is old and could not do any work so she has to do all sorts of household work and related livelihood activities. She does not know how to read and write but she can manage all sorts of works very efficiently although she is about 65 years old. Ujala Khatun is from a farming family so she used to cultivate homestead vegetables, poultry farming, goats and cows those were her main source of income. The lifestyle has been changed due to frequent river erosions; in her voice, "*Jamuna nodi amader sob sompod kere nece, ekhon amra khub gorib; daridratar sathe basobas korci; tai onekdin dhore nodir bhangon theke bachte chai* – The River Jamuna took away all our wealth; we are now very poor and live in poverty; therefore for a long time we wanted to escape from river erosion". Due to river erosion she lost almost everything so now living with poverty and suffering from lack of food and other necessary commodities for everyday life. She mentioned that her family had to shift 7 (seven) times for river erosion over 20 years and she built her house in 2012 at her last piece of land.

Then in 2015, she had to shift by force to vacant the land for Beribadh (the protection work specifically embankment building). She said, "*Ami janina kara beribadh banaiche kintu amar mone ache ekta boro gari eshe amader gach-pala, shaksobji, panir kol, onnanno jinishpotra soho shesh jomituku venge soman kore dokhol nece* - I don't know who the authority was but I can remember a bulldozer has been used to flatten my last piece of land with trees, vegetables, tube-well, and all other valuable things". She only could pack away her house and household things because of very short notice (2-3 days time to vacant the land) on the other hand her husband is ill (elderly reason) and she is old too. However no one can help them as everybody was busy for their own shifting. She added, "*Notun beribadh banaite tara amader jomi dokhol korece, ekhon amader ar jomi nai; amra khotipuran paite chai amader jomi ar sompoder jonno* - They have occupied our land to build a new embankment, so we have no land now; We want to get compensation for our lands and resources". One of her daughter lives in the same location, she was also affected by the river erosion as well as had to shift for embankment construction. Her daughter is also poor but she has 6 (six) decimal of land until last shifting, where she built her new house and provided some land to her parents where they built a small house as they (Ujala and her husband) lost their last piece of land.

Recently they got a verbal notice from unknown authority who told them that half of their existing land will be occupied to extend the embankment which is marked in red-color (half of kitchen and entire house of Ujala). Now they are very much worried about further shifting and also about proper compensation. Even though Ujala Khatun said, "tobe notun beribadh er jonno amra khusi, jodi tike thake tobe amader upoker hobe – however, we are happy for the new embankment, if it is sustained, then we will be benefitted from it". The pictures are: Ujala is cooking, her living house and with her daughter.

Case study 2: Laily Begum and Kalachan Palton, Zafargonj, Manikgonj

Laily Begum is a widow who lived in Dhubulia village of Teota union, Post office: Zafargonj, Upazila: Shibaloy, District: Manikgonj. She has four daughters but no son. As per Sharia-law (Islamic law) if someone has no son then his property will be distributed not only to his daughters but also to his brothers/sisters and/or their children if he does not make any arrangements before death. Considering that Shukkur Ali Palton (husband of Laily Begum) has donated his land (approximate 10 decimal) to his wife before his death so that she can live in the same place with the daughters without threat of losing land by Sharia-law. She had a house made by Bamboo-Thatch-CI Sheet; also had a small kitchen, trees and homestead vegetables in this Dhubulia Village that is left bank of Jamuna River (current location about 100 Meter towards upstream from the construction contractor's site office of Zafargonj). Now she lived inside the village sharing someone's land because she lost all her land due to river bank protection work implementing by FRERMIP, BWDB. Laily Begum was poor but now in more vulnerable situation because she had to shift from her only piece of land. The land is used for river bank protection work and she did not get any payment for land or compensation for other assets. She has to vacant the land within very short notice and it was difficult to locate a place to move on. Even she has taken loan to move her houses and other things. Abdul Ali Palton, Zadhob Ali Palton and Shukkur Ali Palton are the brothers and Laily Begum is wife of Shukkur Ali Palton. They already received 3-Dhara notice from DC office which is first step of land acquisition.

Laily's nearest neighbor is Kalachan Palton, son of Md. Elahi Palton, village: Dhubulia, union: Teota union, Post office: Zafargonj, Upazila: Shibaloy, District: Manikgonj. Kalachan and his wife Majeda live in Dhubulia village that is left bank of Jamuna River (current location about 100 Meter towards upstream from the construction contractor's site office of Zafargonj). They have eight children (six daughters and two sons) and Majeda is pregnant again and expecting another child soon. The first three daughters are married and living with their in-laws family; rest three daughters and two sons go to school among them oldest one is studying class seven. Kalachan is a village-police and get Tk. 3000/per month as salary from Union Parishad. They have only 15 decimal of land that has been purchased when he lost his land for river erosion. Previously he lived in Char Rahatpur then Zafargonj and now in Dhubulia, due to river erosion he shifted three times and for project work one more time; although he lives in his own land but got message that his total land will be acquired for the protection work. He already received 3-Dhara notice from DC office which is first step of land acquisition. He already went to DC office and started process of submission of the required documents. At this stage he heard that some people visited their house and talked to his wife and listed their assets, houses, trees, etc. But he is worried what already demolished by the project work how will be measure those and give them compensation. He mentioned all of them want justice and proper price of land with adequate compensation for other things. He added that among all, Laily Begum is most vulnerable and she should get something extra because she had to move from the location while others manage to stay on their own land for the time being. Pictures with3- dhara notice and the house will be demolished.




Case study 3: Abdul Haq, Harirampur, Manikgonj

Abdul Haq, son of Kiamuddin, village: Vaoardangi, union: Ramkrishnapur, Upazila: Harirampur, District: Manikgonj. He lives in Vaoardangi left bank of Padma River (current location about 100 Meter towards upstream from the construction contractor's site office of Harirampur). He has one daughter and two sons, all of them are married; daughters are living with their in-laws family and sons (with their wives and children) are living with him in the same houses; two more families of Abdul Haq's brothers are also living in the same premises and last year that had been affected by the river protection work done by FRERMIP. He was a member of Union Parishad so he knows how badly people are affected for river bank erosion. So he has no complaint against the work rather he felt that people would be protected from river bank erosion but he wants proper compensation of his land, trees and other valuable things those he lost for this work. They had a river-ghat in front of their house for all domestic use including bathing, cleaning utensils, washing clothes, etc. Due to project work it is damaged so their demand is to have a river-ghat in the same location which is significant for the female members of them and neighbours family as well. The women are responsible for all sorts of household works including collection water for cooking and other uses. They humbly requested to construct a river-ghat near their house so that women can comfortably use it for their everyday work.

Abdul Haq and his two brothers family had to shift houses four times for river erosion and they lived in their inheritance land in Boira Union (Boira union is now under water) before forth time shifting. But from his experiences he understood that they would lose the last piece of land soon as river erosions never stopped. Considering that they purchased one acre of land about 30 years back in the left bank of Padma River in the village named Vaoardangi of Ramkrishnapur Union and they had to move in the new place about 25 years back. By this time they lost about 25 decimal of land for river erosion and about 30 decimal of land for the river protection work done by FRERMIP. Their main source of income is farming and their premises was surrounded by the fruits, timber and other valuable trees but last year about 22 big trees had been cut by project authority for their work without giving any compensation to them or their families. As evidence of the trees size Mrs Rokeya Begum (wife of Abdul haq) showed us big mango trees those are still exist in their backyard. She mentioned that some people (probably NGO) visited their house and listed the things they lost for project work. By this time again bamboo poles have set to build the road on their land and it seems half of the existing land will be affected; Mr Fazlur Rahman (older brother of Abdul Haq) requested to review it if possible to reduce land for road construction, one side it is longer about 30ft and other side about 12ft, so that they can save their main houses and can live on their own ground and same premises altogether. As per Abdul Haq's description, about 10 families land affected by the project's work and no one received any compensation neither any process of land acquisition started so they became frustrated. They are worried for further land marked for road construction and do not get any specific query from any authority except they knew this work is implementing by the contractors recruited by BWDB so there are uncertainty situation and people became anxious. The pictures of Abdul Haq and families:




Appendix-F Capacity Building

The following summary **Table 1** shows the capacity building program comparison between the original DPP and the revised DPP.

Table 1 Capacity Building Program Comparison between Original and Revised DPP

Original DPP				Revised DPP			
Sl.	Activities Courses/ Training/ Tour/Workshop	No. of Participants	No. of Course	Sl.	Activities Courses/ Training/ Tour/Workshop	No. of Participants	No. of Course
A- Local Training				**A- Local Training**			
1	River Engineering	20	2	1	River Engineering	20	2
2	River Training Techniques	20	2	2	River Training Techniques	20	2
3	Riverbank Geotechnical Stability	20	2	3	Riverbank Geotechnical Stability	20	2
4	Riverbank Protection	20	2	4	Riverbank Protection	20	2
5	Stratergic Planning	20	2	5	Stratergic Planning	20	2
6	Survey and Evaluation	20	2	6	Survey and Evaluation	20	2
7	Underwater Investigations	20	1	7	Underwater Investigations	20	1
8	Resettlement	15	2	8	Resettlement	15	2
9	Environment	15	2	9	Environment	15	2
10	Leadership	20	2	10	Leadership	20	2
11	Project Management	20	2	11	Project Management	20	2
12	Construction Management	20	2	12	Construction Management	20	2
13	Technology Transfer (counterpart)	9	9	13	Technology Transfer (counterpart)	9	9
14	Capacity Building for DDM	15	2	14	Capacity Building for DDM	15	2
B- Overseas Training				**B- Overseas Training**			
B.1	River Morphology	8	1	B.1	River Morphology	8	1
B.2	River Training Techniques	8	1	B.2	River Training Techniques	8	1
B.3	Financial Management	5	1				
C- Study Tour				**C- Study Tour**			
				C.1	Study Tour-1 (Financial Management)	5	1
C.1	North America*	10	1	C.2	Study Tour-2 *	10	1
C.2	China*	10	1	C.3	Study Tour-3*	10	1
C.3	India*	10	1	C.4	Study Tour-4*	10	1

In the original DPP, the total allocated cost under category 4840-BWDB Capacity Development Program was BDT 104,350,000. The budget under the revised DPP has been truncated to BDT 78,880,000. The following **Table 2** shows the cost breakdown program of the total budget according to the revised DPP.

According to budget of DPP (9. Component and estimated cost summary)

Revised DPP- BDT (@$=77.575)
78,880,000

4840, BWDB Capacity Development Programme **Original**=Total BDT= **104,350,000**

Sl.	Training Courses/Training/Tour/Workshop	FY 2015-2016 Spent	FY 2016-2017 (On going) Budget	FY 2016-2017 (On going) Spent	FY 2017-2018 Budget	FY 2018-2019 Budget	Planed date	Remarks
A- Local Training								
1	River Engineering	1,726,976					Apr-16	Completed by BUET
2	River Training Techniques		1,518,029	1,518,029			Feb-17	Completed by BUET
3	Riverbank Geotechnical Stability				2,984,032		June-2017	Back to Back, US resource Person (1 Course)[1] for 2 batch
4	Riverbank Protection		2,479,829				May-2017	Geotextile, B. Walsh- hydraulic design.[1] &[2]
5	Stratergic Planning				1,811,867		Jun-17	Back to back, Combined: [1] &[2]
6	Survey and Evaluation				1,615,643		Aug-2017	Back to back, Combined: Mr. Atique, Mr Ghani.[1] &[2]
7	Underwater Investigations				1,264,153			
8	Resettlement				1,391,667		Sep 2017	[1] &[2] - CEGIS is Interested
9	Environment				1,407,778			[1] &[2] - CEGIS is Interested
10	Leadership				2,369,299		Oct-2017	Bert D Putte[1] &[2],
11	Project Management				2,467,112			BIM ?? [1] &[2], 80% OK
12	Construction Management		2,532,277				May-17	Mr. Bruce Hunter-RTW[1] &[2] (Possible to prepare soon)
13	Technology Transfer (counterpart)				2,291,956		July 17	ISPMC[1] &[2]
14	Capacity Building for DDM				1,954,552		Aug 17	Dr. Towfique[1] &[2]. To be reconsidered during MTR
B- Overseas Training								
B.1	River Morphology	7,488,567	1,612,194	1,612,194			Sep-Oct 2016	Completed By IHE- The Netherlands
B.2	River Training Techniques		2,984,032		6,015,968		July-2017	Contract completed with IHE- The Netherlands[2]
C- Study Tour								
C-1	Study Tour-1 (Financial Management)				3,000,000		July/Aug- 2017	To be done[1] &[2] (This program will be helpful to solve the 'ISPMC' accounts related problem)
C.2	Study Tour-2* (North America)		13,873,638				June-2017	To be done[1] &[2] (Possible to prepare soon)
C.3	Study Tour-3* (China)	5,135,984					16 to 24 Aug 2016	Completed - FY 2015-2016
C.4	Study Tour-4* (India)					3,000,000	July-2018	To be done[1] &[2]
	For emergency purpose					4,824,222		

	Description	Spent	Budget	Spent	Budget	Budget	Sub-Total	
Q-1	**Spend**	**14,351,527**		**3,130,223**			**17,481,750**	
Q-2	Revised DPP Budget	**78,880,000**	25,000,000	21,869,777	28,574,028	7,824,222	**61,398,251**	
	Total =						**78,880,000**	

Note:
1) [1]To be Finlized the Organization for Implementation= nhc???
2) [2]Need: TNA+ Course Outline+ Class Schedule+Budget+ Participant Selection (List)+ Board Appoval (Fund+ Program)+ Contract Signing with Executing Organization
3) For FY 16-17 Draft Budget Calculated Same as Approved Budget of FY 2016-2017, Cost must be within the budget.
4) We don't have the approved Revised DPP in our hand, only we Got the changed figure from accounts section PMO as BDT= 78,880,000 in Place of 104,250,000

The detail of the cost program is as follows-

1. River Engineering (Local Training # 1) (Completed)

Brief Statement on Training Course for River Engineering

Training Course on *"River Engineering"* for BWDB Engineers under BWDB Capacity Development Program was held on 03-09 April 2016 at WRE Seminar Room, 6th Floor, CE Building, BUET. The Department of Water Resources Engineering, BUET, conducted the training and the cost of the Training Batch-1: BDT 892,650+ Batch-2: BDT 834,326= 1,727,016/=. Completed on FY2015-2016.

2. River Training Technique (Local Training # 2) (Completed)

The Training (# 2) on River Training Technique training session were organized and conducted under the Capacity Building Capacity Building Component and Training course on "River Training Techniques" for BWDB Engineers under the FRERMIP Project-1 and Conducted by: Department of Water Resources Engineering, BUET. The Total cost of 2 Batches was BDT=1,518,029 (Fifteen Lac Eighteen Thousand Twenty Nine).

C.3 Study Tour-3 in China (Completed)

Nine participants attended a Study Tour on "Study of the Management of Yellow and Yangtze Rivers, and flood and erosion protection works" under FRERMIP on 16-24 August 2016 and the Study Tour was organized by a private firm "The Bridge". Their proposed technical programme together with the actual deliverables are shown in the following **Table 3**:

Table 3 Deliverables of Study Tour-3 in China

Sl .	Training Subject	Duration	Subject Taught or Discussed
A	Meeting Session in Beijing on River management and flood and erosion protection works by Mr. Peng Jingiun.	Meeting Session was cancelled.	
B	Meeting Session on Yellow River management and protection works by Dr. Su Yangbo at YRCC and YR Institute of Hydraulic Research.	Meeting session was continued for about two hours.	Preliminary ideas and information on Yellow River. Erosion Protection Works was not included in this session.
C	Visit to Xiaolongdi dam for practical knowledge gathering on Dam Protection Works and discussion session with authority of the Dam.	Visit to Xiaolongdi dam site.	Dam site was visited under the guidance of Dam authority.
D	Visit to Changling River and Three Gorges Dam and Discussion session with authority of Dam.	Visit to Three Gorges Dam site.	No meeting with Dam authority. A tourist guide showed and briefed participants on the dam.
E	Meeting Session in Beijing by Dr. Wan Yunyang on River Management and flood and erosion protection works.	Meeting session was about one hour.	Mr. Wan Yuanyang gave presentation on:"Impacts on the silting of the Deepwater Navigation Channel in the Changjiang Estuary". Physical Model of Yangtze Estuary was visited. Erosion Protection Works was not included in this session.

B.1 Overseas Training:

River Morphology- UNESCO-IHE (Completed)

The overseas Training held at UNESCO-IHE, in the Netherlands

Training Course on ''River Morphodynamics and Erosion Protection Practices'' contained River Morphology, Erosion Control and Bank Protection, River training techniques (including the use of Geo-bags and their Design) and Quality control/O&M. under BWDB Capacity Development Program with a duration of four weeks by taking the place at the UNESCO-IHE in the Netherlands and held on 12 September to 07 October 2016 and the cost was BDT=9,100,761.

This visit is official and the team compiled with the 8 numbers of BWDB Engineers.

Opportunely: Course on ''River Morphodynamics and Erosion Protection Practices'' contained River Morphology, Erosion Control and Bank Protection, River training techniques (including the use of Geo-bags and their Design) and Quality control/O&M and a group of high profile International recourse persons are involve as trainer/Lecturers by the leadership of Dr. Alessandra Crosato including Professor Chris Zevenbergen, Alessandro Cattapan, Dr Ilyas Masih, Dr Jaap Evers, Dr Erik Mosselman.

Achievements: The training Course on ''River Morphodynamics and Erosion Protection Practices'' BWDB Engineers achieved a lot from these type of efficient and high profile International recourse persons by training and from Lecture and for their new ideas and capacity development will be for the practical field in Bangladesh, they can contribute their experience to solve the river related problem and improve the river management system in Bangladesh, All the participants came back to Dhaka from The Netherlands on 7 October 2016.

Scheduled Trainings

3. Tentative Training Schedule

Flood and Riverbank Erosion Risk Management Investment Program (FRERMIP)

Riverbank Geotechnical Stability (Local Training # 3)

Course Title : Riverbank Geotechnical Stability

Sub Title : Geotechnical Training on International Embankment Design for Capacity Development of BWDB Design Offices, Back to Back, US resource Person.

Trainees : SE, Xen, SDE, AE of Design office and 2 Persons from FRERMIP, BWDB.

No. of Trainees : **20 (Twenty) Persons X 2 batch (20+20= 40). (Class=4 + Field=1) X2= 10 days.**

Venue : Hall Room, BWDB Design office, 72 Green Road, Dhaka-1205.

Course Duration : June-2017, (10 days). Source of fund: GoB. (FY 2016-2017 Cost= **2,984,032**)

Session Schedule :

1st session	:	09:00 hr to 10:20 hr
Tea Break	:	10:20 hr to 10:40 hr
2nd Session	:	10:40 hr to 12:00 hr
3rd Session	:	12:00 hr to 13:20 hr
Lunch & Prayer	:	13:20 hr to 14:10 hr
4th Session	:	14:10 hr to 16:30 hr

Course Director : **Dr. Moe Dirnberger, PE**, will be presiding as class instructor.
Former career U.S. Army Corps of Engineers Geotechnical Engineer specializing in Embankment design/professor (foundations & soil mechanics classes at University of Missouri-Kansas City/Southern Illinois University-Edwardsville and Washington University in St. Louis.

Course Coordinator : To be selected

Asst. Course Coordinator: To be selected

Training Assistant Staff : 4 Persons.

Table 4 Cost Summary

Sl.	Item	Cost in BDT	Cost-USD
A	Venue Rent +Sound System+Multimedia	70,000	902
B	Honorarium/ Training Allowance	660,000	8,508
C	Lunch	225,000	2,900
D	Stationaries	103,600	1,335
E	Expenditure for Field	198,000	2,552
F	Int. Resource persons	1,693,932	21,836
G	Contingency	33,500	432
H	Programme organizing fee	-	-
I	VAT	-	-
TOTAL =		2,984,032	38,466

The training class will consist of 6 days of classroom lectures and class assignments (Classroom Lectures, Handout Materials, and Case Studies. PowerPoint, Field Visits, Test), 4 days of field visits to various chosen embankment sites throughout Bangladesh, & last day summary of field comparison notes & final class test, Evaluation. Closeting ceremony with distribution of certificate followed by Dinner.

6 day in-house Training classroom will cover

Basics of geotechnical considerations for Embankment Design and the Geotechnical Stability for Riverbank Protection, with references to engineering manuals used by United States Army Corps of Engineers.

- Basic free online software will be used to compliment class materials. (In addition)
- Past experiences and case studies of embankment issues and problems in the United States. These case studies will center on embankment performances during major flood events on the Mississippi, Missouri, and
- Case studies will center on embankment performances during major flood events Illinois Rivers.
- Methodology for Riverbank Protection in geotechnical context,
- Geotechnical Investigations technics, sleep circle technology,
- Experiences of geo bags/geo synthesis as bank protection works under the existing subsoil conditions, Subsoil exploration and bore logs analyses for embankment stability,
- Geo-technical design considerations for river training works

4 day field visits will be organized by BWDB

1. Visits will include on the ground site inspection to examine existing conditions and make general observations and comments of typical flood protection embankments along rivers, tributaries and distributaries of Bangladesh.
2. Participating class members will be taught in the field how to conduct field inspections and take inspection notes,
3. In parallel with field inspections typically conducted within the United States.

On the last day:

1. Summaries of observations and field notes will be discussed back in the classroom among participating class members. .5 day concluding ceremonies: summary of field comparison notes & final class test, Evaluation and the distribution of certificate followed by Dinner.

4. Riverbank Protection (Local Training # 4)

Guidelines:

Based on the experiences gained during the implementation of the JMREMP guidelines for riverbank protection were drafted and approved by BWDB in 2010. These guidelines require updating to accommodate knowledge developed with time and with the future focus on systematic river management. For this a joint activity of national and international project experts with staff of the BWDB Design Office is envisaged. Specific training courses, interaction and exposure visits for example to the US Army Corps of Engineers are planned in support. These guidelines will constitute the basis for the river management work in the non-tidal zone under the Chief Engineer River Management with a dedicated broad design wing.

Scope of activities

- FRERMIP will initiate a series of working sessions with the participation of project experts, staff of the BWDB Design Office involving internationally renowned experts to review and updating the guidelines for riverbank protection.
- Capacity development activities will include exposure visits to discuss international best practice with European and North American institutions.
- The ISPMC will provide strategic guidance during drafting of the guidelines
- The ISPMC will promote strategic round table discussion in support of the approval process of the guidelines.

This activity will be supported through the applied research conducted with the BWDB design wing as well as the results of regular multi-beam echosounder surveys, shedding more light in to underwater developments. In addition the consulting team will be strengthened by an international expert with experience in preparing guidelines.

Course Title : Riverbank Protection

Sub Title : Training on Hydraulic design for Riverbank Protection (Slope Protection) by using of Geotextile for Capacity Development of BWDB Design Offices, Back to Back.

Trainees : SE, Xen, SDE, AE of Design office and 2 Persons from FRERMIP, BWDB.

No. of Trainees : **20 (Twenty) Persons X 2 batch (20+20= 40). (Class=4+ Field=1) X2= 10 days.**

Venue : To be finalized/ BWDB Design office, 72 Green Road, Dhaka-1205.

Course Duration: May-2017, (5+5=10 days). Source of fund: GoB. (FY 2016-2017) BDT= **2,479,829**

Mr. Bruce Walsh & Mr. Michel will preside as class instructor and Course Director and the training class will consist of 4 days of classroom lectures and class assignments and field visit to chosen embankment site and In the last day: 2 classroom lectures, summary of field comparison notes & final class test, Evaluation, Closing ceremony with distribution of certificate.

Note: Two courses on River Bank Protection are included in the DPP. 2 Courses (20+20 Participants) (back to back) will be held at BUET or in Chosen Venue (Staff College) as part of the regular training programme. A more in-depth course with specialist input is proposed for selected BWDB staff.

5. Strategic Planning (Local Training # 5)

Course Title : Strategic Planning
Sub Title : Training on Strategic Planning, Back to back, combined
Trainees : SE, Xen, SDE, AE of Design office and 2 Persons from FRERMIP, BWDB.
No. of Trainees : **20 (Twenty) Persons X 2 batch (20+20= 40). (Class=4+ Field=1) X2= 10 days.**
Venue : To be finalized/ BWDB Design office, 72 Green Road/
Course Duration : To be fixed for 2017 (5+5=10 days). Fund: GoB. (FY 2016-2017) BDT= **1,811,867**

Course Director to be selected and will be presiding as class instructor.
The training class will consist of **4 days of classroom** lectures and class assignments **and the field** visit to chosen site in Bangladesh and in the last day: 2 classroom lectures, summary of field comparison notes & final class test, Evaluation, Closing ceremony with distribution of certificate.

4 days classroom will cover The Basics or Procedures and Approaches for Strategic (Basin) Planning. Growing competition for scarce water resources has driven major changes in the way river basin planning is undertaken. This has resulted in a shift away from 'technical' approaches designed to maximize water availability and led to more strategic approaches to basin planning. These approaches aim to optimize outcomes by reconciling the competing demands of different sectors of the economy, the natural environment, and society as a whole. The Training for Capacity Development of BWDB Design Offices, Back to Back. In addition: Basic free online software will be used to compliment class materials. and Past experiences and case studies of embankment issues and problems on embankment performances during major flood events and the Field visits will include on the ground site inspection to examine existing conditions and make general observations and comments of typical flood protection embankments along rivers, tributaries and distributaries of Bangladesh, Participating class members will be taught in the field how to conduct field inspections and take inspection notes

6. Survey and Evaluation (Local Training # 6)

Course Title : Survey and Evaluation
Sub Title : Training on Survey and Evaluation, Back to back, combined
Trainees : SE, Xen, SDE, AE of Design office and 2 Persons from FRERMIP, BWDB.
No. of Trainees : **20 (Twenty) Persons X 2 batch (20+20= 40). (Class=2+ Field=3) X2= 10 days.**
Venue : To be finalized
Course Duration: Fixed for Aug-2017 (5+5=10 days). Fund: GoB (FY 2016-2017) BDT= **1,615,643**
Course Director: **Mr. Atique, Mr Ghani** will be presiding as class instructor.

The training class will consist of **2 days of classroom** lectures and class assignments (Basics of Survey and Evaluation considerations for Hydraulic design for Riverbank Protection (Slope Protection) Learn about the updated survey equipment's and use for Capacity Development of BWDB Design Offices, **Back to Back**) and **3 day of field** visit as practical class to chosen embankment site or study (Survey) areas in Bangladesh, **In the last day:** 2 classroom lectures, summary of field comparison notes/ work with survey data's by using software's & final class test, Evaluation, Closing ceremony with distribution of certificate.
Course Outline: Defining what 'Survey & Evaluation' means, Types of surveying equipment (GPS, Total Station, and Single/Multi Beam Echo Sounders) and how to use.

3 days field visits will include the practical field work with Modern/updated survey equipment's and site inspection to examine existing conditions and make general observations and comments of typical flood protection embankments along rivers, tributaries and distributaries of Bangladesh.

Participating class members will be taught in the field how to conduct field inspections and take inspection notes for the Survey and Evaluation

7. Underwater Investigations (Local Training # 7)

Course Title : Underwater Investigations
Sub Title : Training on Underwater Investigations, Back to back, combined
Trainees : SE, Xen, SDE, AE of Design office and 2 Persons from FRERMIP, BWDB.
No. of Trainees : **20 (Twenty) Persons X 2 batch (20+20= 40). (Class=2+ Field=3) X2= 10 days.**
Venue : To be finalized/ BWDB Design office, 72 Green Road/?
Course Duration: To be fixed for Aug-2017 (5+5=10 days). Fund: GoB. (FY 2016-2017) BDT= **1,264,153**
Course Director : **Mr. Atique, Mr Ghani** will be presiding as class instructor.

The training class will consist of 2 days of classroom lectures and class assignments to interest and introduce divers in a safe and competent way to planning, preparing and performing for Underwater Navigation techniques and diving under close supervision.

1. To familiarize interested divers with the skills, techniques and possible problems for this type of diving.
2. To serve as a prerequisite for higher-level specialty courses.
3. How diving can benefit a project - role it plays with construction management.
4. Present an example of a diving survey, what information was gained from this assessment. How was this information used to benefit the project?

Another important link in the chain of continuous training and education within the CMAS system.
1. Practical training about Underwater Investigations and Summaries of classroom lectures, observations and field notes will be discussed back in the classroom among participating class members, field comparison notes & final class test, Evaluation, Closing ceremony with distribution of certificate.

8. Resettlement (Local Training # 8)

Course Title : Resettlement:
Sub Title : Training on Resettlement, Back to back, combined
Trainees : SE, Xen, SDE, AE of Design office and 2 Persons from FRERMIP, BWDB.
No. of Trainees : **15 (Fifteen) Persons X 2 batch (15+15=30). (Class=4+ Field=1) X2= 10 days.**
Venue : To be finalized
Course Duration: To be fixed for Aug-2017 (5+5=10 days). Fund: GoB (FY 2016-2017) BDT= **1,391,667**
Course Director : **To be selected by PMO/ISPMC,** select the person who will preside as instructor.

The training class will consist of **2 days of classroom** lectures and class assignments **2 day in-house Training classroom will cover** Basics of resettlement and reclamation in Bangladesh, considerations for the effected and homeless people victim of the river erosion or land acquisitioned by the govt. Back to Back. With references.

- Govt. policy of the resettlement and reclamation in Bangladesh and other countries
- Past experiences and case studies of resettlement and reclamation in Bangladesh and identify the resettlement and reclamation problems and new concept for solution.

- 3 days field visits will include on the ground site inspection to examine existing conditions and make general observations and comments on resettlement of Bangladesh.
- Participating class members will be taught in the field how to conduct field inspections and take inspection notes for the. Resettlement.
- In the last day: 2 classroom lectures, summary of field comparison notes/ work with survey data's by using software's & final class test, Evaluation, Closeting ceremony with distribution of certificate.

Note: Participants are required to have a basic understanding of resettlement and preferably some practical experience on planning, implementing or overseeing land access and resettlement projects. The training course aims to increase participants' understanding of key resettlement, livelihoods and related issues, and increase their capacity to manage and/or engage with resettlement and livelihood projects on-the-ground for the benefit of all stakeholders through interaction between key resettlement players (Government, private sector and civil society) and case examples and studies. A specific module on resettlement related IT, including databases, will highlight the challenges and opportunities with the use of new digital technologies.

9. Environment (Local Training # 9)

Course Title : Resettlement:
Sub Title : Training on Environment, Back to back, combined
Trainees : SE, Xen, SDE, AE of Design office and 2 Persons from FRERMIP, BWDB.
No. of Trainees : **15 (Fifteen) Persons X 2 batch (15+15=30). (Class=4+ Field=1) X2= 10 days.**
Venue : To be finalized
Course Duration : To be fixed for Aug-2017 (5+5=10 days). Fund : GoB (FY 2016-2017) BDT= **1,407,778**
Course Director : Person from DoE, PMO/ISPMC select the person who will preside as instructor.

The training class will consist of 4 days of classroom lectures and class assignments (Classroom Lectures, Handout Materials, and Case Studies. PowerPoint, Field Visits, and Test) including Basics of Global Environment and in Bangladesh, Why we should be more census about Environment and how we can help the govt.

- National policy of the Environment, Bangladesh and other countries
- Past experiences and case studies about Environment in Bangladesh and identify the problems and new concept for solution.

1 day of field visit as practical class to a chosen study areas in Bangladesh Included on the ground site inspection to examine existing conditions and make general observations and comments on the Environment of Bangladesh. Participating class members will be taught in the field how to conduct field inspections and take inspection notes for the. Environment.

On the last day:
Summaries of observations and field notes will be discussed back in the classroom among participating class members, Summary of field comparison notes & final class test, Evaluation, Concluding ceremonies with the distribution of certificate.

10. Leadership (Local Training # 10)

Course Title : Leadership
Sub Title : Training on Leadership, Back to back, combined
Trainees : SE, Xen, SDE, AE of Design office and 2 Persons from FRERMIP, BWDB.
No. of Trainees : **20 (Twenty) Persons X 2 batch (20+20= 40). (Class=3+ Practical =2) X2= 10 days.**
Venue : BIM
Course Duration: To be fixed for Oct -2017 (5+5=10 days). Fund: GoB (FY 2016-2017) BDT= **2,369,299**

Course Director : Mr. BERT-ISPMC is the selected person who will preside as instructor.
The training class will consist of 3 days of classroom lectures and class assignments (Classroom Lectures, Handout Materials, and Case Studies. PowerPoint, Field Visits, Test), 2 days Practical class, In the last day: 3 classroom lectures, summary of field comparison notes, final class test, Evaluation, Closeting ceremony with distribution of certificate followed by Dinner.

3. days in-house Training classroom including practical will cover
The training aims to bring out and expand the leadership qualities of the participating individuals as a progressive human.

The participants are expected to achieve a conceptual clarity on leadership. Can learn about the process of building leadership and the importance of alternative leaders, Can learn about decision making process, characteristics of a leader, conducting meeting and conflict resolution, The participants will also gain enhanced knowledge on roles of a leader and on management issues.

Brain Storming, Buzz Group, Lectures, Discussion in Large & small Groups, Plenary, Guided Study, Free Discussion, Question and Answers and Review of Case Studies and Role Playing.

On the last day: Summaries of observations and field notes will be discussed back in the classroom among participating class members, Summary of field comparison notes & final class test, Evaluation, concluding ceremonies with the distribution of certificate will be followed by Dinner.

11. Project Management (Local Training # 11)

Course Title : Project Management
Sub Title : Training on Project Management, Back to back, combined
Trainees : SE, Xen, SDE, AE of Design office and 2 Persons from FRERMIP, BWDB.
No. of Trainees : **20 (Twenty) Persons X 2 batch (20+20= 40). (Class=4+ Practical =1) X2= 10 days.**
Venue : To be finalized
Course Duration: To be fixed for Aug-2017 (5+5=10 days). Fund: GoB (FY 2016-2017) BDT= **2,467,112**

Course Director : **PMO and ISPMC** select the person who will preside as instructor.
The training class will consist of 3 days of classroom lectures and class assignments (Classroom Lectures, Handout Materials, and Case Studies. PowerPoint, Field Visits, Test), 2 days Practical class with 1 field visit to chosen area, **In the last day:** 3 classroom lectures, summary of field comparison notes/ work with Environment analysis by using software's for final class test, Evaluation, Closeting ceremony with distribution of certificate followed by Dinner.

3 day in-house Training classroom will cover

Basics of Project Management. Why we should be more census about it and how we can develop ourselves Past experiences and case studies about Project Management in Bangladesh and identify the problems and new concept for solution.

2 days Practical class will include the other project inspection to examine existing conditions and make general observations and comments on the Project Management.

- Participating class members will be taught in the field of Project.

On the last day:

- Summaries of observations and field notes will be discussed back in the classroom among participating class members.
- Summary of field comparison notes & final class test, Evaluation.
- Concluding ceremonies with the distribution of certificate followed by Dinner.

Also we can include the 'Financial Management' Part.

12. Construction Management (Local Training # 12)

Course Title : Construction Management
Sub Title : Training on Construction Management, Back to back, combined
Trainees : SE, Xen, SDE, AE of Design office and 2 Persons from FRERMIP, BWDB.
No. of Trainees : **20 (Twenty) Persons X 2 batch (20+20= 40). (Class=3+ Field=2) X2= 10 days.**
Venue : To be finalized/BIM Or.
Course Duration: To be fixed for Aug-2017 (5+5=10 days). Fund: GoB (FY 2016-2017) BDT= **2,532,277**

Course Director : Mr. Bruce Hunter, Canada will preside the classes as instructor.

The training class will consist of 4 days of classroom lectures and class assignments (Classroom Lectures, Handout Materials, and Case Studies. PowerPoint, Field Visits, Test), 2 days Practical class to chosen area**, In the last day:** 3 classroom lectures, summary of field comparison notes/ work with Environment analysis by using software's for final class test, Evaluation, Closeting ceremony with distribution of certificate followed by Dinner.

3 day in-house Training classroom will cover*

Basics of Global Construction Management and in Bangladesh, Why we should be more census about Construction Management and how we can improve.

- National policy and the Guideline of the Construction Management, Bangladesh.
- Past experiences and case studies about Construction Management in Bangladesh and identify the problems and new concept for solution.

2 days Practical class with 1 day field visit will include on the ground site inspection to examine existing conditions and make general observations and comments on the Construction Management of Bangladesh.

- Participating class members will be taught in the field how to conduct field inspections and take inspection notes for the. Construction Management.

On the last day:

Summaries of observations and field notes will be discussed back in the classroom among participating class members, Summary of field comparison notes & final class test, Evaluation, Concluding ceremonies with the distribution of certificate.

13. Technology Transfer (counterpart) LS (Local Training # 13)

Course Title : Technology Transfer (counterpart) LS
Sub Title : Training on Technology Transfer (counterpart) LS, Back to back, combined
Trainees : SE, Xen, SDE, AE of Design office and 2 Persons from FRERMIP, BWDB.
No. of Trainees : **9 (Nine) Persons X 9 batch (9x9= 81) = 9 days.**
Venue : To be finalized.
Course Duration : To be fixed for Aug-2017 (9x9 days). Fund: GoB (FY 2016-2017) BDT= **2,291,956**

Course Director : **PMO /ISPMC** select the person who will preside as instructor.
The training class will consist of 9 days of classroom lectures and class assignments (Classroom Lectures, Handout Materials, and Case Studies. PowerPoint, Test), with Practical class to chosen area, **In the last day** of each batch 1 class lectures, summary for final class test, Evaluation, Closeting ceremony with distribution of certificate followed by Dinner.

3 day in-house Training classroom will cover: To assess the TT capacities and map their areas of strength, Technology transfer training for TT professionals, Workshops for TT managers on topics including intellectual property strategy, Innovation management and fund raising, Govt. policy of the Technology Transfer, Bangladesh and other countries.

On the last day: Summaries of observations notes will be discussed back in the classroom among participating class members, Summary of field comparison notes & final class test, Evaluation, Concluding ceremonies with the distribution of certificate followed by Dinner.

14. Capacity Building for DDM: LS (Local Training # 14)

Dr. Towfiqe shared, discussed and decided that the PD, FRERMIP should write to DG, DDM informing him about the available budget for training the DDM staff and asking for informing him (OPD, FRERMIP) about what training he wants to have for the DDM staff and a plan for the training with probable expenditures.
Action: Dr. Towfiqe Prepared draft letter for PD.

Course Title : Capacity Building for DDM
Sub Title : Training on Capacity Building for DDM, Back to back, combined
Trainees : The DDM staff
No. of Trainees : **15 (Fifteen) Persons X 2 batch =30. (Class=4+ Field=1) X2= 10 days.**
Venue : To be finalized/BIM/DDM/----
Course Duration: To be fixed for Aug-2017 (5+5=10 days). Fund: GoB (FY 2016-2017) BDT= **1,954,552**

Course Director : **Mr. Dr. Towfique**, ISPMC/ DDM select the person who will preside as instructor.

3 day in-house Training classroom will cover: Basics of Global Disaster Management and in Bangladesh, Why we should be more census about Disaster Management and how can help the govt.

- National policy of Disaster Management, Bangladesh and other countries
- Past experiences and case studies about Disaster Management and identify the problems and new concept for solution.

1 day Practical class will include the Objective of Courses on Capacity Building for DDM Capacity building of the officials responsible for Disaster Management in the light of Government Policy.

- To provide Guideline and Instruction to Disaster Relief and Rehabilitation officer, Upazila Project Implementation Officer including other Disaster Management Staff for effective Disaster Management in the local level according to the Government Policy.
- To establish the professionalism in Disaster Management in the local level.
- To make the Disaster Management more effort and effective at the local level.
- In the local level Disaster Management works more coordinated/organized and accountable.

1 Day of Field Visit: Participating class members will be taught in the field how to conduct field inspections and take inspection notes for the Disaster Management.

Last day: Summaries of observations and field notes will be discussed back in the classroom among participating class members, Summary of field comparison notes & final class test, Evaluation, Concluding ceremonies with the distribution of certificate followed by Dinner.

B.2 River Training Techniques:

Overseas Training

The overseas Training Titled as "River Training Techniques" under BWDB Capacity Development Program with a duration of four weeks by taking the place at the UNESCO-IHE in the Netherlands and Preparing to execute in the month of July-2017 (Under the FY 2016-2017) Training Course on 'River Training Techniques" contained an overview of River Training Techniques used in Bangladesh and the other countries, Experiences of geobags/geosynthesis as revetment protection works, Design of hard point/ revetments Works for river bank protection works, Design of groynes for river training works, River course management using a gradual approach, Geo-technical design considerations for river training works, International Design Experiences of Bank Protection Works, Experience on design of Spur like structure on River and International standard, Design aspects and specifications of construction materials for water front construction Quality control/O&M. 8 No. of participants selected from the River Training Techniques (Local) and the cost will be BDT= 9,000,000.

Study Tour - 1 (Australia)

We are going to be organize the study tour to Australia (10 days) for 5 officials of BWDB and we are thinking to prepare the plan for the next July/Aug- 2017 Under the FY 2017-2018 and we can also include as a part of visit, where there is a strong geotextile industry, largely conducting protection and in the year 2004 a group of high officials from JMREMP including BWDB staff visited Australia to share the ideas about geotextile.

A key player is Geofabrics (www.geofabrics.com.au). Here are a few links to you tube videos: https://www.youtube.com/watch?v=pXKS_-eewzM, https://www.youtube.com/watch?v=rFrD6Vf_KD4 (1. Coastal Erosion & Shoreline Protection - Portsea, Australia, 2. Geotextiles Standard AS 3706.1 - Mass and Thickness Test Method and more)

C.2 Study Tour -2 (North America)

'Overseas Study Tour in North America' including Mississippi River under BWDB Capacity Development Program of Flood and River bank Erosion Risk Management Investment Program (FRERMIP) under The Ministry of Water Resources, Government of the People's Republic of Bangladesh Tentative Date: Start from Dh- 27 April- 12 May-2017 - Back to Dhaka (14+2= 16 days). PMO is also planning to include the Canada in the programme.

(No. of Participants10 for 'High level Knowledge Exchange). Area to visit of North America already prepared and the PMO, FRERMIP updating the programme and planning to implement within June-2017 (Under FY 2016-2017) Executed by the outsource (Tour Organizing Firm).

C.4 Study Tour - 4 (India)

Planned for Feb-2018

'Overseas Study Tour in India including included Assam visit under BWDB Capacity Development Program of Flood and River bank Erosion Risk Management Investment Program (FRERMIP) under The Ministry of Water Resources, Government of the People's Republic of Bangladesh Planned for Feb-2018 - (10+2= 16 days).

(No. of Participants10 for 'High level Knowledge Exchange). Prepared a draft programme and the PMO, FRERMIP updating the programme (Under FY 2017-2018).

"International Conference on The Status and Future of the World's Large Rivers" held on 18-21 April New Delhi:

Participation in the said Conference will be a great achievements for FRERMIP, BWDB and also for Bangladesh because to get the opportunity for direct involvement with 2 (Two) Accepted presentation Titled as:

1. "Stabilization of the Padma-Meghna Confluence at Chandpur, Bangladesh" Presenting Author Mr. Knut Oberhagemann, Team Leader ISPMC, Affiliations FRERMIP, BWDB, Bangladesh and nhc , Canada.
2. Another presentation Presenting Author: Mr. Motirur Rahman, River Engineer ISPMC, Affiliations FRERMIP, BWDB, Bangladesh.

In the Main schedule will be as Technical Program: TOPICS

Hydrology, Hydraulics & Water Quality, Hydrology & Hydraulics, Water Quality, Sediment Transport, Material Fluxes & River Morphology, Sediment Transport & Material Fluxes, River Morphology & Morphodynamics, Ecology & Restoration, Ecology (Fish Passages, Environmental Flows, etc.), River Restoration, Integrated River Management, Land Use & Population Growth, Change, Water Security & Natural Disasters, Hydropower, Navigation, Flood Control & Protection, Water Resources & Irrigation, Women's Role in Water Management, Community Engagements & Education, Integrated Management & Shared Benefit, Indian Rivers (Special session for research related to the Indian Rivers.)

The definition of "large river" isn't that easy and can be related to river length, river basin area, discharge, importance to human activity, etc. Therefore, this definition intentionally open to a certain degree. Of course, all rivers with a length of more than 1.000 km are surely considered as large rivers, but also want to encourage researchers and practioners to present their work on smaller rivers if the results can be transferred to a larger scale.

Note: *Another in-country course will be organized by MDF Bangladesh. The training will be on* ***Leadership & People Management*** *and is scheduled from14 to 16 May 2017. This training is exclusively available for Bangladeshi nationals and will be conducted by experienced international and local trainers.*

Course information

Date: 14-16 May 2017
Location: Hotel Rigs Inn, Dhaka
Training schedule: 9 am - 5 pm
Course fee: **30,000 Tk** (including tax and VAT)
Course fee covers tuition, participants' pack- course materials (both printed copies and soft copies with a Pendrive), worksheet, stationery, morning snacks, lunch, afternoon snacks and certificates
Last date of registration: 9 May, 2017.

ISPMC Capacity Building Component:

The following **Table 5** shows the summary of Trainings, Meetings, Conferences and Seminars held by the ISPMC upto the reporting quarter.

Table 5 Summary of ISPMC Trainings, Meetings, Conferences and Seminars

Date	Description	Type	No. of Participants	Venue
December 2015	Draft Inception Workshop	Workshop	125	Pan Pacific Sonargaon
September 2016	ICSE Oxford, paper presentation	Conference	3	UK
June 2016	BWDB presentation	Meeting	N/A	Pan Pacific Sonargaon
July 2016	Riverbank protection	Film	N/A	Filming completed
May 2016	Environmental Awareness	Training	10x3	Chauhali, Harirampur and Zaffarganj
May 2016	Round table meeting for BWDB high official	Meeting	25	Pan Pacific Sonargaon
June 2016	Round table meeting for BWDB high official	Meeting	N/A	Lake Castle Hotel
Oct 2016	Workshops on Capacity Strengthening	Workshop	30	Pan Pacific Sonargaon
Dec 2016	National Workshop on Draft River Stabilization and Preliminary River Management Master Plan	Workshop	140	Pan Pacific Sonargaon
Dec 2016	Follow-up Workshop on Draft Master Plan	Workshop	110	BWDB Board Hall
Dec 2016	Training for Task Force on Quality Control of Sand-filling of Geobags	Training	30	BWDB Board Hall

Appendix-G Photos

Chauhali low water key (blocking access to the river) and construction of permanent wave protection

Chauhali correction of key level by removing earth deposit

Chauhali construction of permanent wave protection with alternative key and repair of geotechnical failure zone.

Chauhali concrete block key alternative placement for better access to the river

Chauhali diving investigation in geotechnical failure zone


Solimabad (Downstream of Chauhali) Erosion situation during March 2017

Haririampur Repair works on eroded wave protection (underwater protection in forground)

Zaffarganj commencement of excavation for the placement of permanent wave protection

Visit of the Royal Netherlands Embassy to the FRERMIP construction sites