

**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. 03**

FOR

JANUARY - MARCH 2016

Prepared by:

ISPMC

Institutional strengthening and
project management consultant

Joint venture

nhc
northwest hydraulic consultants

Mott MacDonald

PROJECT OFFICE

House 45 (2nd Floor)
Road 27, Banani
Dhaka 1213, Bangladesh
Phone 0088 (0) 2 986 1194
Email ahmad.sajid@mottmac.com

Mr. A. M. Aminul Haque
Addl. Chief Engineer/Project Director
FRERMIP, BWDB, Dhaka
Bangladesh

Reference No. PMO 151
April 2016

Subject : **Submission of Quarterly Progress Report No. 03
January-March 2016**

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. 03 for the period January to March 2016 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 comments from BWDB, ADB and others on this report.

Yours sincerely,

Knut Oberhagemann
Team Leader

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13. Country Director, BRM, ADB, Sher-e-Bangla Nagar, Dhaka
(Attn.: Mr. Zahir Uddin Ahmad, PIO; 2 copies)

15. Embassy of the Kingdom of the Netherlands, Gulshan, Dhaka

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
CDMU	-	Community Disaster Management Unit
CEGIS	-	Center for Environmental and Geographic Information Services
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
JICA	-	Japan International Cooperation Agency
Mil	-	Million (1,000,000)
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
RNE	-	Royal Netherlands Embassy
SMO	-	Sub-Project Management Office
ToR	-	Terms of Reference
UNDP	-	United Nations Development Programme
USD	-	United States Dollars
WARPO	-	Water Resources Planning Organization

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Flood and Riverbank Erosion Risk Management Investment Program – Project 1

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	Bangladesh 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	2016 April 03-2016 April 07

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 (%)	Weighted (%)
1. Establishment & Recruitment	1.1 PMO Establishment and Staffing	2	65	1
	1.2 ISPMC Consultants Recruitment	2	55	1
	1.3 NGO Recruitment	2	10	0
2. Implementation; Tranche-1	2.1 Detailed Design	2	40	1
	2.2 Tender Documents Preparation	6	40	2
	2.3 Tendering and Contract Award	6	25	2
	2.4 Land Acquisition and Resettlement	8	15	1
	2.5 Project Management	6	30	2
	2.6 Physical Completion of Works	32	13	4
	2.7 Financial Disbursements	4	0	0
3. Knowledge Base & Capacity	3.1 Knowledge Base & Tech. Studies	4	10	0
	3.2 CBFMR Activities	6	10	1
	3.3 MIS Project Mgmt Module	4	0	0
4. River Study, Piloting & Master Plan	4.1 Long-term stabilization study	4	0	0
	4.2 Land recovery piloting	2	0	0
5. Preparation; Project-2	5.1 Feasibility Study; Project-2	6	0	0
	5.2 Detailed Design; Project-2	4	0	0
Totals		100		15

5. Financial Progress				
Financial Indicator	Total Amount	ADB	GON	GOB
Disbursement Summary (BDT million)	173.92	166.07	0	7.85
Disbursement as a Percent of Total Funds (%)	2.10	3.19	0.00	0.42

Financial Indicator	BDT Million	US\$ Million
ADB Reimbursed Amounts	166.07	2.11

DPP Total Contribution (BDT Mil)	8285.6	5200	1224	1861.6
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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 100,000 people. 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 to protect the Pabna and Meghna-Dhonagoda Irrigation Projects from riverbank erosion. Between 2004 and 2011, this protection method was used along 17 km of the lower Jamuna River. Following a feasibility study completed in December 2013, the Government of Bangladesh (GOB) and Asian Development Bank (ADB) agreed to continue riverbank protection, stabilizing river reaches and potentially reclaiming floodplain land lost since the 1960s in the reach from Bangabandhu (Jamuna) Bridge to Chandpur.

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. 6). While overall the PPTA report has been followed in subsequent ADB and GOB documents, some components have changed significantly:

1. While the BWDB design office followed the tentative length of riverbank protection works established during the feasibility study, it changed the design by increasing the element weight and by increasing the quantities per linear meter of riverbank protection, however without further geotechnical analysis. The embankment height has also been increased by 0.30 m to accommodate the expected effects of climate change.
2. ADB and GOB agreed to reduce the proposed river stabilization study substantially in order to process the loan faster. Now less than 50% of resources and time are provided to the study with more focus on generalized investigations.

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 constitutes the beginning of three successive projects (tranches) to be implemented over a period of around ten years. The first project will provide structural and non-structural flood and riverbank erosion risk management measures in three high priority subproject areas (**Figure 1**) until June 2019. Subsequent projects will extend the protected reaches using designs adjusted to current riverbank erosion conditions and considering the possibilities to reclaim lost floodplain land.

FRERMIP will provide a more secure and improved livelihood for people living along the main rivers of Bangladesh. The outcome of the program will be reduced flood and riverbank erosion risks in the subproject 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).

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, about 20 km of riverbank protection¹ 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 sustainable operation and maintenance (O&M) of infrastructure required for flood and erosion risk management. There is also 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).

It is expected that all project outputs for Project-1 can be fully achieved by the scheduled closing date of 30 June 2019.

1.3 Overall Progress

The overall weighted physical project progress is presented in **Table 1** and shows that the progress achieved to the end of the reporting period is around 15%. The overall financial progress is 4%. 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. Progress for some of the activities are qualitative in nature, while others can be measured directly from the project implementation database.

A revised set of primary and secondary activities (components) and a new set of weighting factors proposed by the ISPMC are shown in **Table A-1**². For convenience of the reviewer, the table includes a column showing the previous ADB weighting factors as well as the new proposed (ISPMC) weighting factors.

¹ The length of protection work has increased from 15 to around 20 km due to changes in the river morphology between feasibility study and work start.

² The original ADB template for computing project progress as defined in Appendix 5 of ADB's Facility Administration Manual (Ref. 1) was modified because it omitted key activities and gave excessive weight to the construction of civil works.

1.4 *This Report*

Quarterly Progress Report No. 3 covers the period 01 January to 31 March 2016. The report describes activities carried out during the quarter, which primarily included construction activities, and preparation of the draft initial river management master plan.

A project implementation database has been developed to monitor project implementation and facilitate preparation of this Quarterly Progress Report (QPR).

2. PROJECT ACTIVITIES

2.1 INTRODUCTION

The BWDB FRERMIP Project Management Office (PMO) started functioning in April 2014. Since that time, the office has been engaged in procurement activities associated with project goods, services and works and since November 2015 with construction of works at three sites. During the reporting period, implementation commenced at Harirampur and Zaffarganj, while work at Chauhali made substantial progress. At the end of this quarter the original 5km length of bankline have been protected at Chauhali and 3km out of 7 were built at Harirampur.

A contract with the Institutional Strengthening and Project Management Consultants (ISPMC) was signed on 08 September 2015. Since that time, the consultant has prepared the Project Inception Report, supported overall project management, preparation of terms of reference for a number of supporting studies (Section 2.3.1), and background studies related to the initial master plan (as documented in the appendix).

The held a number of important meetings with steering, technical, and technical advisory committees in February and March.

The current status of implementation activities are discussed in the following sections, and detailed and summary tables are provided in **Appendices A & B**.

2.2 PROJECT ASSET IMPLEMENTATION

2.2.1 Introduction

Tables A-2 and A-3 show the type, number and total cost of assets currently included in the program, by the implementing agency. A total of 23 Km of embankment worth Tk 935 Mil (including associated structures), and around 15 km of riverbank revetment worth Tk 2,227 Mil (plus Tk 1,080 Mil for geo-bags) are included in the current work program as defined in the Development Project Performa (DPP). Similar 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 Tk 7617 Mil (Goods Tk 1388 Mil, Services Tk 1380 Mil and Works Tk 3520 Mil, plus Tk 1329 Mil of additional assets included in the DPP). There is a deficit between the final cost of the DPP (Tk 7693 Mil) and the latest final cost (Tk 7617 Mil) of about Tk 76 Mil because of the lower bid value of Pkg W-08 than the estimated cost which goes into the savings. The total savings to date between the estimated contract values from the DPP Procurement Plan and the current bid values is BDT 506 Mil or over \$US 6.3 Mil³.

³ Savings from the following contracts: 3 Geobag Supply, 4 Revetment, and ISPMC Services.

The following table shows the cost variations between the DPP estimated value, engineers' estimate and the awarded contract values of the major packages that carry the most weight by cost of the project. The revised estimated values are approved by the steering committee of FRERMIP and it is almost 22% more than the original DPP estimates.

Package No.	Description	DPP Estimate (Mil BDT)	Engineers' Estimate (Mil BDT)	Contractor Bid Value (Mil BDT)
G-01	Supply of Geo-Textile bags for RBP at Chauhali	342.4	479	317.3
G-02	Supply of Geo-textile bags for RBP at Zafarganj and at Harirampur	378.7	635.1	411
G-03	Supply of Geo-textile bags for RBP at Harirampur	350	407.9	274
G-04	Supply of Geo-textile bags for RBP at Koitola and emergency and adaptation	303.4	N/A	N/A
W-01	Construction of new embankment from Kojjuri to Bhatpara : 0.00-5.00 KM	414	N/A	N/A
W-06	Comprehensive riverbank protection at Chauhali : 0.00-2.50 KM	440.6	440.8	387
W-07	Comprehensive riverbank protection at Chauhali : 2.50-5.00 KM	440.6	442.1	387.5
W-08	Comprehensive riverbank protection at Zafarganj	353.5	632.35	557.8
W-09	Underwater riverbank protection at Harirampur : 0.00-3.50 KM	309.8	295.6	271.3
W-10	Comprehensive riverbank protection at Harirampur : 3.50-7.00 KM	391.2	245.1	224.9
W-11	Comprehensive riverbank protection at Kojjhuri/Verakhola	180.6	N/A	N/A
S-01	Institutional Strengthening and Project Management Consultant	1068.5	1068.5	1018.2

Every project asset and contract has been tied to a specific Expenditure Category as defined in the table on page 68 of the DPP (Ref. 4; reproduced in **Table 2**). This categorization will allow the database to easily monitor implementation and financial progress of each category item. **Table B-4** identifies which contracts have been assigned to each Expenditure Category. 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-4**) or DPP Components (**Table A-5**).

Table 2 ADB Categorization

Primary		Secondary	
A	Civil Works	A1	Embankment Works
		A2	Riverbank Protection Works
		A3	Emergency & Adaptation
		A4	Pilot Land Recovery
B	Materials	B1	Geotextile, Civil Works
		B2	Geotextile, Emergency
C	Vehicles & Equipment	C1	Vehicles
		C2	Office Equipment
		C3	Survey Equipment
		C4	DDM Office Equipment
D	Consulting Services	D1	ISPM
		D2	INGO BWDB
		D3	INGO DDM
		D4	Survey & Investigation
E	Capacity Development	E1	BWDB Training & Study
		E2	DDM Training
		E3	MIS Development
F	Land Acqn. & Resettlement	F1	Land Compensation
		F2	Resettlement Benefits
G	Program Management	G1	Staff Salaries BWDB
		G2	Office Operations BWDB
		G3	Office Operations DDM
		G4	BWDB River Surveys

2.2.2 Design Activities

Feasibility level designs for all civil works in the current Project-1 were prepared during the Project Preparatory Technical Assistance (PPTA) study (Ref. 6) completed in December 2013. This initial design work included the collection of all required data, and an estimate of cost. Detailed designs for all revetment works in Manikganj and Tangail SMOs were subsequently prepared by BWDB Design Circle 1 in August 2014. The approved 5 km river bank protection work has already been extended by 2 km (from chainage Km 5.0 to Km 7.0) at upstream area. During the contract start the design office updated the design based on the latest dry season surveys. The ISPMC supported the process through technical memos indicating issues critical for sustainable design.

The design work for all embankments, and associated roads and regulators/fish passes is going on. During the last meeting held on 29th of March, further clarification about the design was asked from the board.

A summary of the design progress is given in **Table 3**, and details for each individual asset are available in **Table B-1**.

Table 3 Design Progress Summary

Recipient Executing Agency	Total Designs	Design Data Collected/Submitted			Design under Process	
		Hydrology	Survey	Geotech	Design	Drawings
Koitola SMO	12	10	5	0	0	0
Manikganj SMO	4	3	3	3	3	3
Tangail SMO	2	2	2	2	2	2
Totals	18	15	10	5	5	5

2.2.3 Tendering Activities

One major service contract (Resettlement Plan Implementation worth Tk 16.2 Mil) has been awarded by BWDB on 16 March 2016. Since the end of 2015, the ISPMC has assisted the PMO by preparing ToRs for many of the Supporting Studies (Section 2.3.1). One major work contract (Revetment: Jamuna at Zaffarganj worth Tk 558 Mil) has been awarded during this quarter. Two other vehicles and equipment contracts have also been awarded during this quarter.

A summary of bidding progress, by primary component, is given in **Table 4**. Bidding progress details, on an individual contract package basis, are given in **Table B-2**. This table does not include all contracts defined in the DPP, only those where contractual procedures have been started.

Table 4 Tendering Progress Summary

Component	Contract Value (BDT Mil)	Tender Floated	Tender Received	Notice of Award Issued
Goods; B: Materials	1,002	3	3	3
Goods; C: Vehicles & Equipment	9	4	4	3
Services; D: Consulting Services	1,040	4	4	3
Services; G: Program Management	0.5	3	3	3
Works; A: Civil Works	1,903	5	5	5
Totals	3,955	19	19	17

2.2.4 Implementation Activities

Significant implementation activities were ongoing during the quarter. There are a total of 16 ongoing and completed contracts (5 small and 11 large) worth an estimated Tk 3990 Mil. The 3 ongoing goods contracts for supply of geo-bags had progress worth Tk 786 Mil during the quarter. By the end of next quarter, those 3 contracts are expected to be essentially complete with a projected cumulative progress of Tk 989 Mil.

The 5 ongoing civil works contracts for riverbank protection in Chauhali, Zaffarganj, and Harirampur had physical progress worth Tk 216 Mil during the report quarter, and projected progress worth Tk 468 Mil is expected by the end of the next quarter.

The major ongoing project service expenses include the ISPMC contract and the BWDB PMO office operation and salaries.

A summary of implementation progress, by primary component, is given in **Table 5**. Implementation progress details, on an individual contract package basis, are given in **Table B-3**.

Table 5: Implementation (Physical) Progress Summary

Component	On-going & Complete Contracts	Best Estimate of Cost (BDT Mil)	Cumulative Progress to Date (BDT Mil)	Projected Progress to Next Qtr. (BDT Mil)	Financial Progress (BDT Mil)
Goods; B: Materials	3	1,002	786	1,002	89
Goods; C: Vehicles & Equip.	1	2	2	2	2
Services; D: Consult. Service	2	1,023	64	147	23
Services; G: Program Mngt.	3	1	1	1	1
Works; A: Civil Works	5	1,828	215	467	232
eXtra; G: Program Mngt.	2	133	51	57	2
Totals	16	3,989	1,119	1,676	349

Notes: The Cumulative and Projected columns show values of physical progress, while the Financial column show reimbursed amounts.

Appendix-F Photographs documents the progress at the sites.

2.3 OTHER PROJECT ACTIVITIES

2.3.1 Supporting Studies

As specified in the DPP, there are a total of nine supporting studies (service contracts) funded under FEREMIP to help implement and expedite all project outputs. Normal government tendering procedures will apply to these supporting studies. Implementation non-government organizations (INGOs) or consulting firms will eventually be engaged to complete these supporting studies.

ToRs for these studies have been developed. One of them (RP-INGO) have been awarded. Some are lying with ADB for concurrence while some are under review by PMO. ToR for two studies (Fish Sanctuary Development and Participatory O&M are under preparation. The ToRs typically include the study objectives, scope of work, personnel requirements (job descriptions and responsibilities), time schedule and a cost estimate. The status of these studies is summarized in Table 6.

Due to the normal arduous, but necessary, government contractual oversight procedures, only one INGO/Consultants could be selected so far and the remaining studies may be awarded during the next fiscal year.

Table 6: Status of Supporting Studies

Pkg.	Study Name	Present Status
S-02	Resettlement Plan Implementation	Resettlement INGO signed contract with BWDB on 16 March and mobilization starting
S-03	Livelihood Development Services	ToR complete, and ADB concurrence under process.
S-04	Community-based Flood Risk Management (CbFRM) Services	ToR under review by PMO
S-05	Participatory O&M Support Services	ToR preparation is in progress
S-06	Multi-Beam Eco Sounding Survey	ToR under review by PMO
S-07	Erosion Prediction Services	ToR lying with ADB for concurrence
S-08 & 09	MIS Development Services: Flood Risk Assessment and O&M Methodology	Alternate proposal submitted to PMO for consideration
S-10	Environmental Management Services: Fish Sanctuary Development Bio-diversity and Aquaculture Program	ToR preparation is in progress. ToR submitted to PMO for review.

2.3.2 Capacity Building

A. Local Training 1: Local training at BUET is ready to start from 3–9 April, 2016. ADG (West), Mr. Jahangir Kabir will inaugurate the Training program. All formalities relating to selection of participants (20), finalization of course module, selection of trainers and signing of contract between PD, FRERMIP and Head of WRE department, BUET are complete (23 Mar 2016). ADG (West), BWDB will inaugurate the program at BUET.

Local Training 2: Local Training on Financial Management for the finance staff, to be organized by with the Office of the Chief Training, BWDB, is under discussion with Chief, Training. It may be held in May, 2016.

B. Overseas Training: The overseas Training will be held at Unesco-IHE, in the Netherlands is progressing. The Unesco-Ihe cannot do it before August- September to which PD, FRERMIP has agreed. Unesco-Ihe has already appointed a Course Coordinator (Dr. Ms. Alessandra Crosato). They are revising their module and budget to accommodate the suggestion from Ms. Natsuko Totsuka.

C. Study Visit to Yellow and Yangzi Rivers, China: Contacts have been established with Chinese authorities in Beijing, Shanghai, Yichang, Zhenghou. It may be held in May-June, 2016, although we have been trying to hold in April-May. The Chinese authorities have asked for the names of visiting officials, which will be necessary for approvals at different offices and also for the visa; those take time. The Project Director is in the process of preparing and finalizing the list of officials and Bangladesh government approval.

D. Study Visit to Mississippi River, USA: The PD has recently requested the Team Leader to start processing for the Mississippi River study visit. The Team Leader has written to his contact in USA. Reply is yet to come.

2.3.3 Inception Report

The primary activity performed by the ISPMC during the reporting quarter was the preparation of an Inception Report for the project. The inception report provides a comprehensive ‘roadmap’ on how the consultant intends to perform its duties. The report details the tasks to be completed and outputs to be delivered over the next three years.

Specific major project activities detailed in the inception plan include:

1. institutional capacity strengthening
2. preparation of Project-2
3. long term river stabilization and training plans
4. preliminary master plan for river management
5. land recovery and river training piloting schemes

The main inception report consists of a main report (90 page) followed by an extensive set of annexes which provide details on all project components. Extensive background information, being part of the draft report has been removed based on the request of the SE Design Circle-1.

After the draft inception report was submitted in November 2015, the national stakeholder workshop was held on 9 December 2016. It was attended by senior members from the Ministry of Water Resources, BWDB, ADB, and Embassy of the Kingdom of the Netherlands (EKN), as well as a distinguished list of technical specialists from BWDB, other Government organizations, plus the consulting and academic communities. Subsequently, written comments were received in December and incorporated into the report in January. The final report was discussed in the technical advisory committee constituted “for monitoring and quality assurance of long term strategic river stabilization plan study and preliminary river management (RM) master plan study in connection with “Flood and Riverbank Erosion Risk Management Investment Program (FRERMIP)– Project-1” on 3 March 2016. Some additional observations were included into the report subsequently in close discussion with the PD PMO FRERMIP with the final version issues on ... March 2016.

2.3.4 River Study

With the Inception Report finalized, the execution of the River Study is proceeding unabated with the preparation of the long-term river stabilization plan, a framework for preparing long-term sector road map, and the preliminary river management master plan. In addition, the planning of pilot works (structural measures) worth around US\$5 Mil⁴ has been initiated to test approaches and technologies for potential future use in the main works.

The main focus of FRERMIP is the river stabilization with the preliminary master plan derived from it but with a wider focus on activities that become feasible as a direct result of the river stabilization. Close interaction between the two components is essential. A master plan requires details about the main river after river stabilization in order to plan for water uses and other potential economic activities.

The main components to be considered and studied are discussed below:

⁴ According to the EKN, the MoWR and Donors recently agreed with the Project Director to allocate additional financing to the pilot study, in part through variations of ongoing work contracts.

River Training

Issues to be studied include:

- the effect of narrowing the river on upstream water levels,
 - the river corridor and planform; answering the question whether the future river is capable of discharging large design floods,
 - the impact of river management on the sensitive char environment and char inhabitants, and
 - how to maintain or improve the performance of important tributaries and distributaries
-
- River bank erosion is the dominant risk along the main rivers: Jamuna, Padma, Lower Meghna. However, along the Upper and Lower Meghna, river navigation is the most important issue and will be studied in detail through the Dhaka-Chittagong Multi-modal Transport Corridor Development Project, financed by World Bank with around US\$ 400 Mil which is expected to start during 2016.

Flood Embankments

Flood embankments are currently at risk of being eroded away by the shifting river channels. Once the main river is controlled, new improved embankments can be constructed, which in addition to providing flood protection can also serve as transportation routes. However, it is important that gates and fish passes are strategically incorporated into the flood embankments, to prevent the separation of the floodplain environment from the river. Recent research suggests that wide embankments are necessary to guard against seepage failure, which needs to be considered in the embankment design. Roads may be accommodated on the embankment landside, and social forestry may be accommodated on its landside slope.

Land Reclamation

Reclaimed land is obviously an important generator of economic benefits. In particular, land with close connection to land infrastructure and navigation routes, where a river port can be established will be very attractive to industries. Government has a strong focus at the industrialization and establishment of economic zones of the new reclaimed land. This notwithstanding remains important to plan for preservation of the unique riverine ecosystem, and this valuable source of fish and recreational area.

Water Resource Management

During the reporting period, additional hydro-morphological data (water level, discharge and bathymetry) for the Main Rivers and the three major offtakes (Old Brahmaputra, Dhaleswari and the Arial Khan) have been collected. Collection of most recent data (2012 – 2015) for additional offtakes and rivers around Dhaka City circular routes are in progress. It is expected that these data would be available to consultants soon.

Offtakes and Distributaries

Improved performance of offtakes and their distributaries is a major potential benefit of the river training. The Dhaleswari System with its multiple offtakes will be the focus of the study, but also the Old Brahmaputra and Arial Khan will be included to some extent. After main river stabilization, offtake performance can be improved to provide adequate dry season flow and sufficient flood flow capacity. With proper design these offtakes may provide improved navigation, fisheries, and water quality in the rivers around Dhaka (in particular augmentation of the Buriganga River) while restricting suspended sediment loads that can restrict conveyance capacity.

Cross Border Navigation

The “Protocol on Inland Water Transit and Trade” between Bangladesh and India facilitates bilateral trade and commerce by cross border inland waterways. It has opened up excellent opportunity of trade between the two countries. Each country shall ensure smooth navigation in the protocol routes within its geographical jurisdiction and extend necessary navigational facilities such as pilots, conservancy services etc. Narayangonj, Khulna, Mongla, and Sirajgonj shall be used by Indian vessels as port of calls in Bangladesh and Kolkata, Haldia, Karimgonj and Pandua by Bangladesh vessels in India. The main river management will ensure these navigational facilities to benefit both the countries.

Pilot Works

The conditions at the land reclamation pilot works site downstream of Chauhali, originally proposed by the PPTA in 2013, have changed considerably due to the development of a cutoff channel. A closure would be required and that is too expensive to implement under the pilot works program (BDT 380 Mil or around US\$5 Mil is available for the pilot works). Hence shorter land recovery pilot works downstream of Chauhali are being considered now. In addition, the ToR specifically requests for piloting with structures which have to be located along medium/small rivers. Because of current fund limitations, the second test with land reclamation pilot works initially planned (under the PPTA) for Harirampur cannot be implemented. Moreover, upon closer inspection, pilot testing at Harirampur might not have been particularly feasible. Latest information from the EKN indicates that more funding will be allocated towards pilot works.

The inception report includes a tentative time schedule for the pilot works. It is suggested that the type and location of the pilot works is finalized during the next quarter, and that construction can be done during the 2016-2017 dry season.

Regional Planning and Social Development

Secondary information on regional planning in Bangladesh has been collected and assessed. Initial meetings have been held with the Center for Environmental and Geographic Information Services (CEGIS) and Urban Development Directorate (UDD) to obtain spatial data and plans regarding regional planning and development control.

Secondary information has been collected on the social impacts from previous water development projects, including Flood Action Plan (FAP) studies. Other social development activities initiated include:

- Stakeholder mapping
- Identification of key informants
- Planning of meetings with key stakeholders
- Preparation of a survey questionnaire format for people living on char land

During the current quarter, baseline data has been collected from the Bangladesh Bureau of Statistics (BBS), additional meetings will be held with key stakeholders, and Focus Group meetings will be planned in the next quarter.

Environmental Studies

Preparations for the Strategic Environmental Assessment (SEA) have been started: GoB and ADB requirements were reviewed, a tentative SEA outline was prepared and a list of required information was developed. The SEA will proceed next quarter, once the study area and stabilization scenarios have been finalized. This will be followed by assessing land use, habitats and socio-economic characteristics in the study area, and identifying existing spatial plans and expected impacts resulting from the considered river stabilization options.

Coordination

During the Inception workshop, the Minister and the Secretary, Ministry of Water Resources emphasized on the integration of Delta Plan Studies with the FRERMIP Study. In response to this request, a series of meetings were held with Delta Plan team members starting in December 2015 and continuing, to share data and coordinate planning approaches. ISPMC team members were also invited to Delta Plan seminar in February 2016 to share experiences. The team held meetings with the Delta Plan management in March to coordinate the activities with respect to overall Government planning (Five-Year Plans) and water sector planning (preparation of updated National Water Resources Plan). A joint workshop organized by Delta Plan and FRERMIP is also proposed around April/May 2016 to further promote integration.

The study team also continued the coordination of activities with relevant government organizations and other programs. On project level, several coordination meetings were held with the Char Livelihood Program. The team also met with WARPO and the Member Planning Commission, who asked for a concept note on river management submitted on 27 March 2016.

Outcomes

The deliverables from the River Study will provide input for preparing the Project II feasibility study. Milestones will include regular round table discussions with stakeholders based on technical notes, and the August 2016 workshop which will present outcomes from this initial process.

2.3.4 Environmental Management

During the reporting period PMO and SMO officers were verbally assigned responsibility for supervising environmental management. Two rounds of EMP compliance monitoring were conducted in February and March 2016 and reports were prepared for key involved parties. An estimate for conducting EMP training courses for BWDB officials and staff and contractors were prepared and sent to PMO for approval.

ToR for study on biodiversity baseline and fish sanctuary establishment was prepared and submitted to PMO for review. Potential NGOs for doing these studies were identified and consulted. However, to further identify the study needs a request was made to PMO to withhold the approval of the ToR until after ToR for EIA studies under Tranche 2 project is prepared.

Justification was prepared for introducing fish passes in the embankment. Planning for preparing EIA for Tranche 2 started.

First draft of a technical note on environmental and social impacts of river stabilization has been prepared for internal review with the aim to finalize the same by May 2016. A technical note on impacts on Fisheries is under preparation and the draft may be finalized in May 2016. Preparation of Strategic Environmental and Social Assessment has been (SESA) of the envisaged components under the River Management Master Plan is under preparation while the first draft may be ready by June 2016.

One PMO Executive Engineer will be responsible for environmental management and will work closely with the ISPMC's environmentalists in monitoring EMP implementation.

The details of the environmental management plan is showed in the **Appendix-E**.

2.3.5 Resettlement Services

Upon review of the resettlement Framework and Plan prepared during the PPTA (December 2013), the international Resettlement Specialists reviewed and finalised the Inception Report, Annex A5.1: Resettlement Plan, Land Acquisition Activities and Annex A5.2: Livelihood development. During the quarter, the protection works started in full swing in Chauhali, Harirampur and Zafargang but it will require land acquisition and limited resettlement. Based on the field visit during the quarter it was reported to PMO that the resettlement issue require immediate necessary actions in order to comply with the ADB social safeguards policies regarding involuntary resettlement.

Several meetings were held with the PMO to discuss the progress of appointment of an INGO that will be responsible for implementation of all resettlement activities. The technical and financial proposal dated of 11/1/2016 was sent to ADB for concurrence which was received beginning of March 2016. Upon receipt of the ADB concurrence on the technical and financial proposal, the contract between BWDB and the INGO (Voluntary Rural Development Society in joint venture with House of Consultants Ltd) was signed on the 16 of March 2016 and the INGO received a “Notice to proceed”. Accordingly some INGO representatives have made preliminary visit of one protection work site at Chouhali on 23/3/2016.

A meeting was held in the ISPMC office in green road with the INGO management in the afternoon on 27 March 2016 wherein they were asked to field their key experts so that implementation of resettlement activities may start soon. They reported that they will now prepare the inception report and mobilise the full team of experts on the 1st of April 2016

The replacement of the local resettlement specialist is now under process in the PMO since a long time. The replacement proposal needs to be approved without delay in order to ensure regular monitoring and close supervision of the resettlement works.

During the next quarter, the following activities will be initiated to assist and expedite resettlement of affected persons under Project I:

- Assist in the mobilisation of the newly appointed INGO to address the priority areas for survey and assessment of losses (protection works areas)
- Supervise the works of the INGO during implementation of the Resettlement Plan ahead of the embankment construction along the Jamuna and Hurrasagor Rivers (23 km) for Phase-1
- Cooperate with the INGO in land acquisition and resettlement activities in Chauhali, Zaffarganj and Harirampur riverbank protection areas.

2.3.6 Livelihood Development

The documents related to Livelihood Development prepared during the PPTA (December 2013) have been reviewed. Livelihood Development activities overlap with several other project components, particularly those related to Resettlement Plans, Community based Flood Risk Management, and Community based Operation and Maintenance (O&M). Livelihood Development issues have been discussed with other project team members to coordinate common planned activities; in particular the socio-economic survey.

The international and national Social Development Specialists prepared Inception Report, Annex A5.2, Social Development /Livelihood Support. This annex identifies and discusses social development issues including the Income and Livelihood Restoration Program (ILRP), and the Gender Action Plan (GAP). It reviewed survey tools developed to make the Livelihood Development Program more gender sensitive and focus on social development. The format for the proposed

socio-economic survey questionnaire was reviewed and finalized.

The Social Development Specialists met with PMO personnel to review the proposed Livelihood Development activities, and the processes required to deliver support to the most vulnerable households.

The Income Livelihood Restoration Plan (ILRP) will target poor and vulnerable groups, including poor female-headed households. The ILRP will include human resource development and occupational skill development training, and subsequent credit support for undertaking suitable Income Generating Activities (IGA) as well as small businesses. The main objective of the ILRP will be to improve or, at least restore, the income and livelihood of all project affected people.

The future activities on the ILRP will include engaging a national Livelihood Development INGO experienced in livelihood to conduct a 'demand study' which is first required to design and implement an appropriate livelihood program.

The ToR for the Livelihood Development support study has been prepared and submitted from PMO to ADB for concurrence. Under this study, an INGO will be engaged to implement the ILRP. In future, the Social Development Specialists will supervise and assist the INGO in the implementation of community capacity enhancement programs and the implementation of the gender action plan.

2.3.7 Community-Based Flood Risk Management

The ToR and cost estimate for the INGO that would implement the Community-based Flood Risk Management (CbFRM) project, called INGO-FRM, has been approved by ADB on 1 March 2016 along with a clearance to advertise this package through ADB's consulting services recruitment notice (CSRN). The advertisement has already been uploaded in CSRN for INGO-FRM together with the advertisement for offline EoI submission on two widely circulated national dailies i.e. Financial Express (English) and Samokal (Bangla).

The national and international CbFRM Specialists have developed the format in iPad of the multipurpose baseline survey questionnaire to carry out the survey in three designated sub-reaches by a team of trained investigators. It is envisaged cost of this survey will be jointly covered by the budget provision proposed in both INGO-FRM and INGO-Livelihood Development (or LD-INGO) packages and the survey will start soon after recruitment of these INGOs based on ADB guidelines. The rationale of co-financing of the survey lies in the fact that baseline data on project target people would mainly satisfy the purpose of both CbFRM and Livelihood Development sub-components to large extent during preparation, updating and implementation of the action plans in the areas addressing significant number of common target people.

Under the Regional Flood Risk Management subcomponent, the international CbFRM specialist will develop a Regional Flood Forecasting Response Plan based on BWDB Flood Forecasting predictions and including specific people to be contacted and specific actions to be taken by those people. If the proposed alternate study under the MIS Supporting Study is approved, the international CbFRM specialist would also supervise and assist the Consultant selected for that study entitled "Flood Risk Assessment and O&M Methodology" (Section 2.3.8).

Providing office accommodation at Department of Disaster Management (DDM) for the national CbFRM Specialist to promote close communication and cooperation between the BWDB, DDM and the ISPMC is still pending. It is expected from the early next quarter this accommodation will be made available.

2.3.8 Management Information Systems (MIS)

Under the MIS component, two databases are currently under development, and a ToR for an alternative MIS Support study is being prepared. The international MIS Specialist also wrote the Inception Report Annex A1: Details on MIS Activities which defines the project MIS framework, and proposed initiatives under the MIS component.

A working prototype version of the River Survey Database interface has been developed which currently includes for four tools: survey point elevations, river cross-sections, river longitudinal sections, and sediment areas and volumes. More tools will be developed next quarter including one to identify the river thalweg. An international intern will arrive in mid-February for a three month research project. Together with one of the ISPMC's river morphologists, they will use the River Survey Database to analyze a specific river reach to help predict future morphologic changes. These research results will be used during future training workshops to illustrate the functionality and utility of the River Survey Database.

A project implementation database has been developed to monitor project implementation and facilitate preparation of the QPR. The database monitors design, tendering, physical implementation, and financial activities. The database accommodates all project goods, services and works so that it can more comprehensively monitor all project activities. It can produce detailed tables showing progress on an individual contract or asset basis, and can also produce similar summary tables. Using cross-link tables, it is possible to produce tables that display ADB Financial Categories or DPP Components.

For the livelihood development component, a demand study database has been developed for designing appropriate program as a component of the MIS. The database will contain the information conveyed by the survey work to be implemented by an NGO which will be performed on the population already affected or to be affected by river erosion and the ongoing embankment construction work as a part of the resettlement plan. The ToR for the survey work is already prepared and waiting approval of the PMO and ADB. The questionnaire is prepared in iPad and the survey work will also be performed using iPad tools.

To monitor the daily construction progress, spreadsheet report formats have been developed under the MIS. The reports are developed and sent by the site engineers on a daily basis. The data from the reports are extracted to be presented in a graphical form. **Appendix-C** summarizes the integrated MIS activities.

As specified in the DPP, it was originally intended to develop an asset management system (AMS) under the project. However, an identical AMS is presently being implemented under the River Management Improvement Program (RMIP) which has six times the budget allocated under FRERMIP. Rather than duplicate the RMIP AMS (Ref. 5), it is proposed to use available funds under the MIS Support Study to implement a necessary prerequisite 'Flood Risk Assessment and O&M Methodology Study' which will benefit the AMS for both FRERMIP and RMIP, as well as other BWDB projects. This alternate Support Study would assess and quantify the consequences and likelihood of failure of BWDB project assets. It would provide the methodology, inputs and parameters necessary to fully utilize the functionality of the proposed risk-based AMS being developed under RMIP. The proposed methodology would be consistent with the Delft-FIAT (Flood impact assessment tool) currently being developed in Bangladesh under the Delta Plan.

3 ADMINISTRATIVE ARRANGEMENTS

3.3 Establishment of Project Office

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 Team is located at the Banani Office: House 45 (2nd Floor) Road 27, Banani, Dhaka.

Table C-1: Utilization of Consultant Person-Months details the time spent by all international and national specialists to the end of the month February. A total of 16 international specialists expended 26 person-months (p-m), and 22 national specialists expended 62 p-m, up to the end of the month February. The field supervision teams are fully mobilized and the study team has conducted a first block input during the months February/March.

3.4 Important Events

Three committees met for the first time during this quarter:

- (i) Technical committee on 4 February 2016: the committee discussed the extension of the work in response to morphological changes between feasibility study and work start. The committee recommended the work location and to extend the work length at Chauhali and Zaffarganj. In addition, the committee recommended to conduct subsoil investigation through variation of the construction contracts to cover the geotechnical stability.
- (ii) Steering Committee meeting on 10 February 2016 followed by site visit on 5 March 2016: The Steering Committee agreed to the extension of work at Chauhali and Zaffarganj.
- (iii) Technical Advisory Committee on 3 March 2016: The committee accepted the inception report subject to minor modifications to be finalized by the PD and ISPMC.

1st round table discussion with BWDB's upper level management on 28 March 2016. Attended by DG and three technical ADGs including important Chief Engineers and Superintending Engineers, the round table discussed issues impeding the Board's performance, dominantly the lack of staff and vision of water development. River bank protection and FRERMP were also discussed, but less prominently, due to the concentration on staffing and vision of BWDB issues. The participants appreciated the initiative, considered the format appropriate and welcomed the idea of a regular dialogue.

The work at two sites started:

- (i) Work at Harirampur on 22nd January, 2016
- (ii) Work at Zaffarganj on 8th March, 2016, through an inauguration ceremony in presence of the hon'ble Member of Parliament A M Naimur Rahman (Durjoy).

4 FINANCIAL ARRANGEMENTS

4.3 *Statements of Expenditure*

Using the project implementation database, the ISPMC will track amounts paid to contractors and consultants for project works, goods and services. This will help verify figures provided by the PMO. These bill values could also be used to determine total reimbursement by ADB Financial Category or by DPP Component.

Financial disbursement details on an individual contract basis are shown in **Table B-5**. The table shows the total amount paid to the contractor/NGO/consultant plus the distribution for each funding partner: ADB, GON and GOB. A summary of reimbursement applications for all disbursements (goods, services and works) is shown in **Table B-6**. This table also shows the total amount claimed and the reimbursement amounts paid by ADB in both BDT and US\$. Tables that show details of each individual bill by contract or application are also available, if and when required, to verify these two summary tables.

To date, three applications have been reimbursed by ADB. The total amount of all the bills is Tk 353 Mil (US\$2.11 Mil) or 4.4% of the total available project funds.

5 ISSUES FOR DISCUSSION AND AGREEMENT

5.3 Compliance with Covenants

The consultant has reviewed all particular covenants contained in the Loan Agreement, Program Agreement, and Grant Agreement (Ref. 3) and has identified no evidence to suggest that the BWDB (or ISPMC consultant) have violated any of the covenants.

5.4 PMO Under-Staffing

18 months after signing the loan agreement, the establishment and staffing of the BWDB PMO has not yet been completed. **Table 6** shows the proposed and actual staffing for senior personnel in the PMO.

Table 7 Proposed and Actual PMO Staffing

Position	Proposed ¹	Actual
Project Director	1	1
Superintending Engineer	2	1
Executive Engineer	4	1
Sub-Divisional Engineer	2	1
Assistant Engineer	2	1

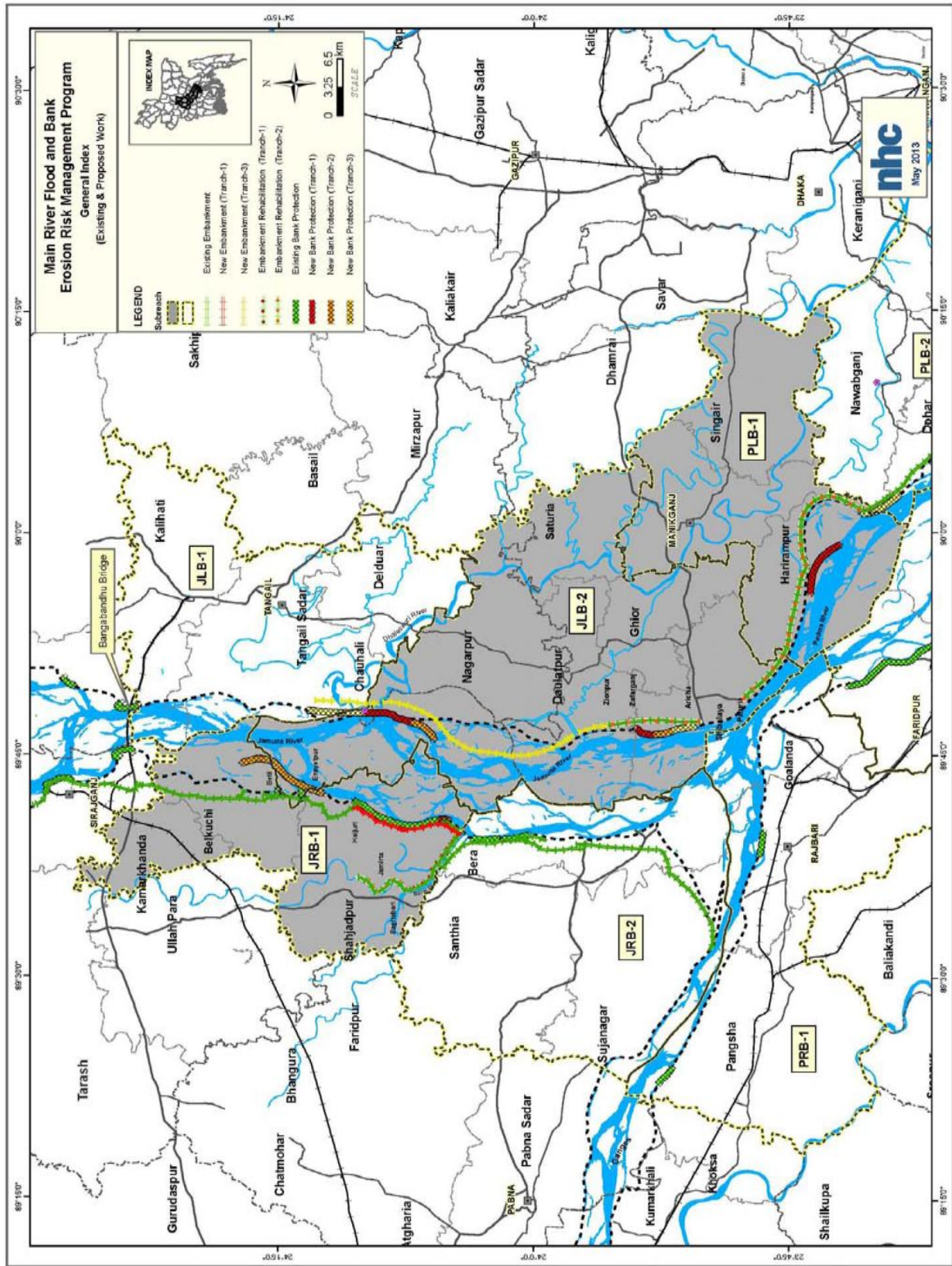
Source: DPP

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5. BWDB, 2015: Request for Proposals, RFP No.: RMIP/BWDB/S-25, Selection of Consulting Services for: Development and Operationalization of Asset Management System of Brahmaputra Right Embankment under River Management Improvement Program, Phase-I, 2015 September 15
6. NHC, 2013: Project Preparatory Technical Assistance 8054 BAN, Main River Flood and Bank Erosion Risk Management Program, Main Report, 2013 December

FIGURES

Figure 1: Project Location Map



TABLES

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Table A-1 Proposed Changes to Physical Progress Computation

Primary	Secondary	Weight	
		ISPMC	ADB ¹
1. Establishment & Recruitment	1.1 PMO Establishment and Staffing	2	4
	1.2 ISPMC Consultants Recruitment	2	4
	1.3 INGO Recruitment	2	2
2. Implementation; Project-1	2.1 Detailed Design	2	1
	2.2 Tender Documents Preparation	6	1
	2.3 Tendering and Contract Award	6	8
	2.4 Land Acquisition and Resettlement	8	5
	2.5 Project Management	6	6
	2.6 Physical Completion of Works	32	46
	2.7 Financial Disbursements	4	4
3. Knowledge Base & Capacity	3.1 Knowledge Base & Tech. Studies	4	4
	3.2 CBFMR Activities	6	4
	3.3 MIS Project Mgmt. Module	4	5
4. River Stud/Piloting/Master Plan	4.1 Long-term stabilization study	4	4
	4.2 Land recovery piloting	2	2
5. Preparation; Project-2	5.1 Feasibility Study; Project-2	6	0
	5.2 Detailed Design; Project-2	4	0
Totals		100	100

Note 1. Source: FRERMIP ADB Facility Administration Manual; Appendix 5

Table A-2 Project Program Summary **Quantity (Units)**

Component	Asset Type	Units	WDB	DDM	MAN	KOI	TAN	Totals
A: Civil Works								
A1: Embankment Works	Cons/ReCon: Embank	km	0	0	0	11	0	11
	New: Embank	km	0	0	0	13	0	13
	New: Infrastr	BDTM	0	0	5	0	0	5
	New: Regulator	No	0	0	0	4	0	4
	New: Road	km	0	0	0	5	0	5
	Repair: Regulator	No	0	0	0	3	0	3
A2: Riverbank Prot Works	New: Revetment	km	0	0	9	1	5	15
A3: Emerg & Adaptation	Emerg: AdpRivProt	BDTM	54	0	0	0	0	54
A4: Pilot Land Recovery	New: RivTrnWrk	BDTM	380	0	0	0	0	380
B: Materials								
B1: Geotextile, Civil Works	Procure: GeoBag	Mil	0	0	3	2	0	4
B2: Geotextile, Emerg	Procure: AdpGeoBag	Mil	1	0	0	0	0	1
C: Vehicles & Equipment								
C1: Vehicles/Transport	Procure: Veh/Trans	No	16	0	0	0	0	16
C2: Office Equipment	Procure: Equip	BDTM	13	0	0	0	0	13
C3: Survey Equipment	Procure: Equip	BDTM	11	0	0	0	0	11
C4: DDM Office Eqpt	Procure: Equip	BDTM	0	1	0	0	0	1
D: Consulting Services								
D1: ISPM; Consultant Serv.	Service: Feasi.Stud	BDTM	173	0	0	0	0	173
	Service: Instit.Cap	BDTM	387	0	0	0	0	387
	Service: Riv.Stabil	BDTM	458	0	0	0	0	458
D2: INGO BWDB	Service: Liveli.Sup	BDTM	65	0	0	0	0	65
	Service: O&M	BDTM	24	0	0	0	0	24
	Service: Resettle.S	BDTM	18	0	0	0	0	18
D3: INGO DDM	Service: CBFRM	BDTM	0	67	0	0	0	67
D4: Survey & Investigation	Service: EvironMngt	BDTM	60	0	0	0	0	60
	Service: Eros.Pred	BDTM	143	0	0	0	0	144
E: Capacity Development								
E1: BWDB Training & Study	Service: Training	BDTM	68	0	0	0	0	68
E2: DDM Training	Service: Training	BDTM	0	2	0	0	0	2
E3: MIS Development	Service: Instit.Cap	BDTM	34	0	0	0	0	34
F: Land Acqn & Resettle								
F1: Land Compensation	Compensate: Land.Acqu	BDTM	885	0	0	0	0	885
F2: Resettle Benefits	Compensate: Resettle.B	BDTM	30	0	0	0	0	30
G: Program Management								
G1: Staff Salaries BWDB	Service: Prog.Mngt	BDTM	84	0	0	0	0	84
G2: Office Opns BWDB	Service: Prog.Mngt	BDTM	50	0	0	0	0	50
G3: Office Opns DDM	Service: Prog.Mngt	BDTM	0	12	0	0	0	12
G4: BWDB River Surveys	Service: Riv.Surv	BDTM	8	0	0	0	0	8
	Service: LandSurvey	BDTM	0	0	0	0	0	0
X: Interest & Serv.Charge								
X1: on Netherland Grant	Compensate: Interest	BDTM	199	0	0	0	0	199

Table A-3 Project Cost Summary

Cost (BDT Mil)

Component	Asset	WDB	DDM	MAN	KOI	TAN	Totals
A: Civil Works							
A1: Embankment Works	Cons/ReCon: Embank	0	0	0	220	0	220
	New: Embank	0	0	0	371	0	371
	New: Infrastr	0	0	5	0	0	5
	New: Regulator	0	0	0	135	0	135
	New: Road	0	0	0	198	0	198
	Repair: Regulator	0	0	0	6	0	6
A2: Riverbank Prot Works	New: Revetment	143	0	1,054	181	774	2,152
A3: Emerg & Adaptation	Emerg: AdpRivProt	54	0	0	0	0	54
A4: Pilot Land Recovery	New: RivTrnWrk	380	0	0	0	0	380
							3,520
B: Materials							
B1: Geotextile, Civil Works	Procure: GeoBag	0	0	685	395	0	1,080
B2: Geotextile, Emerg	Procure: AdpGeoBag	226	0	0	0	0	226
							1,306
C: Vehicles & Equipment							
C1: Vehicles/Transport	Procure: Veh/Trans	64	0	0	0	0	64
C2: Office Equipment	Procure: Equip	9	0	0	0	0	9
C3: Survey Equipment	Procure: Equip	9	0	0	0	0	9
C4: DDM Office Eqpt	Procure: Equip	0	1	0	0	0	1
							82
D: Consulting Services							
D1: ISPM; Consultant Serv.	Service: Feasi.Stud	173	0	0	0	0	173
	Service: Instit.Cap	387	0	0	0	0	387
	Service: Riv.Stabil	458	0	0	0	0	458
D2: INGO BWDB	Service: Liveli.Sup	65	0	0	0	0	65
	Service: O&M	24	0	0	0	0	24
	Service: Resettle.S	16	0	0	0	0	16
D3: INGO DDM	Service: CBFRM	0	67	0	0	0	67
D4: Survey & Investigation	Service: EvironMngt	60	0	0	0	0	60
	Service: Eros.Pred	87	0	0	0	0	87
							1,337
E: Capacity Development							
E1: BWDB Training & Study	Service: Training	68	0	0	0	0	68
E2: DDM Training	Service: Training	0	2	0	0	0	2
E3: MIS Development	Service: Instit.Cap	34	0	0	0	0	34
							104
F: Land Acqn & Resettle							
F1: Land Compensation	Compensate: Land.Acqu	885	0	0	0	0	885
F2: Resettle Benefits	Compensate: Resettle.B	30	0	0	0	0	30
							914
G: Program Management							
G1: Staff Salaries BWDB	Service: Prog.Mngt	84	0	0	0	0	84
G2: Office Opns BWDB	Service: Prog.Mngt	50	0	0	0	0	50
G3: Office Opns DDM	Service: Prog.Mngt	0	12	0	0	0	12
G4: BWDB River Surveys	Service: Riv.Surv	8	0	0	0	0	8
	Service: LandSurvey	0	0	0	0	0	0
							154
X: Interest & Serv.Charge							
X1: on Netherland Grant	Compensate: Interest	199	0	0	0	0	199
							199
Grand Totals		3,513	81	1,744	1,505	774	7,617

Table A-4 ADB Financial Categories with Total Cost and Progress

Code	Outputs	Value (BDT Mil)			
		Total Cost Est.	Fiscal Target	Implem Progress	Bill Amount
1	Works	3,520	428	215	232
2	Materials	1,306	1,003	786	89
3A	Vehicles - BWDB	64	54	0	
3B	Equipment - BWDB	18	16	2	2
3C	Equipment -DDM	1	0	0	
4	Resettlement	30	8	0	
5	Training	104	49	0	
6A	Consulting Services - Project Management -BWDB	1,018	322	59	23
6B	Consulting Services - NGO Services - BWDB	252	156	5	5
6C	Consulting Services - Project Management -DDM	67	10	0	
7A	Project Management - BWDB	58	7	19	2
7B	Project Management - DDM	12	4	0	
8	Interest	199	10	0	
9	Unallocated	968	315	32	
Total		7,617	2,383	1,118	353

Table A-5 DPP Categories with Total Cost and Progress

Code	Categories	Total Cost Est.	Value (BDT Mil)		
			Fiscal Target	Physical Progress	Bill Amount
Revenue Component					
4826	Interest & Service Charge for Netherland Grant	199	10	0	
4840	Capacity Development Program	104	49	0	
4849	Resettlement Support Program	30	8	0	
4874	ISPMC; Implementation Consultant Services	387	100	27	9
4874	ISPMC; River Stabilization and Land Recovery Study	458	157	32	10
4874	ISPMC; Feasibility of Tranch-2/3 Project	173	65	0	4
4874	Resettlement Implementation Support	16	9	0	
4874	Livelihood Support Program	65	3	0	
4874	Environmental Management Program	60	0	0	
4874	Community-based Flood Management Program (DDM)	67	10	0	
4874	Participatory Regular O&M Training Support	24	0	0	
4886	Land/River Survey and Data Processing	8	2	0	0
4886	Survey and Investigation Data Processing	87	144	5	5
4700	PMO Salaries and Allowances	84	0	32	
4800	PMO Operational Expenses	50	5	19	2
4899	PMU DDM Oprational Expenses	12	4	0	
Revenue Totals		1,824	566	115	30
Capital Component					
6807	Transport Vehicles (Jeep 5, Motorcycle 10 and Speed Boat 1)	64	54	0	
6819	Computer and Office Equipment BWDB	9	9	2	2
6819	Computer and Office Equipment DDM	1	0	0	
6851	Survey Equipment	9	7	0	
6901	Land Acquisition (136 ha)	885	315	0	
7016	Construction of Inspection Bangalow at Manikganj	5	1	0	
7041	Regulator (new 4 and repair 3) in JRB1	140	0	0	
7081	Embankment (23 km) along RB Jamuna and LB Baria-Hurasagar, with Road (5 km)	789	0	0	
7081	Protective Works at RB Jamuna at Kaijuri, LB Jamuna at Chaulhali, Jafforganj & Harirampur (15 km)	3,232	1,422	1,001	321
7081	Land Recovery/River Training Works	380	0	0	
7901	Adaptive Protection and Emergency	280	8	0	
Capital Totals		5,793	1,817	1,003	323
Grand Total		7,617	2,383	1,118	353

Table B-1 Design Progress Details

Description	Total	Design Data Collection			Prog (%)		Remarks
		Hydrol	Surv	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	80	0	Design in Progress
Cons/ReCon: Embank: 5.7 km: Embankment Reconst. (5.7 km): Baghabari - Verakhola; km 17.3-23		c	c	na	80	0	Design in Progress
New: Embank: 5 km: Embankment (5 km): Kaijuri - Bhatpara; km 0-5		c	c	na	80	0	Design in Progress
New: Embank: 3.5 km: Embankment (3.5 km): Bhatpata - Gala; km 5-8.5		c	c	na	80	0	Design in Progress
New: Embank: 4 km: Embankment (4 km): Gala - Verakhola; km 8.5-12.5		c	c	na	80	0	Design in Progress
New: Regulator: 1 No: Kaijuri Reg 6V 1.5x1.8m		c	p	n	0	0	Some Survey Data Recd
New: Regulator: 1 No: Gudhibari Reg 1V 1.5x1.8m		c	p	n	0	0	Some Survey Data Recd
New: Regulator: 1 No: Gala Reg 4V 1.5x1.8m		c	p	n	0	0	Some Survey Data Recd
New: Regulator: 1 No: Lochna Reg 2V 1.5x1.8m		c	p	n	0	0	Some Survey Data Recd
New: Road: 5 km: Road (5 km): Kaijuri - Bhatpara; km 0-5		c	p	n	0	0	Some Survey Data Recd
Repair: Regulator: 3 No: Regulator Repair (3 Nos.): Bherakhola, Andermanik & Lochna		n	n	n	0	0	Design Not Yet Started
New: Revetment: 1 km: Revetment (1 km): Kojjhuri/Verkola		n	n	n	0	0	Design Not Yet Started
Koitola SMO Totals	12	10	5	0	0	0	
Manikganj SMO							
New: Infrastr: 5 BDTM: Construction of Inspection Bungalow		n	n	n	0	0	Design Not Yet Started
New: Revetment: 2 km: Revetment (2 km): Zaffarganj; km 6.1-8.1		c	c	c	100	100	Desn. & Dwg. Complete
New: Revetment: 3.5 km: Revetment (3.5 km): Harirampur; km 0-3.5		c	c	c	100	100	Desn. & Dwg. Complete
New: Revetment: 3.5 km: Revetment (3.5 km): Harirampur; km 3.5-7		c	c	c	100	100	Desn. & Dwg. Complete
Manikganj SMO Totals	4	3	3	3	3	3	
Tangail SMO							
New: Revetment: 2.5 km: Revetment (2 km): Chauhali; km 0- 2.5		c	c	c	100	100	Desn. & Dwg. Complete
New: Revetment: 2.5 km: Revetment (2.5 km): Chauhali; km 2.5-5.0		c	c	c	100	100	Desn. & Dwg. Complete
Tangail SMO Totals	2	2	2	2	2	2	
Component Totals	18	15	10	5	5	5	

Legend:

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

Table B-2 Tender Progress Details

Package Code	Description	Estimated Cost (BDT Mil)	Bid Price (BDT Mil)	ADB TOR Date	Eol Notice Date	Eol Received Date	ADB Bid Doc. Date	Tender Notice Date	Tender Received Date	Eval. Comp. Date	ADB Concur. Date	Appr.Compl. Authority Date	Notif. Award Date
Goods; B: Materials													
G-01	Supply of Geobags; Chouhali, Sirajganj	478.98	317.36				14Dec26	31Dec14	19Feb15	04Aug15	29Apr15	07Jan15	01Jul15
G-02	Supply of Geobags; Zaforganj, Harirampur, Manikganj	635.12	410.99				14Dec26	31Dec14	19Feb15	04Aug15	29Apr15	07Jan15	01Jul15
G-03	Supply of Geobags; Harirampur, Manikganj	407.90	274.01				15May19	19May15	06Jul15	08Dec15	27Aug15	22Sep15	27Sep15
Component Totals				0	0	0	3	3	3	3	3	3	3
Goods; C: Vehicles & Equipment													
G-05.1	2016 Supply of Jeep;	7.13					26Feb16	29Feb16	31Mar16				
G-07.1	2015 Office Equipment; BWDB PMO	2.49	2.20					13Apr15	17May15				28May15
G-07.2	2016 Office Equipment; BWDB PMO	2.50	2.18				10Apr15	03Jan16	04Feb16	29Feb16			30Mar16
G-08.1	2016 Supply of Survey Equipments;	7.49	6.75				10Apr15	03Jan16	04Feb16	29Feb16	14Mar16	14Mar16	16Mar16
Component Totals				0	0	0	3	4	4	2	1	1	3
Services; D: Consulting Services													
S-01	ISPMC; Tranche 1;	1068.45	1018.19		23Oct14	15Dec14		01Apr15	01Jun15				08Sep15
S-02	Resettlement Plan;	17.49	16.20	22Apr15	09Jun15	09Jul15	22Oct15	11Nov15	10Dec15	11Jan16	04Mar16	15Mar16	16Mar16
S-07.1	2015 Erosion & Morphological Chg; Jamuna, Ganges, Padma	4.72	4.60					23Dec14	01Jan15				29Jan15
S-07.2	2016 Erosion Prediction;	25.29		23Feb16				23Feb16	15Mar16	24Mar16	28Mar16		
Component Totals				2	2	2	1	4	4	2	2	1	3
Services; G: Program Management													
S-06.1	River Survey Work; left bank Padma & Jamuna	0.15	0.15					01Apr15	01Apr15				01Apr15
S-06.2	Survey Work for Land Acquisition; Hat-Pachi to Dombaria	0.20	0.20					03Jun15	03Jun15				03Jun15
S-06.3	Land/River Survey Work; Jamuna at Chouhali 7km	0.15	0.15					12Jun15	12Jun15				12Jun15
Component Totals				0	0	0	0	3	3	0	0	0	3
Works; A: Civil Works													
W-06	Revetment; Jamuna at Chauhali, R1; km 0-2.5	440.85	386.94				30Mar15	04May15	08Jun15	28Jul15	14Aug15	22Sep15	23Sep15
W-07	Revetment; Jamuna at Chauhali, R2; km 2.5-5.0	442.09	387.47				30Mar15	04May15	08Jun15	28Jul15	14Aug15	22Sep15	23Sep15
W-08	Revetment; Jamuna at Zaffarganj, km 6.1-8.1	632.35	557.84				11May15	22Jun15	27Jul15	08Oct15	04Dec15	03Feb16	03Feb16
W-09	Revetment; Padma at Harirampur, R1; km 0-3.5	295.64	271.28				11May15	22Jun15	27Jul15	04Nov15	10Dec15	30Dec15	30Dec15
W-10	Revetment; Padma at Harirampur, R2; km 3.5-7	245.08	224.88				11May15	22Jun15	27Jul15	04Nov15	10Dec15	30Dec15	30Dec15
Component Totals				0	0	0	5	5	5	5	5	5	5
Project Totals				2	2	2	12	19	19	12	11	10	17

Table B-3 Implementation Progress Details, by Contract

Contract Code	Description	Contractor	Best Cost Estimate (BDT Mil)	Progress					Remarks
				during Qtr%	31-Mar-2016 Current Qtr (%)	30-Jun-2016 Next Qtr (%)			
Goods									
B: Materials									
G-01	Supply of Geobags: Chouhali, Sirajganj	BJ Geo-Textile	317.4	62	90	285.6	100	317.4	Satisfactory Progress
G-02	Supply of Geobags: Zafarganj, Harirampur, Manikganj	BJ Geo-Textile	411.0	52	67	275.4	100	411.0	Satisfactory Progress
G-03	Supply of Geobags: Harirampur, Manikganj	DFL-DCTL(JV)	274.0	64	82	224.7	100	274.0	Satisfactory Progress
Component Totals			1,002.4			785.7		1,002.4	
C: Vehicles & Equipment									
G-07.1	2015 Office Equipment: BWDB PMO	Logitech Computer Ltd.	2.2	0	100	2.2	100	2.2	Implementation Complete
Component Totals			2.2			2.2		2.2	
Goods Totals			1,004.6			787.9		1,004.6	
Services									
D: Consulting Services									
S-01	ISPMC; Tranche 1:	NHC (JV) Mott MacDonald	1,018.2	0	5.81	59.2	13.8	140.5	Implementation Started
S-07.1	2015 Erosion & Morphological Chg: Jamuna, Ganges, Padma	CEGIS	4.6	0	100	4.6	100	4.6	Implementation Complete
Component Totals			1,022.8			63.8		145.1	
G: Program Management									
S-06.1	River Survey Work: left bank Padma & Jamuna	M/S Hasib Enterprise	0.1	0	100	0.1	100	0.1	Implementation Complete
S-06.2	Survey Work for Land Acquisition: Hat-Pachi to Dombaria	Md. Salim Ektiar	0.2	0	100	0.2	100	0.2	Implementation Complete
S-06.3	Land/River Survey Work: Jamuna at Chouhali 7km	M/S Biplob Enterprise	0.1	0	100	0.1	100	0.1	Implementation Complete
Component Totals			0.5			0.5		0.5	
Services Totals			1,023.3			64.3		145.6	
Works									
A: Civil Works									
W-06	Revetment: Jamuna at Chauhali, R1; km 0-2.5	I-J (JV)	386.9	10	12	46.4	25	96.7	Satisfactory Progress
W-07	Revetment: Jamuna at Chauhali, R2; km 2.5-5.0	I-J (JV)	387.5	10	20	77.5	30	116.2	Satisfactory Progress
W-08	Revetment: Jamuna at Zaffarganj, km 6.1-8.1	WEL-NZK-PTSL (JV)	557.8	1	1	5.6	10	55.8	Construction Started
W-09	Revetment: Padma at Harirampur, R1; km 0-3.5	M.M.Builders & Engineers Lt	271.3	15	15	40.7	40	108.5	Construction Started
W-10	Revetment: Padma at Harirampur, R2; km 3.5-7	M.M.Builders & Engineers Lt	224.9	20	20	45.0	40	90.0	Construction Started
Component Totals			1,828.4			215.2		467.2	
Works Totals			1,828.4			215.2		467.2	
eXtra									
G: Program Management									
X-02	BWDB Staff Salaries:	n/a	83.7	5	38	31.8	43	36.0	Satisfactory Progress
X-03	BWDB Office Operations:	n/a	49.6	5	38	18.8	43	21.3	Satisfactory Progress
Component Totals			133.3			50.6		57.3	
eXtra Totals			133.3			50.6		57.3	
ProjectTotals			3,989.5			1,117.9		1,674.7	

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	317.36
G-02	Geobags 1.25x1.00m; Zaforganj & Harirampur, Manikganj	410.99
G-03	Geobags 1.25x1.00m; Harirampur, Manikganj	274.01
G-04.1	Supply of Geobags; Koitola	77.45
		1,079.81
Component B2: Materials Geotextile, Emerg		
G-04.2	Supply of Geobags; Emergency & Adaptation	226.00
Component C1: Vehicles & Equipment Vehicles/Transport		
G-05.1	Jeep;	7.13
G-05.2	2017 Supply of Jeep;	10.87
G-06	Supply of Speed Boat; Supply of Motorcycle; Supply of Jeep;	46.14
		64.14
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
G-07.3	2017 Office Equipment; BWDB PMO	4.25
		8.62
Component C3: Vehicles & Equipment Survey Equipment		
G-08.1	Supply of Survey Equipments;	6.75
G-08.2	Supply of Survey Equipments;	2.15
		8.90
Component C4: Vehicles & Equipment DDM Office Eqpt		
G-09	Supply of Computers & Photocopiers;	0.58
Goods Total		1,388.04
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;	65.13
S-05	Community Based O&M Training;	24.00
		105.33
Component D3: Consulting Services INGO DDM		
S-04	Cb Flood Risk Mngmt;	66.78
Component D4: Consulting Services Survey & Investigation		
S-07.1	2015 Erosion & Morphological Chg; Jamuna, Ganges, Padma R	4.60
S-07.2	2016 Erosion Prediction;	25.29
S-07.3	2017 Data Processing;	56.83
S-10	Environmental Management Services;	59.78
		146.50
Component E3: Capacity Development MIS Development		
S-08	MIS Development, Support 1;	12.88
S-09	MIS Development, Support 2;	21.52
		34.40
Component G4: Program Management BWDB River Surveys		
S-06.1	River Survey Work; Padma LB & Jamuna LB	0.15
S-06.2	Survey Work for Land Acquisition; Hat-Pachi to Dombaria	0.20
S-06.3	Land/River Survey Work; Jamuna at Chouhali 7km	0.15
S-06.4	Bathymetric River Survey;	7.85
		8.35

Table B-4 Project Program by Contract

Code	Description	Cost (BDT Mil)
Services		
Services Total		1,379.54
Works		
Component A1: Civil Works Embankment Works		
W-01	Embankment (5 km); Kaijuri - Bhatpara; km 0-5 Road (5 km); Kaijuri - Bhatpara; km 0-5 Kaijuri Reg 6V 1.5x1.8m; Gudhibari Reg 1V 1.5x1.8m;	414.03
W-02	Embankment (3.5 km); Bhatpata - Gala; km 5-8.5	105.52
W-03	Embankment (4 km); Gala - Verakhola; km 8.5-12.5	119.82
W-04	Embankment Reconst. (4.8 km); Baghabari - Verakhola; km 12.5-17.3 Gala Reg 4V 1.5x1.8m;	144.61
W-05	Embankment Reconst. (5.7 km); Baghabari - Verakhola; km 17.3-23 Lochna Reg 2V 1.5x1.8m; Regulator Repair (3 Nos.); Bherakhola, Andermanik & Lochna	145.45
W-16	Construction of Inspection Bungalow;	5.00
		934.43
Component A2: Civil Works Riverbank Prot Works		
W-06	Revetment (2 km); Chauhali; km 0- 2.5	386.94
W-07	Revetment (2.5 km); Chauhali; km 2.5-5.0	387.47
W-08	Revetment (2 km); Zaffarganj; km 6.1-8.1	557.84
W-09	Revetment (3.5 km); Harirampur; km 0-3.5	271.28
W-10	Revetment (3.5 km); Harirampur; km 3.5-7	224.88
W-11.1	Revetment (1 km); Koijhuri/Verkola	180.62
W-11.2	Revetment; Unallocated	143.00
		2,152.03
Component A3: Civil Works Emerg & Adaptation		
W-12	Emergency/Adaptive 1; Riverbank Protection	17.82
W-13	Emergency/Adaptive 2; Riverbank Protection	18.36
W-14	Emergency/Adaptive 3; Riverbank Protection	17.82
		54.00
Component A4: Civil Works Pilot Land Recovery		
W-15	River Training Pilot Work; & Land Recovery	379.80
Works Total		3,520.26
eXtra		
Component E1: Capacity Development BWDB Training & Study		
X-05	BWDB Training and Study Tours;	68.45
Component E2: Capacity Development DDM Training		
X-06	DDM Training;	1.60
Component F1: Land Acqn & Resettle Land Compensation		
X-07	Land Compensation;	884.79
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;	49.60
Component G3: Program Management Office Opns DDM		
X-04	DDM Office Operations;	12.07
Component X1: Interest & Serv.Charge on Netherland Grant		
X-01	ADB Interest & Service Charge;	199.20
eXtra Total		1,329.08
Project Total		7,616.93

Table B-5 Disbursement Summary by Contract

Code	Description	Total Amount (BDT)	ADB (BDT)	GON (BDT)	GOB (BDT)
Goods					
B1 Geotextile, Civil Works					
G-01	Supply of Geobags; Chouhali, Sirajganj	28,438,882	28,438,882	0	0
G-02	Supply of Geobags; Zaforganj, Harirampur, Manikganj	36,829,036	36,829,036	0	0
G-03	Supply of Geobags; Harirampur, Manikganj	23,896,480	23,896,480	0	0
Component Total		89,164,398	89,164,398	0	0
C2 Office Equipment					
G-07.1	2015 Office Equipment; BWDB PMO	2,197,630	2,087,749	0	109,882
Component Total		2,197,630	2,087,749	0	109,882
Goods Total		91,362,028	91,252,147	0	109,882
Services					
D1 ISPM; Consultant Serv.					
S-01	ISPMC; Tranche 1;	23,187,604	3,014,389	17,158,827	3,014,389
Component Total		23,187,604	3,014,389	17,158,827	3,014,389
D4 Survey & Investigation					
S-07.1	2015 Erosion & Morphological Chg; Jamuna, Ganges, Padma	4,600,000	4,002,000	0	598,000
Component Total		4,600,000	4,002,000	0	598,000
G4 BWDB River Surveys					
S-06.1	River Survey Work; left bank Padma & Jamuna	141,500	124,520	0	16,980
S-06.2	Survey Work for Land Acquisition; Hat-Pachi to Dombaria	200,000	176,000	0	24,000
S-06.3	Land/River Survey Work; Jamuna at Chouhali 7km	149,860	131,877	0	17,983
Component Total		491,360	432,397	0	58,963
Services Total		28,278,964	7,448,785	17,158,827	3,671,352
Works					
A2 Riverbank Prot Works					
W-06	Revetment; Jamuna at Chauhali, R1; km 0-2.5	64,455,851	58,654,824	0	5,801,027
W-07	Revetment; Jamuna at Chauhali, R2; km 2.5-5.0	17,536,363	106,958,090	0	10,578,273
W-09	Revetment; Padma at Harirampur, R1; km 0-3.5	27,127,898	24,686,387	0	2,441,511
W-10	Revetment; Padma at Harirampur, R2; km 3.5-7	22,487,982	20,464,064	0	2,023,918
Component Total		231,608,094	210,763,366	0	20,844,728
Works Total		231,608,094	210,763,366	0	20,844,728
eXtra					
G2 Office Opns BWDB					
X-03	BWDB Office Operations;	1,713,459	1,507,844	0	205,615
Component Total		1,713,459	1,507,844	0	205,615
eXtra Total		1,713,459	1,507,844	0	205,615

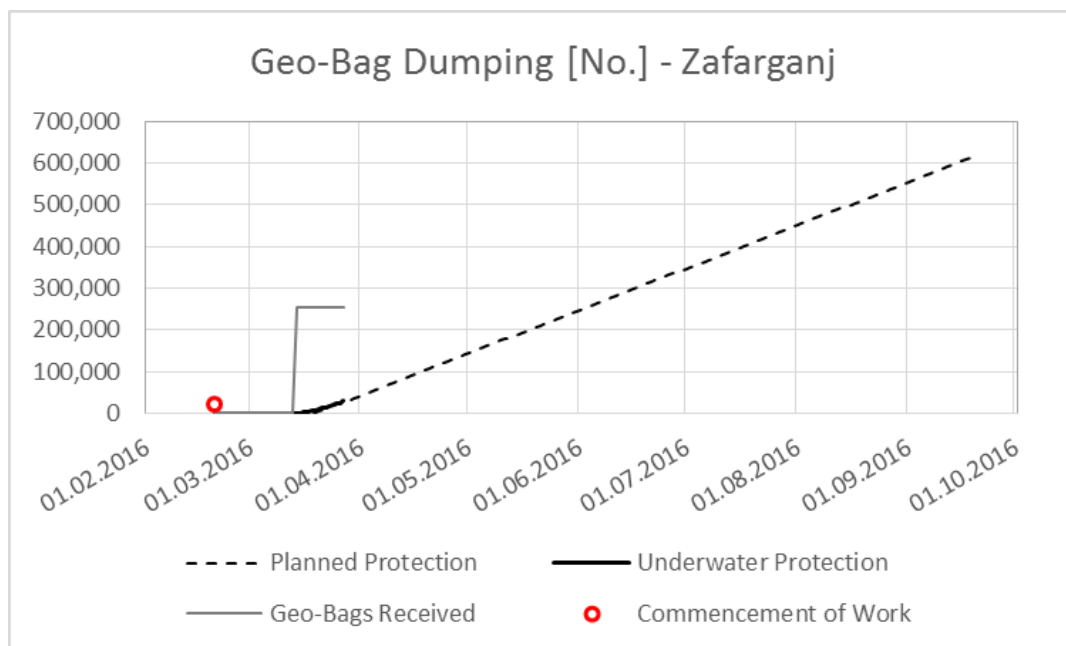
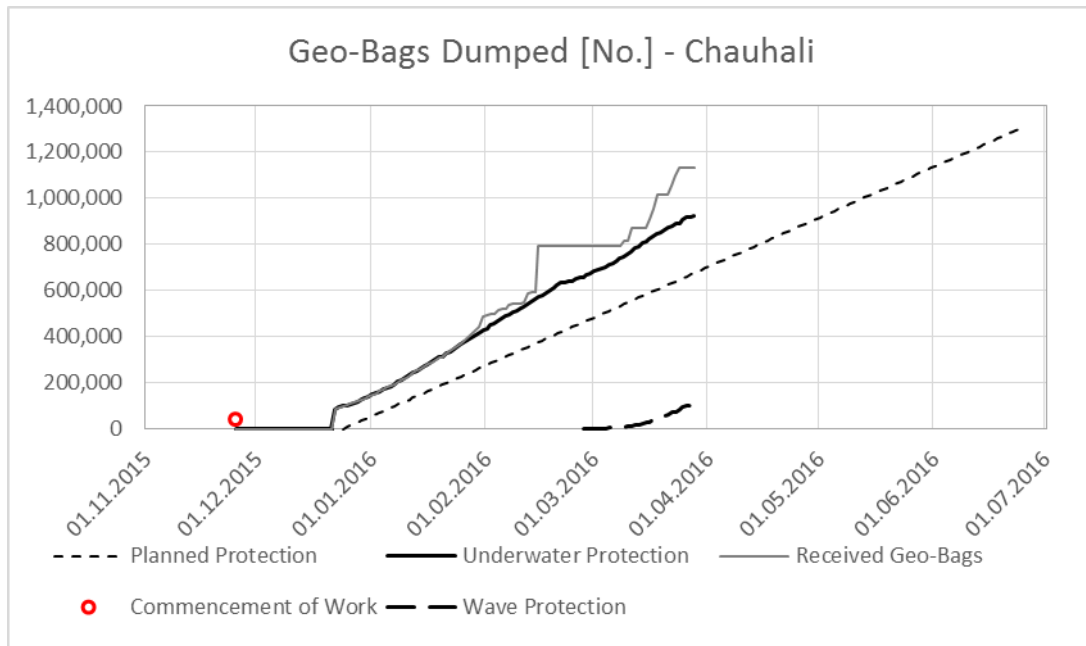
Table B-5 Disbursement Summary by Contract

Code	Description	Total Amount (BDT)	ADB (BDT)	GON (BDT)	GOB (BDT)
<i>Project Total</i>		352,962,545	310,972,141	17,158,827	24,831,577

Table B-6 Reimbursement Summary by Application

Acct. Type	Applic. No.	Date	Page	Category	Total Amount (BDT)	ADB (BDT)	Rate of US	US (\$)
L/C	001	22-Sep-15	01	2	64,380,820	64,380,820	77.80	827,517
Imprest	006	14-Sep-15	01	7A	596,191	524,648	77.80	6,744
			02	6B	4,600,000	4,002,000	77.80	51,440
			03	3B	2,197,630	2,087,749	77.80	26,835
			04	7A	457,804	402,868	77.80	5,178
			05	7A	200,000	176,000	77.80	2,262
			06	7A	149,860	131,877	77.80	1,695
Imprest	008	03-Dec-15	01	1	77,441,455	70,471,724	78.74	894,993
			02	2	23,896,480	23,896,480	78.74	303,486
L/C	009	23-Feb-16	01	6A	18,202,931	2,366,381	77.57	30,504
Imprest	011	07-Mar-16	01	1	154,166,639	140,291,641	78.74	1,781,707
			02	2	887,098	887,098	78.74	11,266
L/C			03	6A	4,597,309	597,650	78.74	7,590
Imprest			04	7A	800,964	704,848	78.74	8,952
L/C	012	20-Mar-16	01	6A	387,364	50,357	78.74	640
Project Totals					352,962,545	310,972,141		3,960,808

Chart B1



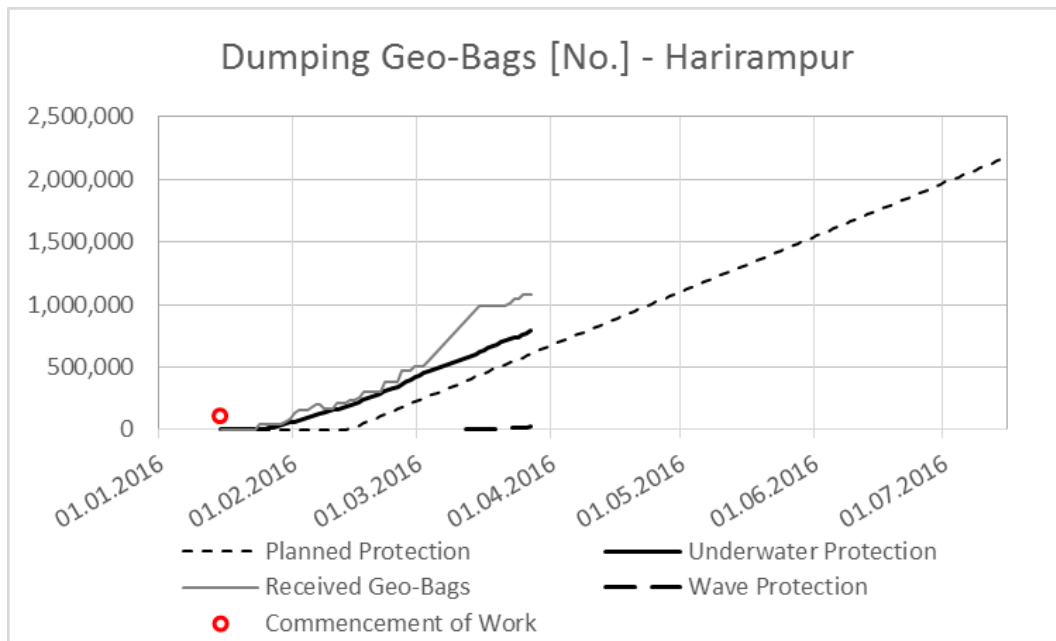


Chart B2

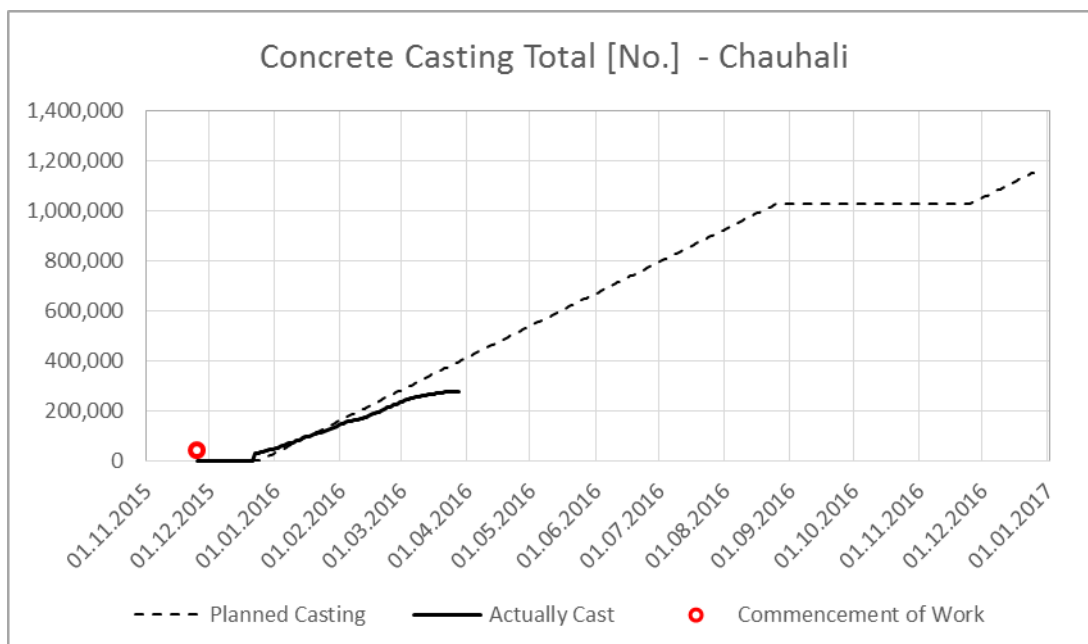
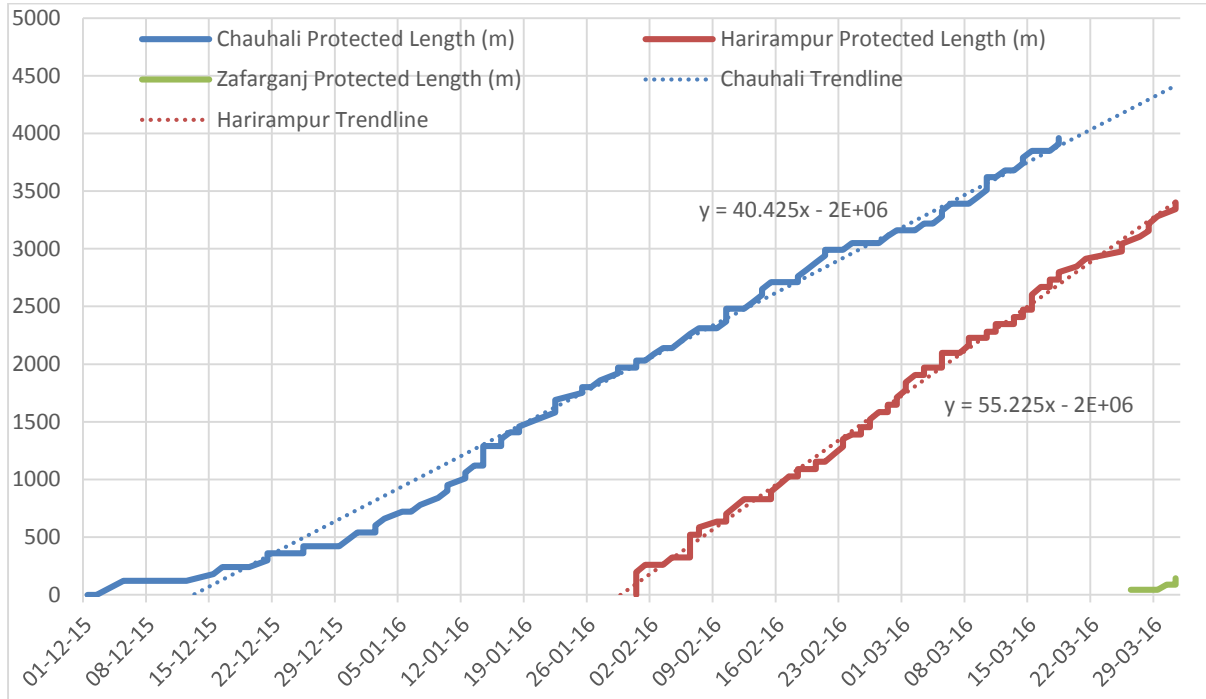


Chart B3 Length Wise Riverbank Protection Progress



Appendix C Administrative Details

Table C-1

Time Sheet Summary as of February 2016 (Man-Month)

No.	Position	Firm	Name	Man-month		
				Contract	Used	Balance
INTERNATIONAL						
I-1	Team Leader / River Mangement Specialist	NHC	Knut Oberhagemann	35.0	3.86	31.14
I-2	Institutional Development Specialist	EMM	Robert A. van de Putte	5.0	0.47	4.53
I-3	Morphologist	DELTARES	Eric Mosselman	5.0	0.82	4.18
I-4	River Engineer	NHC	Bruce Walsh	10.0	1.66	8.34
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	8.0	1.81	6.19
I-7	Social Development / Resettlement	EMM	Jean Louis Leterme	8.0	1.33	6.67
I-8	Economist	NHC	John D. M. Roe	3.0	0.00	3.00
I-9	Financial Management Specialist	EMM	J. Spurr	1.5	0.00	1.50
I-10	Hydrologist	NHC	Derek Stuart	3.0	0.00	3.00
I-11	Environmental Specialist	EMM	Wandert Benthem	7.0	0.63	6.37
I-12	Information and Data Management	NHC	Dave Burkholder	4.0	3.32	0.68
I-13	Unallocated Engineering Services	NHC	TBA	12.0	0.00	12.00
			Totals	125.5	13.90	111.60
NATIONAL						
N-1	DTL / Flood & Erosion Risk Management	EMM	Sharif Al Kamal	37.0	4.84	32.16
N-2	Institutional / Capacity Development	RPMC	Dr. M. A. Qassem	10.0	2.00	8.00
N-3	River Engineer (Morphologist)	CEGIS	Dr. Maminul Huque	8.0	0.00	8.00
N-4	Community-based Flood Risk Management	RPMC	Quazi Towfique Islam	36.5	5.52	30.98
N-5	Resettlement Specialist	EMM	Shireen Akhter	15.0	1.86	13.14
N-6	Project Economist	RPMC	Amiul Islam	7.0	0.00	7.00
N-7	Procurement Specialist	RPMC	A. Abdullah Chowdhury	8.0	0.00	8.00
N-8	Construction Engineer	RPMC	Mirza Harunur Rashid	30.0	1.90	28.10
N-9	Financial Management Specialist	EMM	Md. Habibur Rahman	12.0	0.00	12.00
N-10-1	River Engineer Flood Management Infr. - 1	RPMC	Mukhles uz zaman	15.5	3.68	11.82
N-10-2	River Engineer Flood Management Infr. - 2	RPMC	Md. Motiur Rahman	13.5	0.73	12.77
N-11	Social Development and Gender Specialist	EMM	Ruh Afza Ruhi/ Begum S. Nahar	12.0	1.34	10.66
N-12	Environment Specialist	RPMC	Dr. Md. Nurul Islam	16.0	1.41	14.59
N-13	Training Coordinator	EMM	Jahangir Kabir/ Shameem	14.0	3.00	11.00
N-14	Information and Data Management	EMM	Asrafuzzamen	15.0	0.00	15.00
N-15	Hydraulic Structural Engineer	RPMC	Md. Dabir Uddin	12.0	0.00	12.00
N-16	Road Engineer	RPMC	Zakir Hossain	6.0	0.00	6.00
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 KM Nazmul	33.0	3.70	29.30
N-18-2	Site Engineer 2 (JLB-2 Chauhali)	RPMC	Haque/A.Jalil/ Ekram Sarder	33.0	3.23	29.77
N-18-3	Site Engineer 3 (JLB-2 Zaffarganj)	EMM	Md Faridul Alam	33.0	2.94	30.06
N-18-4	Site Engineers 4 (PLB-1 Harirampur)	EMM	Abdul Jalil/AKM Ruhul A./ Saiful Islam	36.0	2.97	33.03
			Totals	409.5	39.12	370.38
RIVER STUDY TEAM						
INTERNATIONAL						
IR-1	Task Leader / Flood & River Management	NHC	Stuab Carsten	10.0	4.20	5.80
IR-2	Institutional Development Specialist	EMM	Robert A. van de Putte	3.0	0.60	2.40
IR-3	Morphologist	DELTARES	Sanjay Giri	7.0	0.27	6.73
IR-4	River Engineer (River Training)	NHC	Gerritt Klaassen	7.0	2.40	4.60
IR-5	Water Resources Management Specialist	DELTARES	W. J. Oliemans	5.0	0.37	4.63
IR-6	Economist	EMM	Alexander Mueller	4.0	0.00	4.00
IR-7	Social / Regional Development Specialist	NHC	Mark Hopkins	5.0	2.67	2.33
IR-8	Environmental Specialist	EMM	Wandert Benthem	4.0	0.67	3.33
IR-9	Hydrologist	NHC	Malcolm Leytham	2.0	0.44	1.56
			Totals	47.0	11.62	35.38
NATIONAL						
NR-1	Water Resources Management Specialist	RPMC	G M Akram Hossain	10.0	4.75	5.25
NR-2	Flood Management Specialist	RPMC	Md. Makbul Hossain	6.0	5.55	0.45
NR-3	River Engineer (Morphologist)	CEGIS	Dr. Maminul Huque	9.0	0.86	8.14
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	1.16	2.84
NR-6	Institutional Development Specialist	RPMC	Dr. M. A. Qassem	4.0	2.51	1.49
NR-7	River Engineer	RPMC	Md. Motiur Rahman	8.0	4.58	3.42
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.	5.0	0.39	4.61
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	5.0	0.00	5.00
NR-12	Agriculture Specialist	RPMC	Dr Qazi Reasul Islam	4.0	0.00	4.00
NR-13	Fishery Specialist	RPMC	Dr. Md. S. Howlader	3.0	1.41	1.59
			Totals	73.0	21.21	51.79
TECHNICAL SUPPORT STAFF						
TS-1	Junior Engineer - 1	RPMC	Mir Yousuf Ali	42.00	5.00	37.00
TS-2	Junior Engineer - 2	RPMC	Mariam Khanam	42.00	4.36	37.64
TS-3	GIS Specialist	RPMC	Hamida Khatun Popy	42.00	5.45	36.55
TS-4	AutoCAD Technician	RPMC	Soelem Aafnan Bhuiyan	42.00	3.85	38.15
			Totals	168.00		
NON-TECHNICAL SUPPORT STAFF						
1	Account's Officer	EMM	Md. Mofiz Uddin	42.00	5.00	37.00
2	Office Manager	EMM	Yousuf Hossain/ Flowrence Dona	42.00	5.28	36.72
3	Office Secretary	EMM	Sonia Rahman	42.00	5.59	36.41
4	Office Assistant	EMM	Azmir Hossain Shakil	42.00	5.50	36.50
			Totals	168.00	21.37	146.63
			Grand Total	421.50	42.58	210.92

Appendix D Management Information System (MIS)

Table D-1 Summary of MIS activities

Component	Activities
QPR MIS	<ol style="list-style-type: none"> 1. Monitoring design, tendering, physical implementation, financial activities 2. Accommodating goods, services and works for comprehensive monitoring 3. Producing detailed and summary tables showing progress on an individual contract or asset
Social survey	<ol style="list-style-type: none"> 1. Comprising social survey data 2. Designing appropriate program for livelihood development component 3. Prepared and performed using iPad tool
River survey	<ol style="list-style-type: none"> 1. Containing river survey point elevations, river cross-sections, river longitudinal sections, and sediment areas and volumes. 2. Analyzing river reach to help predict future morphological change
Construction progress	<ol style="list-style-type: none"> 1. Monitoring daily construction progress

Appendix E Environmental Management Compliance Monitoring Reports

PART 1 – General Project Information, Findings and Recommendations

Table-1 Harirampur

1-A Location, key contacts and report

Location:	Harirampur	Monitoring report:	Nr 2
Date of visit:	21 March 2106	Date:	24 March 2016
Contract:	W-9 & W-10	By:	Dr Nurul Islam Mr Wandert Benthem
Contractor:	MM Builders		
Contractor's contact:	Mr Robayet – Contract Manager		
BWDB's contact:			
On-site ISPMC Consultant's contact:	Mr Mirza Harunar Rashid – Supervising Engineer Mirza_harunarrashid@yahoo.com Md. Saiful Islam – Site Engineer Islamsaiful1964@yahoo.com		

1-B Main Contract features

Current Contract	Protection of the left (north) bank of Padma River over 10 km by depositing sandbags and concrete blocks on eroding riverbanks near Harirampur. Main contract activities are clearance and establishment of work sites and worker's camps, sand mining, transport of sand to filling areas and cement block making sites; filling and depositing sand bags on/from barges; laying of concrete blocks. In total some 1,400 labourers have been employed, nearly all of these are men; few women have been employed for cooking/cleaning. Most labourers come from 10-20 km away and reside in camps.
Start of the works	January 2016
End of the works	May-June 2016

1C Persons met during this visit

	Party	Name	Position
1	Contractor	Mr Kawsar Ali	Lab Technician
2	Supervising Consultant	Mr Mirza Harunar Rashid Md. Saiful Islam	Supervising Engineer Site Engineer

1D Summary of observations

Significant adverse impacts of the physical construction works were not noted. As dredging takes place on selected sites (with high sand content) in the middle of river where it is several km wide, negative impact is believed to be limited to very local and temporary disturbance of the water downstream of the dredger only. Sandbag filling cannot be expected to have a negative impact on the environment but the works (maneuvering barges, movement of ships, sandbag dumping) will temporarily chase away fish and dolphins (*susuk*) that return later, as was confirmed by local fishermen. The main adverse impact of the works is therefore in and around worker’s camps (water supply and sanitation facilities), and from moving vehicles through noise and dust generated by these.

1E Summary of recommendations

<p>For BWDB / ISPMC:</p> <ol style="list-style-type: none"> 1. Prepare and conduct training of supervising and contractor staff in environmental management and monthly reporting on these. 2. Assist contractors in developing and introducing a formal Grievance Redress Mechanism and a meaningful template for monthly reporting on EMP implementation. 3. Develop and introduce a system for filing and sharing EMP compliance monitoring reports, and following up on these timely and effectively. 4. Step up code of safety conduct for drivers/passengers and monitor adherence. 	<p>To be achieved by:</p> <ol style="list-style-type: none"> 1. With immediate effect. 2. With immediate effect. 3. With immediate effect. 4. With immediate effect.
<p>For On-site Supervising Consultant:</p> <ol style="list-style-type: none"> 5. Familiarize with EMP requirements. 6. Follow-up on EMP compliance monitoring reports timely and effectively. 	<p>To be achieved by:</p> <ol style="list-style-type: none"> 5. With immediate effect. 6. With immediate effect.
<p>For Contractor:</p> <ol style="list-style-type: none"> 7. Employ one full-time inspector for supervising EMP compliance. 8. Prepare and submit monthly environmental report. 9. Install proper noise silencer on boat and dredger engines. 10. Improve on waste disposal in worker’s camps, e.g. by installing waste bins, and depositing waste, and instructing workers through health awareness training. 	<p>To be achieved by:</p> <ol style="list-style-type: none"> 7. With immediate effect 8. Immediate after training has been conducted. 9. Asap 10. With immediate effect. 11. Asap 12. Asap

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<p>11. Consider whether any safety equipment is needed for workers (PPE, guards), and acquire and distribute as needed.</p> <p>12. Install proper signboards as needed.</p> <p>13. Install proper fencing as may be needed.</p> <p>14. Improve waste water management around ater points.</p> <p>15. Improve sanitation facilities in line with villager’s complaints.</p> <p>16. Identify, introduce and operate an environmentally sound disposal system for discarded fuel and lubricants and other waste from machinery, as needed.</p> <p>17. Develop, introduce and operate a formal Grievance Redress Mechanism.</p>	<p>13. Asap</p> <p>14. With immediate effect.</p> <p>15. With immediate effect.</p> <p>16. Asap.</p> <p>17. Asap.</p>
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1F. Circulation (recommended)

<p>BWDB / PMO office – Dhaka ISPMC – Dhaka Contractor’s Resident Engineer – Harirampur Consultant’s Supervising Engineer – Manikganj Consultant’s Site Engineer – Harirampur</p>	
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PART 2 – Monitoring Contractor’s EMP and Safety at Site Compliance

Scoring key: 4 = excellent; 3 = good; 2 = fair; 1 = poor; 0 = non-compliant

EMP Clause	Item	Score	Comment
2.1.1	Inspector		
	Employing one full-time EMP inspector	0	No inspector employed as yet – see also 2.3.4
	Set of environmental standards at site	1	The Contractor’s contract is on-site but staff not familiar with EMP or its requirements; Contractor’s staff have not been trained in environmental management.
	Monthly EMP reporting	0	No EMP reporting started – see also 2.3.4
2.1.2	Air & noise		
	Spraying water on dry surfaces (roads and work sites)		Not noted; limited vehicle movement anyway
	Noise cancellation at work sites	0	Boat and dredger engines rather noisy (no or limited noise silencer)
2.1.3	Land use		
	Topsoil removal and replacement at work sites		Not noted / not known whether applicable
	Restoring surface vegetation at work sites		As above
2.1.4	Pollution		
	Preventing spills of lubricants and fuel		Not assessed
	Waste disposal at work sites		Not noted / assessed. It is assumed that limited waste is being produced anyway; assumed mostly food leftovers that are dumped in the river
	Waste disposal at worker camps	1	Solid waste in camp sites (paper / plastic / kitchen spoils) is not collected; there are no waste bins on site. Liquid waste flows in open pit depressions amidst dormitory/tent sites, attracting flies and other nuisance. Toilet facilities are considered poor. Villagers openly complain about bad smells.
2.1.5	Disruption of agricultural activities		
	Minimizing disturbance	2/3	Contractor hires office building and land for worker’s camp from local farmer, reportedly.
	Compensation arrangements		As above
2.2.1	Navigation		
	Preventing navigation routes of riverine traffic	3	No obstructions noted.
	Clearance permits for protection works and sand mining	3	Protection works require ECC from DoE and PMO has received clearance

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EMP Clause	Item	Score	Comment
			already. For sand mining, contractor has sub-contracted. Sub-contractor has received clearance from the district authority concerned, reportedly. See also 2.2.4.
	Compliance to GoB navigation and safety standards		Not assessed as yet.
	Coordination with BWDB & BIWTA on dredging operations		No problems or concerns noted.
2.2.2	Roads		
	Road inspections		Not assessed.
	Road use & maintenance	2	Most vehicle movement is on existing road system: these are normally narrow crowded rural roads where speeds should be low; speeding causes risks to road users and dust being a nuisance.
2.2.3	Excavation of earth in slope protection		
	Excavation is accordance with approvals		Excavation for slope preparation as per approved engineering design – no environmental problem in this regard.
2.2.4	Sand mining		
	Mining in accordance with approvals	3	See 2.2.1 – approval of sand mining is not the concern of the contractor since he is sub-contracting it to a dredging firm; legal permit has been given by local authority.
2.3.1	Safety equipment to prevent accidents / injuries		
	Helmets & life jackets / buoys	2	Some equipment (helmets/vests) has been acquired and is available in inspection barge (not used though). Workers on dredgers and sand filling barges do not wear or use safety equipment.
	Traffic control signboards	0	None recorded.
	Guards / walkways / etc	0	Walkways on sand filling barges are available but there are no guards
2.3.2	First aid		
	First-aid nurse	2	First-Aid kit is available and staff have received some training, according to the Contractor
	Qualified medical doctor		Not recorded
	Health inspection & vaccination to workers	0	No awareness campaign on health issues (e.g. AIDS/HIV, sanitation) has been given or is planned.
2.3.3	Accidents		
	Reporting of accidents within 24 h	0	No reporting on environmental /

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EMP Clause	Item	Score	Comment
			health / safety issues is taking place
2.3.4	Full-time Safety Inspector		
	Employed / on-site	0	No inspector employed as yet – see also 2.1.1
	Monthly safety report	0	No reporting taking place as yet – see also 2.1.1
2.4.1	Site management		
	Clearing obstructions, grading, working / storage sites	1	No fencing around worker's camp noted.
	Protection of existing structures		Not noted.
	Maintenance of temporary roads		Not noted.
	Building maintenance		Not noted.
	Site fencing		Not or only partial existing.
	Equipment management		Not assessed.
2.4.2	Lay-out drawings		
	Submission on demand		Not assessed.
2.4.3	Sanitation conditions & waste management		
	Water supply	1	Few standpipes are available but there is no concrete platform around and drainage pipe away from these to divert wastewater that could pollute source. Open pit wastewater dump amidst tents or near toilets. Unhealthy conditions.
	Sanitation (toilets etc)	1	Some 30 latrines provided (= 1400 / 30 = 50 persons/latrine), that all lack proper doors; drainage into open pits (that appear full) that cause nuisance to villagers in surroundings. Villagers complain openly.
	Waste management	1	No waste bins available for paper / plastic.

PART 3 – Post-Construction: operation of flood and bank protection works & other interventions

Nr	Important Environmental Component (IEC) / impact	Mitigation measure	Monitor frequency	Score	Comment
Water resources					
1	Condition of new and rehabilitated embankments (crest level, width, slope)	Check & report			
2	Performance of drainage sluice & fish pass	Check & report			
3	Condition of riverbank protection works	Check & report			
4	River planform	Check & report			
Land and agriculture resources					
5	Crop yield	Check & report			
6	Crop damage	Check & report			
7	Irrigation expansion	Check & report			
Fisheries resources					
8	Operation of Fish Sanctuaries	Check & report			
9	Fish habitat – status	Check & report			
10	Fish migration	Check & report			
11	Fish diversity	Check & report			
12	Fish production	Check & report			
13	Pond fish culture	Check & report			
14	Public awareness	Check & report			
15	Training needs	Check & report			
Other ecological resources					
16	Survival rate of planted saplings	Check & report			
17	Operation of Wildlife Sanctuaries	Check & report			
18	Bird counts	Check & report			
19	Other wildlife counts	Check & report			
Socio-economic					
20	Communication?	Check & report			
21	Protection of municipal area including markets and homesteads?	Check & report			
22	Employment?	Check & report			

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Nr	Important Environmental Component (IEC) / impact	Mitigation measure	Monitor frequency	Score	Comment
23	Income generation?	Check & report			

PART 4 – Pictures taken during the visit



1. Sand mining from a dredger in the middle of Padma River



2. As Picture 1



3. Life-jackets aboard inspection barge (un-used)



4. Interviewing local villagers about fisheries impacts



5. Washing at tubewell in worker's camp



6. Wastewater dump near worker's dormitory (tent)



7. Toilet facilities for 1400 labourers



8. Village women complaining about smell from toilets

Table-2 Zafarganj

PART 1 – General Project Information, Findings and Recommendations

1-A Location, key contacts and report

Location:	Zafarganj	Monitoring report:	Nr 1
Date of visit:	22 March 2106	Date:	24 March 2016
Contract:	By:	Dr Nurul Islam Mr Wandert Benthem
Contractor:	Western Engineering Ltd – Nuruzzman Khan – Parisha Trade System Ltd.		
Contractor's contact:	Md Shah Alam – Site Engineer (1) Md Yousuf – Site Engineer (2)		
BWDB's contact:			
On-site ISPMC Consultant's contact:	Mr Mirza Harunar Rashid – Supervising Engineer Mirza_harunarrashid@yahoo.com Mr Nurul Amnin – Site Engineer nurulamin93@yahoo.com		

1-B Main Contract features

Current Contract	Protection of the left (east) bank of Jamuna River over 2 km by depositing sandbags (2016) and concrete blocks (2017) on eroding riverbanks near Zafarganj. Main contract activities are clearance and establishment of work sites and worker's camps, sand mining, transport of sand to filling areas and cement block making sites; filling and depositing sand bags on/from barges; laying of concrete blocks. In total some 400 labourers have been employed, nearly all of these are men; few women have been employed for cooking/cleaning.
Start of the works	March 2016
End of the works	May-June 2016

1C Persons met

	Party	Name	Position
1	Contractor	Md Shah Alam Md Yousuf	Site Engineer (1) Site Engineer (2)
2	Supervising Consultant	Mr Mirza Harunar Rashid	Supervising Engineer

1D Summary of observations

Significant adverse impacts of the physical construction works were not noted. As dredging takes place on selected sites (with high sand content) in the middle of river where it is several km wide, negative impact is believed to be limited to very local and temporary disturbance of the water downstream of the dredger only. Sandbag filling cannot be expected to have a negative impact on the environment but the works (maneuvering barges, movement of ships, sandbag dumping) will temporarily chase away fish and dolphins (*sunuk*) that return later, as was confirmed by local fishermen. The main adverse impact of the works is therefore in and around worker’s camps (water supply and sanitation facilities), and from moving vehicles through noise and dust generated by these.

1E Summary of recommendations

<p>For BWDB / ISPMC:</p> <p>18. Prepare and conduct training of supervising and contractor staff in environmental management and monthly reporting on these.</p> <p>19. Assist contractors in developing and introducing a formal Grievance Redress Mechanism and a meaningful template for monthly reporting on EMP implementation.</p> <p>20. Develop and introduce a system for filing and sharing EMP compliance monitoring reports, and following up on these timely and effectively.</p> <p>21. Step up code of safety conduct for drivers/passengers and monitor adherence.</p>	<p>To be achieved by:</p> <p>18. With immediate effect.</p> <p>19. With immediate effect.</p> <p>20. With immediate effect.</p> <p>21. With immediate effect.</p>
<p>For On-site Supervising Consultant:</p> <p>22. Familiarizing with EMP requirements.</p> <p>23. Follow-up on EMP compliance monitoring reports timely and effectively.</p>	<p>To be achieved by:</p> <p>22. With immediate effect.</p> <p>23. With immediate effect.</p>
<p>For Contractor:</p> <p>24. Employ one full-time inspector for supervising EMP compliance</p> <p>25. Prepare and submit monthly environmental report</p> <p>26. Install proper noise silencer on boat and dredger engines.</p> <p>27. Improve on waste disposal in worker’s camps, e.g. by installing waste bins, and deposing</p>	<p>To be achieved by:</p> <p>24. With immediate effect</p> <p>25. Immediate after training has been conducted.</p> <p>26. Asap</p> <p>27. With immediate effect.</p> <p>28. Asap</p>

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waste, and instructing workers through health awareness training.	29. Asap
28. Consider whether any safety equipment is needed for workers (PPE, guards) , and acquire and distribute as needed.	30. Asap
29. Install proper signboards as needed.	31. With immediate effect.
30. Install proper fencing as may be needed.	32. With immediate effect.
31. Improve waste water management around water points.	33. Asap.
32. Improve sanitation facilities in line with villager’s complaints. 6 latrines for 400 workers (1:66) seem insufficient; aim at 1:25.	34. Asap.
33. Identify, introduce and operate an environmentally sound disposal system for discarded fuel and lubricants and other waste from machinery, as needed.	
34. Develop, introduce and operate a formal Grievance Redress Mechanism.	

1F. Circulation (recommended)

BWDB / PMO office – Dhaka ISPMC – Dhaka Contractor’s Resident Engineer – Zafarganj Consultant’s Supervising Engineer – Manikganj Consultant’s Site Engineer – Zafarganj	
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PART 2 – Monitoring Contractor’s EMP and Safety at Site Compliance

Scoring key: 4 = excellent; 3 = good; 2 = fair; 1 = poor; 0 = non-compliant

EMP Clause	Item	Score	Comment
2.1.1	Inspector		
	Employing one full-time EMP inspector.	0	Not employed as yet – see also 2.3.4
	Set of environmental standards at site.	0	A Contractor Contract (including the EMP) was not available on site.
	Monthly EMP reporting.	0	Is not taking place as yet – see also 2.3.4.
2.1.2	Air & noise		
	Spraying water on dry surfaces (roads and work sites).		Not seen. Vehicles movement on unpaved roads seems limited.
	Noise cancellation at work sites.		Not noted or assessed.

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EMP Clause	Item	Score	Comment
2.1.3	Land use		
	Topsoil removal and replacement at work sites.	3	A land lease has been concluded with a land owner; the contractor is in the process of constructing a permanent Contractor office.
	Restoring surface vegetation at work sites.		Not noted.
2.1.4	Pollution		
	Preventing spills of lubricants and fuel.	0	Used oil and lubricants are drained in the soil, reportedly
	Waste disposal at work sites.		Not assessed or noted
	Waste disposal at worker camps.	1	No wastebins available; wastewater in worker's camp is drained in open pit.
2.1.5	Disruption of agricultural activities		
	Minimizing disturbance.		Not noted / recorded.
	Compensation arrangements.		A land lease has been entered.
2.2.1	Navigation		
	Preventing navigation routes of riverine traffic.		No constraints noted or recorded.
	Clearance permits for protection works and sand mining.	3	Protection works require ECC from DoE and PMO has received clearance already. For sand mining, contractor has sub-contracted. Sub-contractor has received clearance from the district authority concerned, reportedly. See also 2.2.4.
	Compliance to GoB navigation and safety standards.		Not assessed.
	Coordination with BWDB & BIWTA on dredging operations.		Not assessed.
2.2.2	Roads		
	Road inspections.		Not recorded.
	Road use & maintenance.	1	Roads are not sprinkled; however, vehicle movement is limited anyway.
2.2.3	Excavation of earth in slope protection		
	Excavation is accordance with approvals.		Not discussed or noted.
2.2.4	Sand mining		
	Mining in accordance with approvals.	3	See 2.2.1 – approval of sand mining is not the concern of the contractor since he is sub-contracting it to a dredging firm; legal permit has been given by local authority.
2.3.1	Safety equipment to prevent accidents / injuries		
	Helmets & life jackets / buoys.		Some equipment available (life jackets) in Contractor's office but not (yet) used

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EMP Clause	Item	Score	Comment
	Traffic control signboards.		Signboards are being prepared.
	Guards / walkways / etc.		Not noted or discussed.
2.3.2	First aid		
	First-aid nurse.		Discussed but not recorded.
	Qualified medical doctor.		Not recorded.
	Health inspection & vaccination to workers.		Not discussed.
2.3.3	Accidents		
	Reporting of accidents within 24 h.		Not discussed.
2.3.4	Full-time Safety Inspector		
	Employed / on-site.		Not available yet – see also 2.1.1
	Monthly safety report.		Not available yet – see also 2.1.1
2.4.1	Site management		
	Clearing obstructions, grading, working / storage sites.		Not noted.
	Protection of existing structures.	3	
	Maintenance of temporary roads.	2	Dust generation on temporary road to worker's camp.
	Building maintenance.	3	Building under construction
	Site fencing.	3	Most sites have been fenced.
	Equipment management.		Not assessed.
2.4.2	Lay-out drawings		
	Submission on demand.		Not assessed.
2.4.3	Sanitation conditions & waste management		
	Water supply.	1	1 unprotected borehole is available.
	Sanitation (toilets etc).	2	6 toilets are available
	Waste management.	1	No wastebins are available; wastewater is drained in an open pit.

PART 3 – Post-Construction: operation of flood and bank protection works & other interventions

Nr	Important Environmental Component (IEC) / impact	Mitigation measure	Monitor frequency	Score	Comment
	Water resources				
1	Condition of new and rehabilitated embankments (crest level, width, slope)	Check & report			
2	Performance of drainage sluice & fish pass	Check & report			

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Nr	Important Environmental Component (IEC) / impact	Mitigation measure	Monitor frequency	Score	Comment
3	Condition of riverbank protection works	Check & report			
4	River planform	Check & report			
	Land and agriculture resources				
5	Crop yield	Check & report			
6	Crop damage	Check & report			
7	Irrigation expansion	Check & report			
	Fisheries resources				
8	Operation of Fish Sanctuaries	Check & report			
9	Fish habitat – status	Check & report			
10	Fish migration	Check & report			
11	Fish diversity	Check & report			
12	Fish production	Check & report			
13	Pond fish culture	Check & report			
14	Public awareness	Check & report			
15	Training needs	Check & report			
	Other ecological resources				
16	Survival rate of planted saplings	Check & report			
17	Operation of Wildlife Sanctuaries	Check & report			
18	Bird counts	Check & report			
19	Other wildlife counts	Check & report			
	Socio-economic				
20	Communication?	Check & report			
21	Protection of municipal area including markets and homesteads?	Check & report			
22	Employment?	Check & report			
23	Income generation?	Check & report			

Table-3 Chauhali**PART 1 – General Project Information, Findings and Recommendations****1-A Location, key contacts and report**

Location:	Chauhali	Monitoring report:	Nr 2
Date of visit:	22 March 2106	Date:	24 March 2016
Contract:	By:	Dr Nurul Islam Mr Wandert Benthem
Contractor:	IJ (JV)		
Contractor's contact:	Mr Atiqul Islam / Mr Zahed Iqbal		
BWDB's contact:			
On-site ISPMC Consultant's contact:	Mr Mirza Harunar Rashid – Supervising Engineer Mirza_harunarrashid@yahoo.com Mr Faridul Alam – Site Engineer 1 faridnao@yahoo.com Mr Ekramul Haque Sarder – Site Engineer 2 Ekramul.sarder@gmail.com		

1-B Main Contract features

Current Contract	Protection of the left (east) bank of Jamuna River over 7 km by depositing sandbags and concrete blocks on eroding riverbanks near Chauhali. Main contract activities are clearance and establishment of work sites and worker's camps, sand mining, transport of sand to filling areas and cement block making sites; filling and depositing sand bags on/from barges; laying of concrete blocks. In total some 900 labourers have been employed of which some 200 are from nearby villages and the rest resides in two worker's camps; nearly all of these are men; few women have been employed for cooking/cleaning.
Start of the works	November/December 2015
End of the works	May-June 2016

1C Persons met

	Party	Name	Position
1	Contractor	Mr Zakaria Mahammed Nasim Cell: 01738457229	Site Engineer
2	Supervising Consultant	Mr Mirza Harunar Rashid Mr Faridul Alam Mr Ekramul Haque Sarder	Supervising Engineer Site Engineer 1 Site Engineer 2

1D Summary of observations

Significant adverse impacts of the physical construction works were not noted. As dredging takes place on selected sites (with high sand content) in the middle of river where it is several km wide, negative impact is believed to be limited to very local and temporary disturbance of the water downstream of the dredger only. Sandbag filling cannot be expected to have a negative impact on the environment but the works (maneuvering barges, movement of ships, sandbag dumping) will temporarily chase away fish and dolphins (*sunuk*) that return later, as was confirmed by local fishermen. The main adverse impact of the works is therefore in and around worker 's camps (water supply and sanitation facilities), and from moving vehicles through noise and dust generated by these.

1E Summary of recommendations

<p>For BWDB / ISPMC:</p> <p>35. Prepare and conduct training of supervising and contractor staff in environmental management and monthly reporting on these.</p> <p>36. Assist contractors in developing and introducing a formal Grievance Redress Mechanism and a meaningful template for monthly reporting on EMP implementation.</p> <p>37. Develop and introduce a system for filing and sharing EMP compliance monitoring reports, and following up on these timely and effectively.</p> <p>38. Step up code of safety conduct for drivers/passengers and monitor adherence.</p>	<p>To be achieved by:</p> <p>35. With immediate effect.</p> <p>36. With immediate effect.</p> <p>37. With immediate effect.</p> <p>38. With immediate effect.</p>
<p>For On-site Supervising Consultant:</p> <p>39. Familiarizing with EMP requirements.</p> <p>40. Follow-up on EMP compliance monitoring reports timely and effectively.</p>	<p>To be achieved by:</p> <p>39. With immediate effect.</p> <p>40. With immediate effect.</p>
<p>For Contractor:</p> <p>41. Employ one full-time inspector for supervising EMP compliance</p> <p>42. Prepare and submit monthly environmental report</p> <p>43. Install proper noise silencer on boat and dredger engines.</p> <p>44. Improve on waste disposal in worker's camps, e.g. by installing waste bins, and depositing waste, and instructing workers through health awareness training.</p>	<p>To be achieved by:</p> <p>41. With immediate effect</p> <p>42. Immediate after training has been conducted.</p> <p>43. Asap</p> <p>44. With immediate effect.</p> <p>45. Asap</p> <p>46. Asap</p>

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45. Consider whether any safety equipment is needed for workers (PPE, guards) , and acquire and distribute as needed.	47. Asap
46. Install proper signboards as needed.	48. With immediate effect.
47. Install proper fencing as may be needed.	49. With immediate effect.
48. Improve waste water management around water points.	50. Asap.
49. Improve sanitation facilities and increase number of toilets.	51. Asap.
50. Identify, introduce and operate an environmentally sound disposal system for discarded fuel and lubricants and other waste from machinery, as needed.	
51. Develop, introduce and operate a formal Grievance Redress Mechanism.	

1F. Circulation (recommended)

BWDB / PMO office – Dhaka ISPMC – Dhaka Contractor’s Resident Engineer – Chauhali Consultant’s Supervising Engineer – Manikganj Consultant’s Site Engineer – Chauhali	
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PART 2 – Monitoring Contractor’s EMP and Safety at Site Compliance

Scoring key: 4 = excellent; 3 = good; 2 = fair; 1 = poor; 0 = non-compliant

EMP Clause	Item	Score	Comment
2.1.1	Inspector		
	Employing one full-time EMP inspector.	2	One has been appointed reportedly, although it remained unclear to what extent he had been covering EMP issues thus far – see also 2.3.4.
	Set of environmental standards at site.	2	A Contractor Contract, including the EMP was available in the office. Staff was not yet fully familiar with the EMP or its requirements.
	Monthly EMP reporting.	0	Is not taking place as yet – see also 2.3.4.
2.1.2	Air & noise		
	Spraying water on dry surfaces (roads and work sites).		Not noted or discussed.
	Noise cancellation at work sites.		Not noted or discussed.
2.1.3	Land use		
	Topsoil removal and replacement at work sites.		Not noted or discussed.
	Restoring surface vegetation at work sites.		Not applicable as yet.
2.1.4	Pollution		
	Preventing spills of lubricants and fuel.		Not discussed.
	Waste disposal at work sites.		Not assessed.
	Waste disposal at worker camps.	1	There are no wastebins available; paper and plastic waste abound.
2.1.5	Disruption of agricultural activities		
	Minimizing disturbance.		Not noted or discussed.
	Compensation arrangements.		Not discussed.
2.2.1	Navigation		
	Preventing navigation routes of riverine traffic.		Not discussed.
	Clearance permits for protection works.	3	Protection works require ECC from DoE and PMO has received clearance already. For sand mining, contractor has sub-contracted. Sub-contractor has received clearance from the district authority concerned, reportedly. See also 2.2.4.
	Compliance to GoB navigation and safety standards.		Not discussed.
	Coordination with BWDB & BIWTA on dredging operations.		Not discussed.
2.2.2	Roads		
	Road inspections.		Not assessed.
	Road use & maintenance.		Not assessed.

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EMP Clause	Item	Score	Comment
2.2.3	Excavation of earth in slope protection		
	Excavation is accordance with approvals.		Not discussed or assessed.
2.2.4	Sand mining		
	Mining in accordance with approvals.	3	See 2.2.1 – approval of sand mining is not the concern of the contractor since he is sub-contracting it to a dredging firm; legal permit has been given by local authority.
2.3.1	Safety equipment to prevent accidents / injuries		
	Helmets & life jackets.		Not discussed.
	Traffic control signboards.		Not noted.
	Guards / walkways / etc.		Not noted.
2.3.2	First aid		
	First-aid nurse.	3	Nurse available and met; demonstration of equipment given.
	Qualified medical doctor.	0	Not noted.
	Health inspection & vaccination to workers.		Not discussed.
2.3.3	Accidents		
	Reporting of accidents within 24 h.		Not discussed.
2.3.4	Full-time Safety Inspector		
	Employed / on-site.		Assigned reportedly – see 2.1.1
	Monthly safety report.		Not being made yet – see also 2.1.1
2.4.1	Site management		
	Clearing obstructions, grading, working / storage sites.		Not discussed or assessed.
	Protection of existing structures.	2	Fencing constructed, however accessible
	Maintenance of temporary roads.		Not discussed or assessed.
	Building maintenance.		Not noted.
	Site fencing.		Fencing constructed, however accessible to public
	Equipment management.		Not assessed.
2.4.2	Lay-out drawings		
	Submission on demand.		Not discussed.
2.4.3	Sanitation conditions & waste management		
	Water supply.	1	Two tubewells noted, both lacking protection and proper discharge.
	Sanitation (toilets etc).	1	Existing toilets (about 1 per 90 workers) is insufficient.
	Waste management.	0	No wastebins or proper management system in place.

PART 3 – Post-Construction: operation of flood and bank protection works & other interventions

Nr	Important Environmental Component (IEC) / impact	Mitigation measure	Monitor frequency	Score	Comment
Water resources					
1	Condition of new and rehabilitated embankments (crest level, width, slope)	Check & report			
2	Performance of drainage sluice & fish pass	Check & report			
3	Condition of riverbank protection works	Check & report			
4	River planform	Check & report			
Land and agriculture resources					
5	Crop yield	Check & report			
6	Crop damage	Check & report			
7	Irrigation expansion	Check & report			
Fisheries resources					
8	Operation of Fish Sanctuaries	Check & report			
9	Fish habitat – status	Check & report			
10	Fish migration	Check & report			
11	Fish diversity	Check & report			
12	Fish production	Check & report			
13	Pond fish culture	Check & report			
14	Public awareness	Check & report			
15	Training needs	Check & report			
Other ecological resources					
16	Survival rate of planted saplings	Check & report			
17	Operation of Wildlife Sanctuaries	Check & report			
18	Bird counts	Check & report			
19	Other wildlife counts	Check & report			
Socio-economic					
20	Communication?	Check & report			
21	Protection of municipal area including markets and homesteads?	Check & report			
22	Employment?	Check & report			

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Nr	Important Environmental Component (IEC) / impact	Mitigation measure	Monitor frequency	Score	Comment
23	Income generation?	Check & report			

PART 4 – Pictures taken during the visit



9. Camp for about 350 workers



10. Two tubewells in worker's camp, one is operational.



11. Toilets (4) in worker's camp (for about 350 workers).



12. Consulting landowner of worker's camp.



13. Site for making concrete blocks.



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14. Nurse on-site demonstrating blood pressure equipment.



15. Discussing EMP in Contractor's office.



16. Fencing of fuel & lubricant storage

Appendix F Photos of Progress Works



Steering Committee field visit to Chauhali and Zaffarganj on 5 Mar 2016



Steering Committee discussion with Member Planning Commission at Chauhali, 5 March 2016

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Positioning of barges at Chauhali, 5 march 2016



Geotextile bag dumping in Chauhali, 5 March 2016

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Preparation of slope for temporary wave protection in Chauhali, 5 March 2016



Placement of first temporary wave protection, 5 March 2016



Inauguration of work at Zaffarganj – the honorable MP A M Naimur Rahman (Durjoy) and the Project Director Aminul Haque dump the first bag of the underwater protection on 8 March 2016



Foundation stone of work in Zaffarganj



Head of the Task Force for Quality Control, SE Design Circle-I, Mr. Tofail Ahmed checking the weight of a geobag prior to dumping on 12 March 2016



Commencement of dumping of geobags in Harirampur from both sides of the barge on 12 March 2016



Member of BWDB's Task Force for Quality Control on their way to confirm the quality prior to each dumping sequence



Filling of geobags for next dumping sequence, 14 March 2016

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Two dumping sets in action covering a 65m wide strip each, 14 March 2016



Inauguration of wave protection work at Harirampur in presence of the head of the Task Force and the Project Director on 12 March 2016

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Preparation of slope for wave protection on 14 March 2016



Wave protection work ongoing, 14 March 2016

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