FRERMIP

Flood and Riverbank Erosion Risk Management Investment Program

Bangladesh Water Development Board
Asian Development Bank

Flood and Riverbank Erosion Risk Management Investment Program – Project 1

ADB Loan No. 3138-BAN (SF)

Institutional Strengthening and Project Management Consultants (ISPMC)

QUARTERLY PROGRESS REPORT NO. 04

FOR

APRIL - JUNE 2016

Prepared by:

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Institutional strengthening and project management consultant

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FRERMIP
Flood and Riverbank Erosion Risk Management Investment Program

Mr. A. M. Aminul Haque
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Reference No. PMO 206
August 2016

Subject : **Submission of Quarterly Progress Report No. 04 April-June 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. 04 for the period April to June 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,

Sharif Al Kamal
Deputy Team Leader

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(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

TABLE OF CONTENTS

FIGURES

TABLES

Table 1 Project Progress at a Glance

1. Basic Data

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

2. Financing

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

3. Milestones

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

Milestone	Project		
	I	II	III
Estimated Completion Date	2018 December 31	2021 December 31	2023 June 30

Milestone	Date
Last ADB Review Mission	2016 June 12-2016 June 16

4. Assets and Physical Progress

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

Primary Component	Secondary Component		Assigned Weight (%)	Progress Actual (%)	Progress Weighted (%)
1. Establishment & Recruitment	1.1	PMO Establishment and Staffing	2	100	2
	1.2	ISPMC Consultants Recruitment	2	100	2
	1.3	NGO Recruitment	2	50	1
2. Implementation; Tranche-1	2.1	Detailed Design	2	70	1
	2.2	Tender Documents Preparation	6	55	3
	2.3	Tendering and Contract Award	6	55	3
	2.4	Land Acquisition and Resettlement	8	20	2
	2.5	Project Management	6	35	2
	2.6	Physical Completion of Works	32	40	13
	2.7	Financial Disbursements	4	10	0
3. Knowledge Base & Capacity	3.1	Knowledge Base & Tech. Studies	4	30	1
	3.2	CBFRM 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	5	0
	4.2	Land recovery piloting	2	5	0
5. Preparation; Project-2	5.1	Feasibility Study; Project-2	6	10	1
	5.2	Detailed Design; Project-2	4	0	0
Totals			**100**		**33**

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

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 protection[1] 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 Project-1 has been very successful in building riverbank protection of yet unprecedented length. In total 17 km riverbank protection (underwater with temporary wave protection) were completed before 15 June 2016 with some remaining work expected to be continued in mid-July after the Eid holiday. At two sites concrete blocks for permanent wave protection will be required, with one site having cast around 32% of the quantities necessary during the coming dry season. Some photos of the construction works of this quarter is attached below at **Appendix I**.

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 33%. The overall financial progress is 25% (PMO Financial Progress Summary Sheet: 2015-16). 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.

[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.

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.

1.4 *This Report*

Quarterly Progress Report No. 4 covers the period 01 April to 30 June 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 continued at Chauhali, Harirampur and Zaffarganj. At the end of this quarter 6.8 km length of bank line have been protected at Chauhali, around 1.2 km at Zaffarganj and 8.7 km 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 **Table 7)**.

The project held a number of important meetings with steering, technical, and technical advisory committees in February and March. Several coordination meetings were held with the Delta Plan 2100 and GED.

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

[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.

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 1270 Mil of additional assets included in the DPP).

The **Table 2** 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 nearly 22% more than the original DPP estimates.

Table 2 Cost Variations

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 Koijuri 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 protecting 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	Underwater riverbank protection at Harirampur : 3.50-7.00 KM	391.2	245.1	224.9
W-11	Comprehensive riverbank protection at Koijhuri/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 3**). 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 3 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. During the contract start the design office updated the design based on the latest dry season surveys. In coordination with technical and steering committee the location of the works and the length at the three sites was adjusted to reflect the actual morphological situation. The ISPMC supported the process through technical memos indicating issues critical for sustainable design.

The Design Circle-I is working on the designs for all embankments, and associated roads and regulators/fish passes. A technical subcommittee (formed vide memo no FRERMIP/C-1/380 dated 19 April 2016) prepared a draft design report in mid-June. The ISPMC commented on 20 June 2016, observing that the recommended alignment was not in line with the completed land acquisition and that a number of gaps were left due to the lack of drainage structures with fish passes. The design with related technical specifications is expected during the next quarter and will be used for the bidding documents. The work is expected to start in early 2017 to make use of some part of the dry season.

A summary of the design progress is given in **Table 4,** and details for each individual asset are available in **Table B-1**.

Table 4 Design Progress Summary

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

2.2.3 Tendering Activities

No major contracts have been awarded during this quarter. Since the end of 2015, the ISPMC has assisted the PMO by preparing ToRs for seven of the Supporting Studies (Section 2.3.1).

A summary of bidding progress, by primary component, is given in **Table 5.** 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 5 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**	**19**

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 4006 Mil. The 3 ongoing goods contracts for supply of geo-bags had progress worth Tk 1003 Mil at the end of the quarter. Although the geo-bag contracts has been varied for the extension works, the variation order is expected to be finalised by the month of July.

The 5 ongoing civil works contracts for riverbank protection in Chauhali, Zaffarganj, and Harirampur had physical progress worth Tk 720 Mil during the report quarter, and projected progress worth Tk 850 Mil is expected by the end of the next quarter.

These civil works included all tasks involved with casting concrete blocks at Chauhali and Zaffarganj (i.e. acquisition of aggregates and concrete, concrete mixing, concrete casting and curing, testing of concrete mix and blocks, etc.), barge dumping of geo-textile bags at Chauhali, Zaffarganj and Harrirampur, and placement of geo-textile bags for temporary wave protection at all three sites. The placement of geo-textile bags for temporary wave protection also included emergency works to protect bank failures experienced at the Chauhali site from June 16 to June 21 along roughly 1.8 km of bank line. Visualization of progress of these works are charted in detail in **Appendix B**. The described works and associated tasks are also being administered for the additional 3 km and 1.8 km of protection at Harrirampur and Chauhali respectively (detailed in variation orders to the contracts).

The major ongoing project service expenses include the ISPMC contract, the BWDB PMO office operation and salaries, BWDB Capacity Development Program, Land Acquisition and ADB Interest and Service Charges.

A summary of implementation progress, by primary component, is given in **Table 6.** Implementation progress details, on an individual contract package basis, are given in **Table B-3.**

Table 6 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)
Goods; B: Materials	3	1,002	1002	N/A
Goods; C: Vehicles & Equip.	5	65	22	10
Services; D: Consult. Service	2	1,039	160	236
Services; G: Program Mngt.	3	1	1	1
Works; A: Civil Works	5	1,828	720	850
eXtra; E: Capacity Dev.	1	8	1.5	3
eXtra; F: Land Acqn. & Res.	1	885	177	442
eXtra; G: Program Mngt.	2	133	57	64
eXtra; X: Int. & Serv. Charge	1	200	10	20
Totals	**23**	**5,160**	**2,150**	**2,646**

2.2.5 Environmental Management

By letter of 25 May 2016, PMO informed that Mr. Muhammad Jahangir Alam, Executive Engineer, had been "nominated as focal point for smooth operation of PMO-FRERMIP specially the implementation of Environmental Management Plan (EMP)" – with immediate effect. At the end of the reporting period the PMO Environmental Officer was briefed on progress made.
The ISPMC prepared and conducted a one-day training course in EMP implementation for PMO and SMO staff, Supervising Consultants and Contractors, in each of the three current Tranche-1 implementation sites in Chauhali (13 participants), Zafarganj (10 participants) and Harirampur (10 participants) on 26-28 April 2016. Following completion of the courses, a Report on Environmental Training (69 Pages; April 2016) was prepared and submitted to PMO.
Round 3 of the EMP compliance monitoring was carried out by the ISPMC in the three Tranche-1 implementation sites just before the start of the Ramadan on 4-5 June 2016 and the monitoring report hereon was submitted to the PMO on 7 June 2016. Main observations during this monitoring round include:

- None of previous monitoring reports have been received by the on-site implementation parties (SMO, Supervising Consultant, Contractor) as yet, resulting into little follow up of the recommendations made in these reports.
- Contractors have improved only little or not at all in environmental management in workers' camps (water supply, sanitation and solid waste management).
- No Grievance Redress Mechanism (GRM) is in place in any of the implementation sites. Residents from the surroundings at the Harirampur camp sites complained strongly, and for the second time, to ISPMC during the visit about the poor sanitary conditions in the toilet areas and bad smell resulting from these.
- Although Contractors state that they have met the contractual requirement to appoint an

Environmental Inspector, the latter were either absent or only available during part of the ISPMC visit and do not seem to have much of a clue of what their responsibilities and duties are.

- None of the Contractors has started the contractual requirement for monthly reporting on environmental management as yet.
- Supervising Consultants fell short of getting the Contractors complying with their contract obligations in environmental management.

The ISPMC provided further tools and guidance on monthly reporting, GRM establishment and operation to implementing parties during Round 3, and included these in their EMP compliance monitoring report.

On 15-16 June 2016 the team's national Fisheries Specialist collected information on the status of fish sanctuaries and consulted key fisheries officials in the project areas. He also prepared a note on fisheries benefits of the Tranche-1 interventions to help the team's economists calculate IRRs.
The team's environmental specialists carried out first exploratory visits to most of the proposed Tranche-2 project sites (Harirampur in PLB-1/2 and Zafarganj in JLB-2 on 19 June 2016; Chauhali in JLB-2 on 20/6; and Kaijuri-Baghabari in JRB-1 on 21/6). Preliminary consultations with local people and observations made during the visit were incorporated in a draft Initial Environmental Examination (IEE) and Terms of Reference (ToR) (Version 1 of 27/6/2016) for a subsequent Environmental Impact Assessment (EIA) that the ISPMC will prepare for the proposed Tranche-2 interventions, i.e. in parallel to the design activities for these works.

Projected environmental work for Q3/2016

As most of the construction works in the three implementation sites in Chauhali, Zafarganj and Harirampur are understood to cease during the monsoon period as of end-June, no EMP compliance monitoring will be conducted by the ISPMC in the coming months. The next monitoring round is currently planned to take place in November/December 2016.
It is anticipated to submit the IEE and ToR/EIA for the Tranche-2 works to DoE for their review in early-July 2016 and that their approval or no-objection to proceed will be received before September 2016. In that case the necessary fieldwork in the Tranche-2 areas and conducting the EIA can start in September. It is foreseen that a draft EIA can be available for review in February 2017.

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

2.2.6 Resettlement Services

The ongoing construction works at three sites at Chauhali, Harirampur and Zafargang will require land acquisition and limited resettlement. The ISPMC resettlement team has reported identified issues to the PMO during earlier quarters indicating that the resettlement issue require immediate necessary actions in order to comply with the ADB social safeguards policies regarding involuntary resettlement. The ADB mission in April reflected this and asked for the preparation of the resettlement plans prior to 30 July 2016.

The INGO is the key player to prepare the draft resettlement plans. After initial problems in fielding competent staff, the INGO started working with higher capacity from June onwards. Considering the tight schedule, the ISPMC allocated several team members additionally to the resettlement task and assisted with the preparation of boundary plans for land acquisition, land acquisition maps based on scanned and geo-referenced mouza maps, the first I-pad based field survey at Zaffarganj, training the INGO staff, and the preparation of dummy tables and final tables for Zaffarganj. Finally the ISPMC resettlement specialist conducted several reviews of initial draft resettlement plans. The INGO plans to submit the first resettlement plan for Zaffarganj after the Eid holidays in mid-July

2016.

During the next quarter all three resettlement plans are expected and potentially activities pertaining to the resettlement process for 23km of embankment construction alongside the Hurasagar project are expected to start.

2.2.7 Livelihood Development

The Gender and Development activities implement as per Gender Action Plan (GAP) and reports progress of gender aspects including involvement of men and women that are clearly summarized according to general activities and activities for the different stages of the sub-component while indicators, targets, and progress are indicated for each activity with some explanations where necessary.

The Gender Action Plan (GAP) implementation monitoring for the reporting period is presented in **Appendix F**. All activities as per GAP and its' progress were reported and reviewed based on MIS data in the form of Cumulative Progress and Progress of Reporting Quarter.

The Gender and Development training activities in the reporting period:

(i) Some informal discussions held on employment of men and women as well as labor standard including equal wage for women and men for equal work with the site Engineers and contractor's field staff when Social Development and Gender Specialist visited several sites but no formal training or orientation held yet.

(ii) Social Development and Gender Specialist also discussed about occupational health and safety, safe water supply, sanitation and separate toilet for women where needed.

(iii) It is discussed with project team and agreed that a gender specific field monitoring format will be developed by Social Development and Gender Specialist to incorporate relevant sex disaggregated information in field monitoring reports and contractors' compliance reports.

(iv) The Resettlement Plans (RPs) are under preparation and INGO has been told to ensure effective consultation with women in the affected areas and maintain sex-disaggregated data on Project Affected Persons (PAPs) along with entitlement benefits.

2.2.8 Community-Based Flood Risk Management

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 in the next quarter this accommodation will be made available.

Preparation of the documents to be submitted as per Submission Form 1 is in progress. The EoI evaluation criteria was drafted and approved by ADB. Concurrently, finalization of the bid document to procure PMU office equipment within the budget allocation is in progress following initial comments from ADB.

2.2.9 Management Information Systems (MIS)

The existing project implementation database continues to monitor 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. Some charts depicting the physical progress of the work contracts have been developed to visualize the project progress and facilitate the Quarterly Progress Report. The charts are attached in the **Appendix B**.

The original asset management system (AMS) under the project, as proposed in the DPP, will be initiated starting in September. In order to develop AMS, two ToRs will be prepared starting in the next quarter.

Appendix D summarizes the integrated MIS activities.

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.

Seven ToRs for these studies have been developed and submitted to PMO. Two of them (INGO, CEGIS) have been awarded. 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 7**.

Due to the 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 7 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	EOI received, evaluation under process.
S-05	Participatory O&M Support Services	ToR preparation is in progress.
S-06	Multi-Beam Eco Sounding Survey	ToR prepared and sent to PMO.
S-07	Erosion Prediction Services	CEGIS signed contract with BWDB.
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 prepared. Further processing on hold until matters become clearer.

2.3.2 Capacity Building

The summary table for the capacity building progress of this quarter is shown in the **Table 8** below. The details of the capacity building program is attached in the **Appendix H**.

Table 8 Summary of Capacity Building Progress

Types of Trainings	Total Number of Trainings	Under Discussion	Under Preparation	Approved for Implementation	Completed
Local Training: PMO	4	2	1	0	1
Local Training: ISPMC (Environmental)	1	0	0	0	1
Overseas Training: PMO	1	0	0	1	0
Overseas Training: ISPMC	1	1	0	0	0
Conference Participation: ISPMC	1	1	0	0	0
Study Tours: PMO (China)	1	0	0	1	0

2.3.3 Inception Report

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 Cirle-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 13 April 2016. Subsequently additional minor edits were made and the updated version made available on 14 May 2016. During the ADB mission in mid-June, the PMO confirmed that the inception report is final.

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 Mil[3] 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 draft initial Master Plan has been handed over during the ADB mission for initial review.

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

River Training
Issues to be studied include:

- the effect of narrowing the river on upstream water levels,
- the river corridor and plan form; 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.

[3] 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.

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.

Off takes 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

Preparation of the initial Strategic Environmental and Social Assessment (SESA) is nearing completion. The SESA will be submitted early next quarter for initial review by core stakeholders (PMO, RNE, ADB). 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.

A related technical note on impacts on Fisheries is under preparation and the draft may be finalized at the end of July 2016.

Coordination

The study team continued the coordination of activities with relevant government organizations and other programs. Of special importance is the Delta Plan 2100. Several meetings were held with the team and data and draft reports shared in order to coordinate closely the approach to river management. On 27 June FRERMIP presented its river management approach to GED and water resources professionals. The presentation is attached in Annex F.

2.3.5 Feasibility Study

In preparation of the feasibility study several important activities have taken place:

(i) PMO and ADB clarified the overall approach with focus on river stabilization and flood risk management without special focus on weighting specific technologies

(ii) The ISPMC submitted the initial site selection on 20 June 2016, which is based on the development of the ongoing work as per original plan laid down in the PPTA report (2013). Naturally adjustments are required to overall changed conditions. By and large the PPTA concepts for Tranche-2 can be followed with an initial estimated budget in the order of magnitude of the PPTA estimate.

(iii) In preparation of the environmental work for the updated feasibility study for Project-2 the ISPMC prepared the related IEE for obtaining approval from the Department of Environment. The final document is expected to be submitted during July 2016. After approval through DoE it will guide the preparation of EIA and EMP.

The international hydrologist has built the initial models for updating with- and without project scenarios. His work focus has been shifted to the modelling in order to compensate for yet not approved required modelling resources in the consultancy contract.

3. ADMINISTRATIVE ARRANGEMENTS

3.1 *Establishment of Project Offices*

The PMO and two ISPMC offices are fully operational. The project management team of the ISPMC and the BWDB PMO Office are both located in the Firoz Tower, 152/3/B Bir Uttam, Kazi Nuruzzaman Road (Green Road), Dhaka-1205. The ISPMC River Study 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 19 international specialists expended 46 person-months (p-m), and 26 national specialists expended 129 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.

3.2 *Important Events*

Two ADB missions took place during the quarter:

(i) Review mission from 3 to 7 April,

(ii) Special project administration mission from 12 to 16 June

The 2nd round table discussion with BWDB's upper level management took place on 25 May 2016. Attended by DG and three technical ADGs including important Chief Engineers and Superintending Engineers, the round table discussed on how to proceed with the Board's reputation and image in the eyes of the Government. As outcome, the DG asked the FRERMIP to prepare a summary of BWDB's activities and core issues as part of general capacity building.

4. FINANCIAL ARRANGEMENTS

4.1 *Statements of Expenditure*

Using the project implementation database, the ISPMC tracks 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 which was claimed for reimbursement from ADB 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, the total amount of all the bills is Tk 2076 Mil (US$ 26.5 Mil) or 25% of the total available project funds, which is shown in the **Table A-5**.

5. ISSUES FOR DISCUSSION AND AGREEMENT

5.1 *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.

5.2 *Embankment Construction*

The Design Circle-1 is currently working on the design of the embankment along Jamuna and Hurasagar rivers. The design and technical specifications are fundamental for the bidding documents to commence the work during the coming dry seasons. The outcome of the subcommittee discussions in mid-June were ambiguous leaving large gaps in the embankment due to the reluctance of the designer to dimension drainage structures and fish passes, and suggesting embankment work at places different from the land acquisition. As the project only has two dry season construction windows left, there is a strong need to assure a competent contractor to complete the work on time. To this end, larger and more competent contractors will be attracted when bundling the five packages into one contract with five lots.

5.3 *Resettlement Plans*

While the INGO attempts to meet the deadline for the preparation of the resettlement plans, there are demonstrated capacity gaps. The PMO will provide strong guidance and document the progress towards completion of the resettlement plans weekly. The international resettlement specialist will assist during the meetings and continue reviewing the draft resettlement plans.

5.4 *Security Situation*

During the night from 1 to 2 July a terror attack affected the international community. While some expatriates are leaving the country because of this, the ISPMC's international experts in general expressed their willingness to continue working in Bangladesh, with the exception of one team member. However, the general feeling is to reduce the exposure for some time and observe carefully how the security situation develops. In addition, the team generally feels that much can be done through home office work, as all team members are well familiar with the conditions in Bangladesh. While the team members expressed their willingness to come back, many are not willing to stay longer periods of time, but rather between two weeks and one month maximum. The changed situation will ask for adjustments in the first Variation Order.

6. REFERENCES

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

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

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

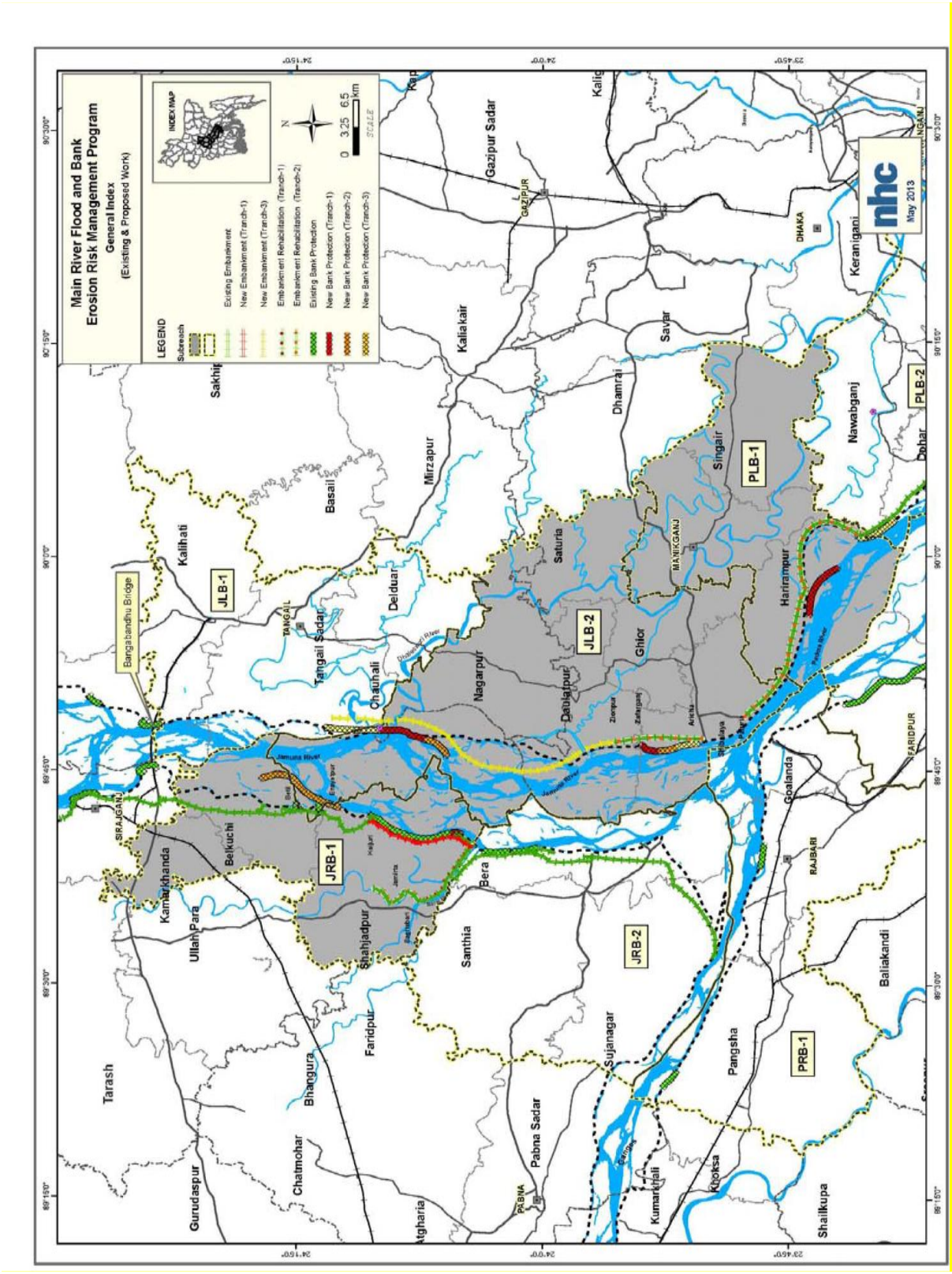
4. BWDB, 2014: Development Project Proposal, Flood and Riverbank Erosion Risk Management Investment Program – Tranche 1, 2014 May

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

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 CBFRM 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	8	0	0	0	0	**8**
E2: DDM Training	Service: Training	0	2	0	0	0	**2**
E3: MIS Development	Service: Instit.Cap	34	0	0	0	0	**34**
							44
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		**3,452**	**81**	**1,744**	**1,505**	**774**	**7,557**

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

Value (BDT Mil)

Code	Outputs	Total Cost Est.	Fiscal Target	Implem Progress	Bill Amount
1	Works	3,520	428	720	439
2	Materials	1,306	1,003	1,002	186
3A	Vehicles - BWDB	64	54	11	
3B	Equipment - BWDB	18	16	11	2
3C	Equipment -DDM	1	0	0	
4	Resettlement	30	8	0	
5	Training	44	49	1	8
6A	Consulting Services - Project Management -BWDB	1,018	322	155	77
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	22	2
7B	Project Management - DDM	12	4	0	
8	Interest	199	10	10	
9	Unallocated	968	315	213	
Total		**7,557**	**2,383**	**2,150**	**719**

Table A-5 DPP Categories with total cost and progress

DPP Code	Description	Revenue Component (BDT Mil) Cost	Fiscal Target (2014-15)	Fiscal Target (2015-16)	Physical Progress	Financial Progress
4826	ADB interest during implementation & service charge for Netherland Grant	199.2	0	10	10	10
4840	BWDB Capacity Development Program	104.4	0	27.5	14.7	14.7
4849	Resettlement Support Program	29.7	0	0	0	0
4874	Implementation Consultant	406.4	0	30	150	
4874	River Stabilization and Land Recovery Study	484	0	102.5	15	153.4
4874	Feasibility of Tranche -2/3	178	0	30	15	
4874	Resettlement Implementation Support	17.5	0	2	2	1.62
4874	Livelihood Support Program	65.1	0	1	0	0
4874	Environmental Management Program	59.7	0	0	0	0
4874	Community based Disaster Management Program	66.8	0	0.33	0	0
4874	Participatory regular O&M training support	24	0	0	0	0
4886	Land/River Survey and Data Processing	8	0.5	2	0	2
4886	Survey and Investigation/Data Processing	86.7	4.6	7	7	6.9
4700	a) Salaries and allowances	83.6	0	0	0	0
4800	b) PMO Operational Expenses	49.6	1	5	5	5
4899	PIU-DDM Operational Expenses	12	0	1.4	0	0
	Revenue Component total	1875	6	218		193

Capital Component

DPP Code	Description	Cost	Fiscal Target (2014-15)	Fiscal Target (2015-16)	Physical Progress	Financial Progress
6807	Transport vehicle (Jeep 5 unit, 10 motorcycle, 1 speed boat)	64.1	22	16.5	13.7	13.7
6819	Computer and Office Equipment	9	2.2	2.3	2.8	2.8
6819	Computer and Office Equipment (DDM)	0.6	0	0.48	0	0
6851	Survey Equipment	8.9	0	7.5	6.7	6.7
6901	Land Acquisition	884.8	190	448.1	200	448.1
7016	Construction of Inspection Bunglow at Manikganj	5	0	1.5	0	0
7041	Regulator/Sluice (new construction 4 nos and repair 3 nos) in JRB1 subproject area	140.6	0	0	0	0
7081	23 km Embankment along the Right Bank of Jamuna and the left bank of Baral-Hurasagar with 5 km crest pavement	788.8	0	0	0	0
7081	Protective works at right bank of Jamuna at Kaijuri area at left bank of Jamuna at Chauhali, Jafforganj, Harirampur & others area-15.00 km	3266	0	1414	1722	1411
7081	Land Recovery/River Training Piloting works	380	0	0	0	0
7081	Adaptive Protection and Emergency	280	0	0.7	0	0
7901	CD and SD	72.5	0	0	0	0
	Sub-Total Capital Component	5900		1890	2154	1882
	Total	7774	218	2108	2154	2075

Table B-1 Design Progress Details

Description	Total	Design Data Collection			Prog (%)		Remarks
		Surv	Hydraul	Geotech	Desn	Dwg	
Component A: Civil Works							
Koitola SMO							
Cons/ReCon: Embank: 4.8 km: Embankment Reconst. (4.8 km): Baghabari - Verakhola; km 12.5-17.3		c	c	na	100	0	Design Completed
Cons/ReCon: Embank: 5.7 km: Embankment Reconst. (5.7 km): Baghabari - Verakhola; km 17.3-23		c	c	na	100	0	Design Completed
New: Embank: 5 km: Embankment (5 km): Kaijuri - Bhatpara; km 0-5		c	c	na	100	0	Design Completed
New: Embank: 3.5 km: Embankment (3.5 km): Bhatpata - Gala; km 5-8.5		c	c	na	100	0	Design Completed
New: Embank: 4 km: Embankment (4 km): Gala - Verakhola; km 8.5-12.5		c	c	na	100	0	Design Completed
New: Regulator: 1 No: Kaijuri Reg 6V 1.5x1.8m		p	c	n	50	0	Design in Progress
New: Regulator: 1 No: Gudhibari Reg 1V 1.5x1.8m		p	c	n	50	0	Design in Progress
New: Regulator: 1 No: Gala Reg 4V 1.5x1.8m		p	c	n	50	0	Design in Progress
New: Regulator: 1 No: Lochna Reg 2V 1.5x1.8m		p	c	n	50	0	Design in Progress
New: Road: 5 km: Road (5 km): Kaijuri - Bhatpara; km 0-5		p	c	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): Koijhuri/Verkola		n	n	n	0	0	Design Not Yet Started
Koitola SMO Totals	***12***	***5***	***10***	***0***	***5***	***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	n	100	100	Desn. & Dwg. Complete
New: Revetment: 3.5 km: Revetment (3.5 km): Harirampur; km 0-3.5		c	c	n	100	100	Desn. & Dwg. Complete
New: Revetment: 3.5 km: Revetment (3.5 km): Harirampur; km 3.5-7		c	c	n	100	100	Desn. & Dwg. Complete
Manikganj SMO Totals	***4***	***3***	***3***	***0***	***3***	***3***	
Tangail SMO							
New: Revetment: 2.5 km: Revetment (2 km): Chauhali; km 0- 2.5		c	c	n	100	100	Desn. & Dwg. Complete
New: Revetment: 2.5 km: Revetment (2.5 km): Chauhali; km 2.5-5.0		c	c	n	100	100	Desn. & Dwg. Complete
Tangail SMO Totals	***2***	***2***	***2***	***0***	***2***	***2***	
Component Totals	***18***	**10**	**15**	**0**	**10**	**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	EoI Notice Date	EoI 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	13Apr16	19Apr16	19Apr16	07Jun16
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	28Mar16	28Mar16	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***	***3***	***3***	***3***	***4***
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	09May16	10May16
Component Totals				***2***	***2***	***2***	***1***	***4***	***4***	***2***	***2***	***2***	***4***
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**	**13**	**13**	**13**	**19**

Table B-3 Implementation Progress Details, by Contract

Contract Code	Description	Contractor	Best Cost Estimate (BDT Mil)	Progress during Qtr%	30-Jun-2016 Current Qtr (%)	30-Jun-2016 Current Qtr (BDT Mil)	30-Sep-2016 Next Qtr (%)	30-Sep-2016 Next Qtr (BDT Mil)	Remarks
Goods									
B: Materials									
G-01	Supply of Geobags: Chouhali, Sirajganj	BJ Geo-Textile	317.4	10	100	317.4	100	317.4	Implemenation Complete
G-02	Supply of Geobags: Zaforganj, Harirampur, Manikganj	BJ Geo-Textile	411.0	33	100	411.0	100	411.0	Implemenation Complete
G-03	Supply of Geobags: Harirampur, Manikganj	DFL-DCTL(JV)	274.0	18	100	274.0	100	274.0	Implemenation Complete
Component Totals			***1,002.4***			***1,002.4***		***1,002.4***	
C: Vehicles & Equipment									
G-05.1	2016 Supply of Jeep:		7.1	100	100	7.1	0	0.0	Implemenation Complete
G-06	Supply of Jeep, Motor Cycle & Boat:		46.1	8	8	3.7	16	7.4	Implementation Started
G-07.1	2015 Office Equipment: BWDB PMO	Logitech Computer Ltd.	2.2	0	100	2.2	100	2.2	Implemenation Complete
G-07.2	2016 Office Equipment: BWDB PMO	Source & Service	2.2	100	100	2.2	0	0.0	Implemenation Complete
G-08.1	2016 Supply of Survey Equipments:	Logitech Computers Ltd.	6.7	100	100	6.7	0	0.0	Implemenation Complete
Component Totals			***64.4***			***21.9***		***9.6***	
Goods Totals			***1,066.7***			***1,024.3***		***1,011.9***	
Services									
D: Consulting Services									
S-01	ISPMC; Tranche 1:	NHC (JV) Mott MacDonald	1,018.2	9	15.2	154.8	24.4	247.9	Satisfactory Progress
S-02	Resettlement Plan:	VRDS-HCL-JV	16.2	5	5	0.8	7	1.1	Implementation Started
S-07.1	2015 Erosion & Morphological Chg: Jamuna, Ganges, Padma	CEGIS	4.6	0	100	4.6	100	4.6	Implemenation Complete
Component Totals			***1,039.0***			***160.2***		***253.7***	
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	Implemenation 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	Implemenation 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	Implemenation Complete
Component Totals			***0.5***			***0.5***		***0.5***	
Services Totals			***1,039.5***			***160.7***		***254.2***	
Works									
A: Civil Works									
W-06	Revetment: Jamuna at Chauhali, R1; km 0-2.5	I-J (JV)	386.9	11	23	89.0	30	116.1	Satisfactory Progress
W-07	Revetment: Jamuna at Chauhali, R2; km 2.5-5.0	I-J (JV)	387.5	3	23	89.1	40	155.0	Satisfactory Progress
W-08	Revetment: Jamuna at Zaffarganj, km 6.1-8.1	WEL-NZK-PTSL (JV)	557.8	8	9	50.2	15	83.7	Satisfactory Progress
W-09	Revetment: Padma at Harirampur, R1; km 0-3.5	M.M.Builders & Engineers Lt	271.3	84	99	268.6	100	271.3	Satisfactory Progress
W-10	Revetment: Padma at Harirampur, R2; km 3.5-7	M.M.Builders & Engineers Lt	224.9	79	99	222.6	100	224.9	Satisfactory Progress
Component Totals			***1,828.4***			***719.5***		***850.9***	
Works Totals			***1,828.4***			***719.5***		***850.9***	
eXtra									
E: Capacity Development									
X-05	BWDB Training and Study Tours:	n/a	8.1	15	15	1.2	40	3.2	Implementation Started
Component Totals			***8.1***			***1.2***		***3.2***	

Table B-3 Implementation Progress Details, by Contract

Contract Code	Description	Contractor	Best Cost Estimate (BDT Mil)	Progress during Qtr%	30-Jun-2016 Current Qtr (%)	30-Jun-2016 Current Qtr (BDT Mil)	30-Sep-2016 Next Qtr (%)	30-Sep-2016 Next Qtr (BDT Mil)	Remarks
F: Land Acqn & Resettle									
X-07	Land Compensation:	n/a	884.8	20	20	177.0	50	442.4	Implementation Started
Component Totals			***884.8***			***177.0***		***442.4***	
G: Program Management									
X-02	BWDB Staff Salaries:	n/a	83.7	5	43	36.0	48	40.2	Satisfactory Progress
X-03	BWDB Office Operations:	n/a	49.6	5	43	21.3	48	23.8	Satisfactory Progress
Component Totals			***133.3***			***57.3***		***64.0***	
X: Interest & Serv.Charge									
X-01	ADB Interest & Service Charge:	n/a	199.2	5	5	10.0	10	19.9	Implementation Started
Component Totals			***199.2***			***10.0***		***19.9***	
eXtra Totals			***1,225.3***			***245.4***		***529.5***	
ProjectTotals			**5,160.0**			**2,149.9**		**2,646.5**	

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;	8.08
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		**1,268.71**
Project Total		***7,556.55***

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	21,162,390	121,162,390	0	0
Component Total		***186,430,308***	***186,430,308***	***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		**188,627,938**	**188,518,057**	**0**	**109,882**
Services					
D1	***ISPM; Consultant Serv.***				
S-01	ISPMC; Tranche 1;	76,547,664	9,951,196	56,645,271	9,951,196
Component Total		***76,547,664***	***9,951,196***	***56,645,271***	***9,951,196***
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		**81,639,024**	**14,385,593**	**56,645,271**	**10,608,160**
Works					
A2	***Riverbank Prot Works***				
W-06	Revetment; Jamuna at Chauhali, R1; km 0-2.5	04,237,983	94,856,565	0	9,381,418
W-07	Revetment; Jamuna at Chauhali, R2; km 2.5-5.0	35,068,852	122,912,655	0	12,156,197
W-08	Revetment; Jamuna at Zaffarganj, km 6.1-8.1	50,763,313	46,194,615	0	4,568,698
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	21,745,475	110,788,382	0	10,957,093
Component Total		***438,943,521***	***399,438,604***	***0***	***39,504,917***
Works Total		**438,943,521**	**399,438,604**	**0**	**39,504,917**
eXtra					
E1	***BWDB Training & Study***				
X-05	BWDB Training and Study Tours;	8,075,897	7,591,343	0	484,554
Component Total		***8,075,897***	***7,591,343***	***0***	***484,554***

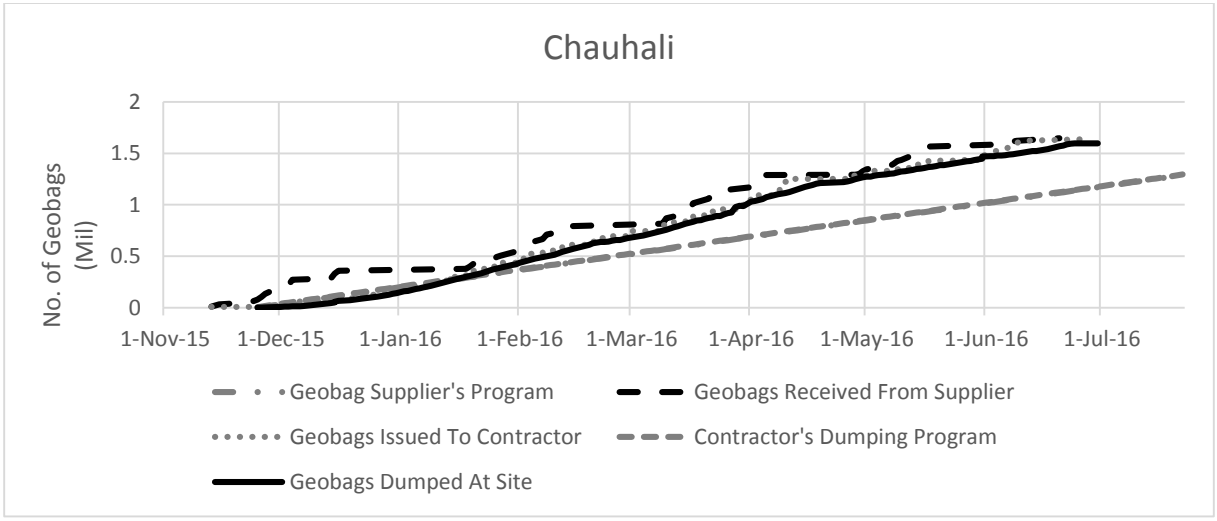
Table B-5 Disbursement Summary by Contract

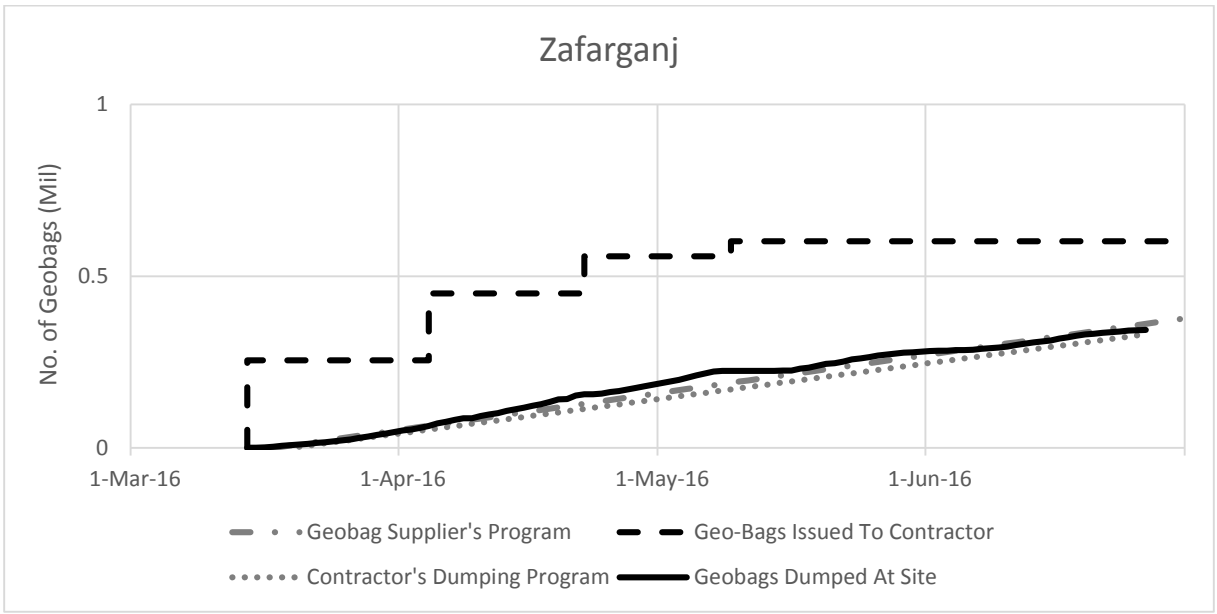
Code	Description	Total Amount (BDT	ADB (BDT)	GON (BDT)	GOB (BDT)
G2	***Office Opns BWDB***				
X-03	BWDB Office Operations;	1,866,059	1,642,132	0	223,927
Component Total		***1,866,059***	***1,642,132***	***0***	***223,927***
eXtra Total		**9,941,956**	**9,233,475**	**0**	**708,481**
Project Total		***719,152,439***	***611,575,729***	***56,645,271***	***50,931,439***

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
Imprest	**013**	**05-May-16**	**01**	**1**	207,335,427	188,675,239	78.50	2,403,506
			02	**2**	97,265,910	97,265,910	78.40	1,240,637
			03	**5**	587,364	552,122	78.60	7,024
			04	**7A**	152,600	134,288	78.74	1,705
L/C	**014**	**23-Jun-16**	**01**	**5**	7,488,533	7,039,221	78.40	89,786
L/C	**015**	**29-Jun-16**	**01**	**6A**	4,382,560	569,733	78.40	7,267
L/C	**016**	**29-Jun-16**	**01**	**6A**	3,590,800	466,804	78.40	5,954
			02	**6A**	20,439,820	2,657,177	78.40	33,893
			03	**6A**	24,946,880	3,243,094	78.40	41,366
Project Totals					**719,152,439**	**611,575,729**		**7,791,947**

Chart B1
Physical Progress





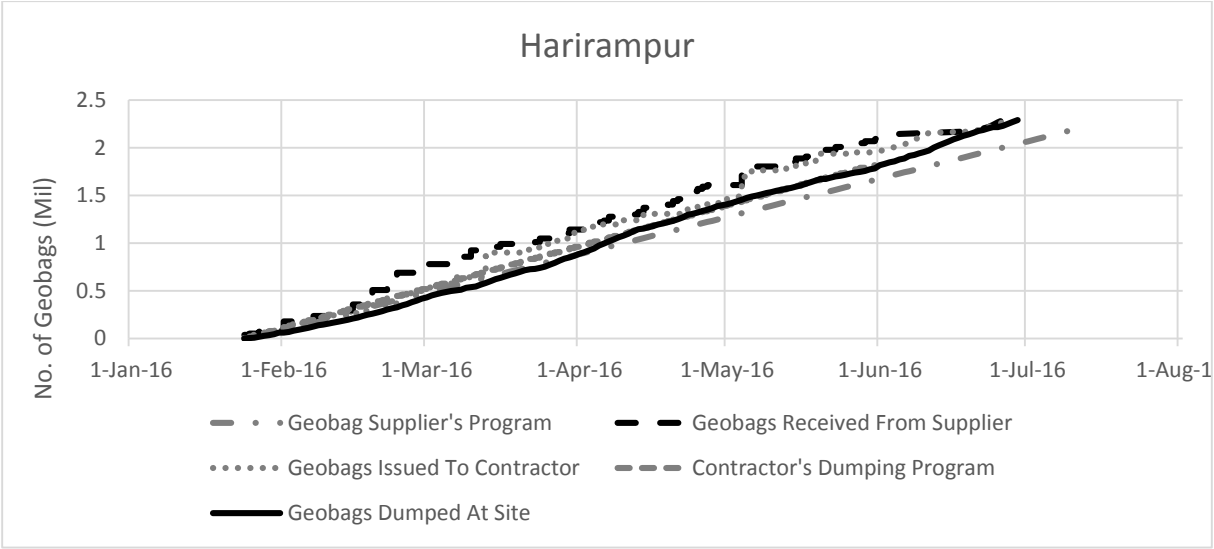
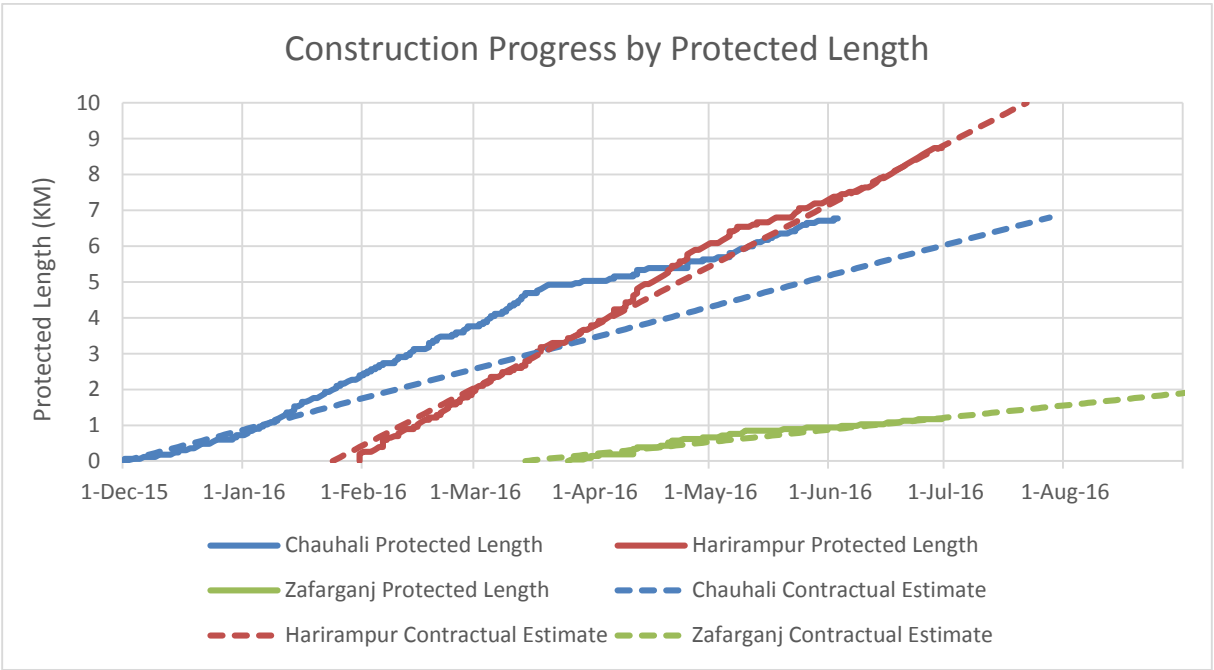


Chart B2
Length Wise Riverbank Protection Progress



Appendix C Administrative Details

Table C-1

Position	Firm	Name	Man-month		
			Contract	Used	Balance
MAIN TEAM - INTERNATIONAL					
Team Leader / River Mangement	NHC	Knut Oberhagemann	35.0	7.30	27.70
Institutional Development Specialist	EMM	Robert A. van de Rutte	5.0	0.74	4.26
Morphologist	DELTARES	Eric Mosselman	5.0	1.67	3.33
River Engineer	NHC	Bruce Walsh	10.0	1.77	8.23
Construction / Quality Control	EMM	R. Mahendrarajah	24.0	0.00	24.00
Flood Disaster Risk Management Specialist	NHC	Dave Burkholder	8.0	2.12	5.88
Social Development / Resettlement Specialist	EMM	Jean Louis Leterme	8.0	3.86	4.14
Economist	NHC	John D. M. Roe	3.0	1.33	1.67
Financial Management Specialist	EMM	J. Spurr	1.5	0.00	1.50
Hydrologist	NHC	Derek Stuart	3.0	0.90	2.10
Environmental Specialist	EMM	Wandert Benthem	7.0	1.57	5.43
Information and Data	NHC	Dave Burkholder	4.0	3.41	0.59
Int'l Construction Advisor-Engineer	NHC	Graeme Vass	12.0	1.76	10.24
		Totals	**125.50**	**26.44**	**99.06**
NATIONAL					
DTL / Flood & Erosion Risk	EMM	Sharif Al Kamal	37.0	8.70	28.30
Institutional / Capacity Development Specialist	RPMC	Dr. M. A. Qassem	10.0	3.42	6.58
River Engineer (Morphologist)	CEGIS	Dr. Maminul Haque	8.0	3.91	4.09
Community-based Flood Risk	RPMC	Quazi Towfique Islam	36.5	9.38	27.12
Resettlement Specialist	EMM	Shireen Akhter	15.0	1.86	13.14
Project Economist	RPMC	Amiul Islam	7.0	3.06	3.94
Procurement Specialist	RPMC	A. Abdullah	8.0	0.00	8.00
Construction Engineer	RPMC	Mirza Harunar Rashid	30.0	5.70	24.30
Financial Management Specialist	EMM	Md. Habibur Rahman/**Ektedar**	12.0	1.36	10.64
River Engineer Flood	RPMC	Mukhles uz zaman	15.5	7.48	8.02
River Engineer Flood	RPMC	Md. Motiur Rahman	13.5	2.37	11.13
Social Development and Gender Specialist	EMM	Ruh Afza Ruhi/**Begum S. Nahar**	12.0	2.39	9.61
Environment Specialist	RPMC	Dr. Md. Nurul Islam	16.0	2.86	13.14
Training Coordinator	EMM	Jahangir Kabir/ **Shameem Ahmed**	14.0	5.95	8.05
Information and Data	EMM	Asrafuzzamen	15.0	0.00	15.00
Hydraulic Structural Engineer	RPMC	Md. Dabir Uddin	12.0	0.00	12.00
Road Engineer	RPMC	Zakir Hossain	6.0	0.00	6.00
Geotechnical Engineer	EMM	Md. Korban Ali	7.0	0.00	7.00
Site Engineer 1 (PRB-1)	RPMC	Md. Nurul Amin	33.0	7.46	25.54
Site Engineer 2 (JLB-2 Chauhali)	RPMC	KM Nazmul Haque/A.Jalil/**Ekram Sarder**	33.0	7.20	25.80
Site Engineer 3 (JLB-2 Zaffarganj)	EMM	Md Faridul Alam	33.0	6.64	26.36
Site Engineers 4 (PLB-1 Harirampur)	EMM	Abdul Jalil/AKM Ruhul A./**Saiful Islam**	36.0	6.97	29.03
		Totals	**409.50**	**86.71**	**322.79**
TUDY TEAM					
INTERNATIONAL					
Task Leader / Flood & River	NHC	Carsten Stuab	10.0	6.92	3.08
Institutional Development	EMM	Robert A. van de	3.0	0.33	2.67
Morphologist	DELTARES	Sanjay Giri	7.0	0.90	6.10
River Engineer (River Training)	NHC	Gerritt Klaassen	7.0	3.07	3.93
Water Resources Management	DELTARES	W. J. Oliemans	5.0	0.37	4.63
Economist	EMM	Alexander Mueller	4.0	0.00	4.00
Social / Regional Development	NHC	Mark Hopkins	5.0	5.01	-0.01
Environmental Specialist	EMM	Wandert Benthem	4.0	1.66	2.34
Hydrologist	NHC	Malcolm Leytham	2.0	0.72	1.28
		Totals	**47.00**	**18.98**	**28.02**
NATIONAL					
Water Resources Management	RPMC	G M Akram Hossain	10.0	8.26	1.74
Flood Management Specialist	RPMC	Md. Makbul Hossain	6.0	7.55	-1.55
River Engineer (Morphologist)	CEGIS	Dr. Maminul Haque	9.0	2.30	6.70
Economist	EMM	Dr. Shaker Ahmed	4.0	0.00	4.00
Regional / Spatial Planner	RPMC	Dr. Shamim M Haque	4.0	3.37	0.63
Institutional Development	RPMC	Dr. M. A. Qassem	4.0	3.93	0.07
River Engineer	RPMC	Md. Motiur Rahman	8.0	6.94	1.06
Hydrologist	EMM	Imdadul Haque	6.0	0.00	6.00
Social Development and Gender	EMM	Ruh Afza Ruhi/**Begum**	5.0	2.70	2.30
Environment / Climate Change	EMM	Md. Rakibul Haque	5.0	0.00	5.00
Water Supply and Water Quality	EMM	Md. Mozammel	5.0	0.00	5.00
Agriculture Specialist	RPMC	Dr Quazi Reasul Islam	4.0	2.89	1.11
Fishery Specialist	RPMC	Dr. Md. S. Howlader	3.0	3.46	-0.46
		Totals	**73.00**	**41.41**	**31.59**
ICAL SUPPORT STAFF					
Junior Engineer - 1	RPMC	Mir Yousuf Ali	42.00	9.00	33.00
Junior Engineer - 2	RPMC	Mariam Khanam	42.00	8.36	33.64
GIS Specialist	RPMC	Hamida Khatun Popy	42.00	9.45	32.55
AutoCAD Technician	RPMC	Soelem Aafnan	42.00	7.85	34.15
		Totals	**168.00**	**34.66**	**133.34**
ECHNICAL SUPPORT STAFF					
Account's Officer	EMM	Md. Mofiz Uddin	42.00	9.00	33.00
Office Manager	EMM	Yousuf Hossain/ **Flowrence Dona**	42.00	9.28	32.72
Office Secretary	EMM	Sonia Rahman	42.00	9.59	32.41
Office Assistant	EMM	Azmir Hossain Shakil	42.00	9.50	32.50
		Totals	**168.00**	**37.37**	**130.63**
		Grand Total	**991.00**	**245.56**	**745.44**

Appendix D Management Information System (MIS)

Table D-1 Summery of MIS activities

Component	Activities
QPR MIS	1. Monitoring design, tendering, physical implementation, financial activities 2. Accommodating goods, services and works for comprehensive monitoring 3. Producing detailed and summery tables showing progress on an individual contract or asset
Social survey	1. Comprising social survey data 2. Designing appropriate program for livelihood development component 3. Prepared and performed using iPad tool
River survey	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	1. Monitoring daily construction progress

Appendix E Environmental Management Program

FRERMIP – Environmental Activities and update as per 28 June 2016

Key-involved ISPMC consultants

Name	Position	Main Team	River Study Team
Wandert Benthem	International Environmental Specialist	• Monitoring of EMP implementation • Guiding Study on Biodiversity Baseline and Fisheries Sanctuary Establishment • Preparation of EIAs for Tranche-2 and Tranche-3 projects	• Preparation of Technical Notes on Environmental and Social impacts • Preparation of Strategic Environmental and Social Assessment (SESA) • Contributions to River Management Master Plan
Mark Hopkins (input completed; further inputs await Contract Variation Order)	International Social and Spatial Planning Specialist		• Contributing to Technical Note on Environmental and Social Impacts • Contributing to SESA
Dr Nurul Islam	National Environmental Specialist	• Monitoring of EMP implementation • Training in EMP implementation • Preparation of EIAs for Tranche-2 and Tranche-3 projects	
Dr Howlader	National Fisheries Specialist	• Guiding study on Biodiversity Baseline and Fisheries Sanctuary Establishment • Preparation of EIAs for Tranche-2 and Tranche-3 projects • Advising on fish pass for regulator design Tranche-1, Tranche-2 and Tranche-3	• Preparation of Technical Note status of existing fish Sanctuaries in study areas and way forward • Contributions to River Management Master Plan

ISPMC – Main environmental management activities as per the ToR

Main Team (2015-2023)	River Study Team (2015-2016)
Tranche-1: EMP compliance monitoring	Preparation of Technical Notes
Tranche-2: EIA preparation	Preparation of SEA for River Stabilization Plan
Tranche-2: EMP compliance monitoring	Contributions to River Management Master Plan
Additional studies (e.g. fisheries)	
Tranche-3: EIA preparation	
Tranche-3: EMP compliance monitoring	

Ongoing	Planned

Progress on key issues and outputs

	Issue / output	Progress / Issues	Needed action / whom
	MAIN TEAM		
1	Assigning PMO staff responsible for environmental & social management of FRERMIP, i.e. Executive Engineer in PMO and Sub-Divisional Engineers in SMO	• PMO officer-in-charge is Mr Muhammad Jahangir Alam as per PMO letter of 25/5/2016 • SMO officers on site are available	•
2	Compliance monitoring of EMP implementation in Tranche-1 pilot areas	• **Round 1** EMP compliance monitoring conducted in Chauhali and Harirampur on 23/24/2/2016; report sent to PMO on 28/2/2016 • **Round 2** EMP compliance monitoring conducted in all three sites on 21-22/3/2016 – report sent to PMO on 24/3/2016 • Training course on EMP implementation for SMO staff, Supervising Consultants and Contractors given in three sites on 26-28/4/2016 • **Round 3** EMP compliance monitoring conducted in all three sites on 4-5/6/2016 – report sent to TL on 6/6/2016 • SMO's, Supervising Consultants and Contractors have not received from PMO any monitoring report thus far • PMO has not established a Grievance Redress Mechanism (GRM) in any site • Contractors fall short on environmental management in worker's camps	• PMO to comment on report, send report to implementing parties, and follow up on recommendations • PMO to comment on report, send report to implementing parties, and follow up on recommendations • PMO to comment on report, send report to implementing parties, and follow up on recommendations • PMO to send reports to implementing parties and follow up • PMO to establish & operate GRM in all sites • PMO to follow up on monitoring recommendations
3	ToR for study on biodiversity baseline and fish sanctuary establishment	• ToR from PPTA amended; • Potential NGOs identified and consulted • Draft ToR submitted to PMU in January 2016 • Requested PMO to uphold approval till mid-2016 (i.e. after ToR for EIA studies for Tranche-2 project has been prepared) when study needs are better known	• ISPMC national Fisheries Specialist to revisit study proposal attuned to EIA preparation for Tranche-2 sites
4	Recommended fish pass for regulator design	• Justification prepared • Recommended specifications discussed and in preparation	• ISPMC national Fisheries Specialist to visit Tranche-2 sites to assess regulator and other fisheries needs
5	Preparation of EIAs for Tranche-2	• DoE consulted on needs in end-May 2016 • Tranche-2 sites were visited on 19-21/6/2016 • IEE Version 1 including ToR for EIA prepared, currently being reviewed internally	• Once internal review completed, PMO to submit to DoE for approval • Start EIA planned for September 2016
	RIVER STUDY TEAM		
6	Preparation of Technical Note of environmental and social impacts of river stabilization	• TN Version 4 prepared (date 8/6/2016), and internally reviewed.	•
7	Preparation of Technical Note on impacts fisheries and way forward	• In preparation; draft in July 2016 • DoF requires a MOU before information (e.g. on fisheries sanctuaries) can be shared	• ISPMC / national Fisheries Specialist
8	Preparation of Strategic Environmental and Social Assessment (SESA) of envisaged components under the River Stabilization Plan	• SESA Version 3 prepared (date 27/6/2016), and internally reviewed.	• ISPMC to consider submission to PMO for forwarding to Client and ADB/others
9	Contributions to River Management Master Plan	• First contributions submitted for internal review in May 2016	• Next version of RMMP awaited

Appendix F GENDER ACTION PLAN

Output/Activities		Indicators and Targets	Responsibility	Time frame	Progress
Output I: Integrated flood and riverbank erosion disaster risk mitigation measures for the subproject areas developed, implemented and maintained					
Sub-Component A1: Infrastructure improvement					
Activity:	A1-1 Construction of riverbank protection structures using appropriate technology and methods A1-2 Rehabilitation/construction of embankments				
Tasks:	- Ensure women benefit from employment in construction - Emphasize gender aspect of labor standard including equal wage for women and men for equal work - Occupational health and safety, safe water supply, sanitation - Separate toilet for women, where identified	- Include specific condition of contract in contractors' bid document with provision of 15% women in unskilled labor - Orient field staff to supervise, verify and ensure that the conditions are met - Incorporate relevant sex disaggregated information in field monitoring reports and contractors' compliance reports	PMO and work contractors	Entire T-1 period	Yet to include specific condition of contract in contractors' bid document with provision of 15% women in unskilled labor Informal discussion held when visited sites but no orientation held yet. At least one course will be held in next quarter Field monitoring format will be revised to incorporate relevant sex disaggregated information in field monitoring reports and contractors' compliance reports
Activity:	A2-2. Capacity development for community disaster management Unit				
Tasks:	- Establish community-based flood warning dissemination procedures - including indigenous techniques	- 50% of the units have flood warning mechanisms after three years (field survey at the end of each tranche) - 50% of the households, including 75% of women-headed	PMU-DDM and community disaster management NGO	End of T-1	Not yet started

Output/Activities		Indicators and Targets	Responsibility	Time frame	Progress
	- Establish and disseminate regular warning messages relevant to local context/language and linked with the national warning network - Where possible, conduct separate sessions with community women for flood risk mapping and needs assessment	households, and poor women living on the embankment, have increased resilience through preventive measures at household level after three years (field survey at the end of each tranche)			
Sub-Component A3: Participatory Regular O&M					
Activity:	A3-1 Capacity development of communities				
Tasks:	- Include women in the planning phase - Training of CDMU members, both female and male beneficiaries, in water management and O&M - Training on gender and different social awareness issues using the guidelines for gender requirements - Ensure gender-friendly time and venue for training	- 30% women participation in planning phase, as recorded in meeting minutes - 30% women members in management committee, as reflected in members' list - Women constitute 30% of all community training for O & M	PMO and community disaster management NGO	End of T-1	Not yet started
Sub-Component A4: Livelihood support for project affected people					
Activity:	A4-1. Construction of resettlement areas with basic infrastructure and facilities				

Output/Activities		Indicators and Targets	Responsibility	Time frame	Progress
Tasks:	- Ensure effective consultation with women in the affected areas and maintain sex-disaggregated data on Project Affected Persons (PAPs) along with entitlement benefits, as per Resettlement Plan (RP) - assure that gender issues are considered when planning resettlement villages and community facilities - Employ willing women in labor-intensive geo-textile bag filling, head loading, embankment and roadside tree planting, and in maintenance activities	- Full compensation for 100% women PAPs, as per RP entitlement. - 33% women involved in planning meetings - 15% to 20% women wage earners engaged in the project construction activities - At least 50% women participants will operate livelihood support programs in 3 community groups in and around resettlement areas.	PMO and Partner NGOs	By June 2018	Not yet started
Activity:	A4-2. Support for project affected people				

Output/Activities		Indicators and Targets	Responsibility	Time frame	Progress
Tasks:	- Establish contact with local representatives of the Departments of Agriculture, Fisheries, Cooperatives, Women's Affairs and so on to integrate with and build social networking at the local level - Establish the priority groups of abandoned, divorced, separated, widowed, and deserted women - Provide special training and financial support for women-headed households and for women in ultra-poor households - Ensure Gender-friendly time and venue for training - Training on skills and leadership development, gender equality and other social awareness issues - Ensure adequate follow-up to help women manage their IGAs	- Groups organized covering 90% women-headed households and women in ultra-poor households who are living on the embankment, as established by resettlement surveys, for special training and financial support. - Organize and impart training on skills and leader development to 30 persons including 10 women.	PMO and resettlement NGOs	End of T-1	Not yet started
Output II: Strengthening Institutional System for Flood and Riverbank Erosion Risk Management					
Sub- Component B1: Institutional capacity strengthening for flood and riverbank erosion risk management					
Activity:	B1-1 Capacity enhancement of BWDB				

Output/Activities		Indicators and Targets	Responsibility	Time frame	Progress
Tasks:	- Integrate a gender-specific module in the BWDB training - Include women in the training program	- 10% women in training programs - Gender aspects integrated in the relevant training program/module	BWDB	End of T-1	Not yet started
Activity:	B1-2 Support the initial set-up of the office of the chief engineer river management				
Tasks:	- Deploy women staff	- Give priority to women having required qualification for staff positions (approximately 10%)	BWDB	Entire T-1 period	?
Output III: Efficient program management system established					
Component C: Program Management					
Activity:	C-1: Implementation management				
Tasks:	- Establish MIS system with sex disaggregated data base for project reporting	- Identify gender indicators, incorporate in monitoring system and ensure regular reporting on progress of GAP implementation based on gender analysis	BWDB	By Dec 2016	On going
Activity:	C1-2: Preparation for Tranches 2 and 3				
Tasks:	- Incorporate gender issues in the planning process	- Prepare gender action plans for Tranche 2	BWDB	By Dec 2016	Not yet started

Appendix G Site Selection June 2016

This draft site selection is based on discussions with Project Director and ADB mission leader on 12 June, and ADB/RNE mission members (Natsuko Totsuka, Zahir Uddin Ahmed, and Khaleduzzaman) on 16 June 2016.

PPTA

The PPTA selected three priority sites and suggested systematic development at these sites over three successive projects (tranches) resulting in increasing river stabilization, flood protection and economic internal rates of return. To this end Project-2 builds on the investment and development of Project-1. This notwithstanding, this initial selection of the Project-2 works takes two important factors into account:

(i) The unpredictable nature of future flood seasons and consequently morphological changes at the sites requires an update of the work locations and program to current site conditions and expected near future changes.

(ii) Even though substantial work has been built along the lower reach of the Jamuna downstream of Bangabandhu Jamuna Bridge the reach is still largely unconfined experiencing unpredictable changes, depending on the flood season characteristics. To this end additional allocations have become necessary towards the goal of larger scale river stabilization. Specific concerns are to mitigate consequential damage arriving from the capital pilot project, integrate other existing work (Nagarbari revetment), and to provide allocations to mitigate unpredictable near-future changes before the Project-3 works is planned and implemented.

Guidance from Mission and PMO

Both mission and PMO advised the ISPMC with respect to the approach in light of Decision 9.2 (kha) of the ECNEC, dated 2 June 2016: The mission leader wrote on 14 June: *"…please note that your study results should not be distorted or altered due to the notification of ECKEC about min 50% requirement of dredging. The ISPMC must prepare the studies based on sound technical judgements, without considering the 50% of dredging.*"

Proposed Work and Uncertainties

The proposed work has been detailed in the following table and attached figure at the end.

Work Item	**Work details**	**Remark**
JRB-1 – priority site		
Kaijuri embankment	6km rehabilitation 24 km of road 1 regulator (provisional)	Following PPTA report **High certainty**
Riverbank protection	4km of adaptive allocation for the river reach Enayetpur to Kaijuri	Depending on (i) Morphology development (ii) bifurcation interventions (iii) stability of Enayetpur spur **Low certainty**
JRB-2 – adaptation works towards river stabilization		
Nagarbari Revetment	6km adaptation of BWDB work 5km d/s extension	Not in PPTA report, for confluence stabilization **Low certainty**
JLB-1 – provisional allocation towards river stabilization		
Tangail protection	5km between Pungli and Dhaleswari	Not in PPTA report, to mitigate collateral damage of the capital

		pilot dredging project **Low certainty**
JLB-2 – priority site		
Riverbank protection	Chauhali: 5km downstream extension Zaffarganj: 5km upstream extension	Adjusted PPTA approach to substantially stabilize the left bank **High certainty**
Embankment work	5 km channel closure at two locations at Chauhali and d/s Katkin plantation for char development	Adjusted PPTA approach to account for changed river situation and incorporate "building with nature" **High certainty**
PLB-1 – priority site		
Riverbank protection	10km upper slope protection 3km underwater adapatation	Following PPTA report (extended) **High certainty**
Embankment from Paturia to Harirampur	30 km reconstruction of Dhaka Southwest embankment	Expanding PPTA report **High certainty**
Fish passes	5 to connect Ichamatty River	Expanding PPTA report **High certainty**
MLB-2 Chandpur – additional work towards delta stabilization		
Chandpur Town	Scour apron at elevation -45PWD	Not in PPTA, to counter future negative morphological development **High certainty**

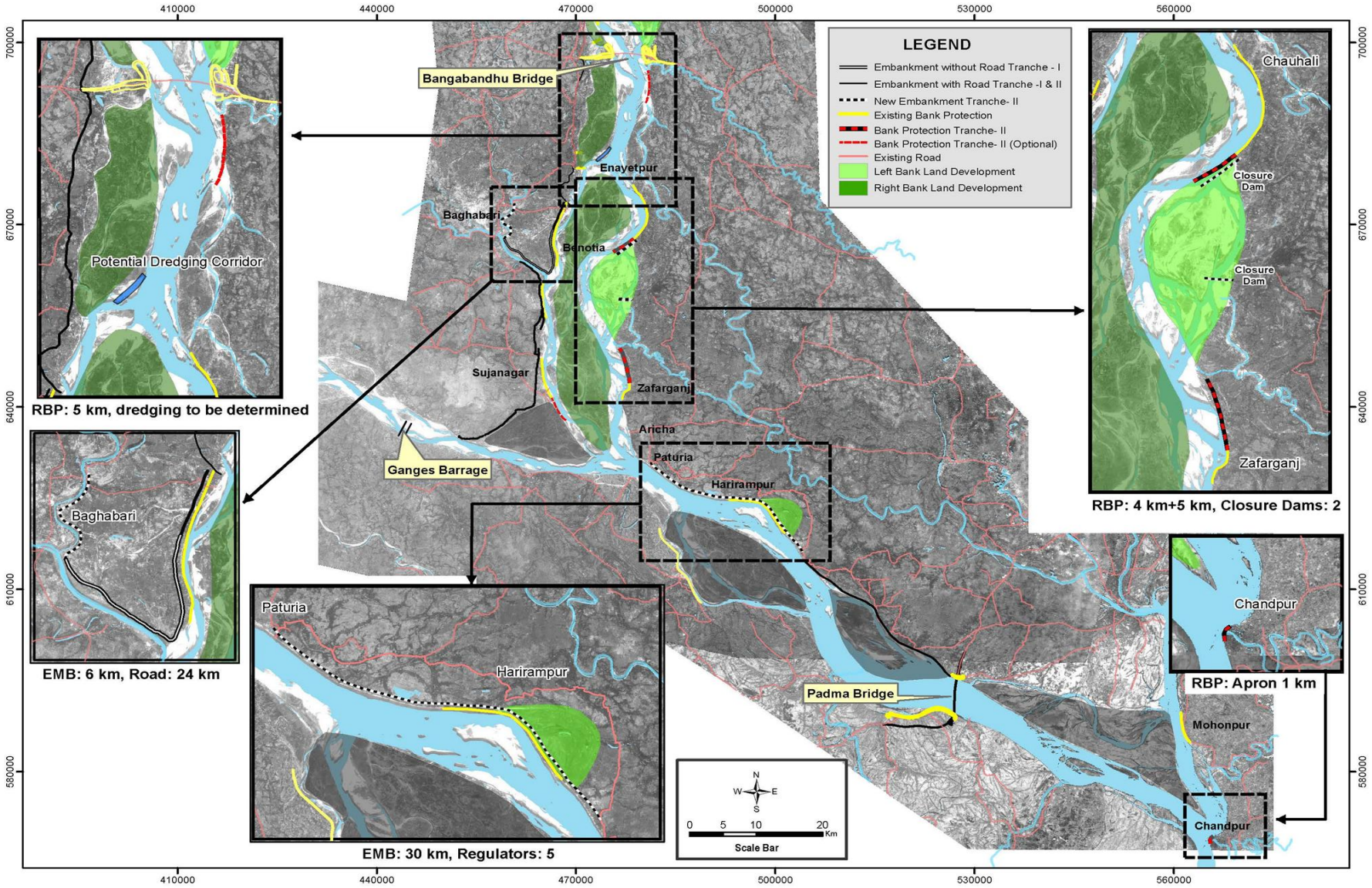
The summary tentative construction cost in million USD are provided in the following table:

	RBP	**EMB**	**Fish pass**	**total**	**Remark**
JRB1	12	10	0	22	Priority site
JRB2	15	0	0	15	
JLB1	15	0	0	15	
JLB2	30	5	0	35	Priority site
PLB1	20	30	5	55	Priority site
MLB2	10	0	0	10	

Note: 1km RBP = USD 3million, 1km EMB = USD 1 million, 1fish pass = USD 1million

The total cost amounts to around USD 150 million for work, with USD 112 (75%) for priority sites. Assuming this to be 80% of the total project cost, these will be in the order of USD 190million. This is around USD 50 million higher than the PPTA estimate for Project-2. Provisional works at Tangail, Enayetpur, Nagarbari, and Harirampur of around 20km riverbank protection will be unlikely required in full. Assuming that allocation for 50% will be built, around USD 30million will be saved arriving at the order of magnitude of the PPTA estimate.

The final site selection depends primarily on the completion of the river stabilization study and, as such, fundamentally on the approval of the modelling allocations in Variation Order #1. The Project Director confirmed during a joint meeting with the ADB mission on 14 June that this would be possible by mid-August, allowing for the multi-month modelling activities thereafter. Subsequently, the ISPMC team can prepare for the related field investigations, which ideally starts from November 2016. Especially, subsoil investigations and topographic surveys are expected to take around half a year to be completed.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LEGEND
Embankment without Road Tranche - I
Embankment with Road Tranche -I & II
New Embankment Tranche- II
Existing Bank Protection
Bank Protection Tranche- II
Bank Protection Tranche- II (Optional)
Existing Road
Left Bank Land Development
Right Bank Land Development
Bangabandhu Bridge
Enayetpur
Baghabari
Benotia
Sujanagar
Zafarganj
Aricha
Paturia
Harirampur
Ganges Barrage
Padma Bridge
Mohonpur
Chandpur
Chauhali
Closure Dam
Closure Dam
Zafarganj
Potential Dredging Corridor
RBP: 5 km, dredging to be determined
Baghabari
EMB: 6 km, Road: 24 km
Paturia
Harirampur
EMB: 30 km, Regulators: 5
RBP: 4 km+5 km, Closure Dams: 2
Chandpur
RBP: Apron 1 km
Chandpur
N
W
E
S
0 5 10 20
Km
Scale Bar

Appendix H Capacity Building Program

A. Local Training 1: Two River Engineering Training courses were completed in the Month of April 2016 under BWDB's Capacity Development Program. The Department of Water Resources Engineering (BUET) conducted the training and Mr. A. M. Aminul Haque, Addl. Chief Engineer/Project Director, FRERMIP and Ms. Natsuko Totsuka, Head of ADB Mission were present in the inaugural session of the 1st Batch (03-09). The 2nd Batch took place from 24-30 April 2016,

The cost for ''River Engineering Training'' Batch-1 =892,650+Batch-2 =834,326, Total BDT= 1,726,976/= and the payments made from Total BDT in Lac= 1,043.50 of the budget of DPP (9. Component and estimated cost summary 4840,

Local Training 2: Two training courses on 'River Training Techniques' are ready for implementation. The draft program schedule/Module submitted by the BUET on 18-05-2016 and the courses are planned for end of July or early Aug. 2016.

Local Training 3: (a) Training courses on 'Project Management' are currently discussed with different providers and proposals are expected to be submitted during the next quarter.

Local Training 3: (b) Training courses on 'Financial Management' have not been included in the DPP, but could be considered under the 'Project Management' head. The BWDB training unit has been organizing the program and submitted the estimate to the Project Director with tentative schedule for implementation in August 2016.

B. Overseas Training: The overseas Training Course on ''River Morphodynamics and Erosion Protection Practices'' under BWDB Capacity Development Program with a duration of four weeks will take place at the Unesco-IHE facilities in the Netherlands in September and October 2016. The contract agreement was signed between UNESCO-IHE and PMO, BWDB, on 29th June 2016 and first payments (BDT= 7,488,566.51) made in favor of UNESCO-IHE from the training budget of FY 2015-2016. The Government of Bangladesh has issued the related Government Order (GO) for the participants.

C. 1. Overseas Tour: The Study Tour on '' Study of the Management of Yellow and Yangtse Rivers and Flood and Erosion Protection Works'' under BWDB's Capacity Development Program will take place during the second half of August 2016. The contract agreement was signed on 27th June 2016 and the payments (BDT= 4,994,864) made from the budget of FY 2015-2016. The Government of Bangladesh has issued the related Government Order (GO) for the participants.

2. Study Visit to Mississippi River, USA: The PMO has asked the ISPMC to start preparing the study tour to the Mississippi.

D. Participation in International Conference: Team Leader and Project Director prepared a contribution to the 8th International Conference on Scour and Erosion (ICSE). The paper has been accepted and the participation of Director General and Project Director BWDB as well as the Team Leader is under processing. The BWDB plans to pitch for the next conference in Bangladesh.

E. Capacity development material for BWDB: The ISPMC has started preparing a general capacity development presentation about BWDB's activities. A draft has been discussed with BWDB's upper level management on 26 June 2016. The presentation is expected to be completed during the next quarter and form part of a larger group of films and presentations about BWDB's work.

F. Film about riverbank protection and river training: The ISPMC has retained the services of a subcontractor to prepare a film about FRERMIP riverbank protection and future stabilization activities. The film shooting has been completed on 4 and 5 June to capture the large major construction activities. The film is expected to be completed during the following quarter and used during the ISCE conference (point E) and for and overall presentation of BWDB's work (point F).

G. Environmental Training:

'Environmental Awareness and EMP Implementation in Subproject'

Although awareness of environmental issues is increasing, there is limited appreciation of how such issues might be most effectively addressed. In order to ensure effective and timely implementation of the EMP, in particular, and to enhance the environmental management capacity of PMO/SMO staff members (involved in environmental management works), and Contractors and their staff (involved in construction and construction related activities), Training held on 26/4/2016 at Chauhali Site Office, Batch 1, 27/4/2016 at Harirampur Site Office -Batch 2 and 28/4/2016 at Jaffarganj Site Office- Batch 3. Cost paid from ISPMC Provisional Sums: Line-1: workshop, Training and Seminars.

In order to cover the environmental aspects involved in subproject works, the Training Modules designed for the Training Program including:

1. Understanding of Issues/Parameters related to FRERMIP,
2. Preparation and Understanding of Environmental Management plan (EMP),
3. Environmental Supervision and Monitoring for FRERMIP,
4. In-depth discussion of Technical Specifications for Environmental Management & Safety,
5. Environmental Training related to Work Good Practice for Contractors & their Staff,
6. Contractor's Self-Monitoring and Supervision.

Benefit achieved with respect to environmental knowledge and skill development from this training program was evaluated by administering question - answer sessions and group discussion. Participants have demonstrated substantial understanding of the environmental issues and their management related to the subprojects of FRERMIP, they have expressed their satisfaction of this training program.

H. Local conference: A Local conference held on 25-May-16 based on the capacity assessment of target participants (PMO, PIUs, contractor/s, and other stakeholders, Cost in BDT= 54,901 made from ISPMC Provisional Sums: Line-2: International and Local Conferences and study tour.

I. Presentation on Capacity Development: A presentation was made by Dr. M. A. Quassem (Capacity Development and Institution Specialist) in the weekly Team meeting of ISPMC on Institutional Strengthening and Capacity Development (IS & CD) to apprise the Team of (IS & CD), and to have input/suggestion from the Team Members on anything considered relevant. Among other thing, the presentation dealt with Concept of IS & CD, International Experience, BWDB Experience, Progress and Problems, Our Efforts and Way Forward.

Appendix I Presentation

THE VISION OF RIVER MANAGEMENT AT A WORLD-WIDE UNIQUE SCALE

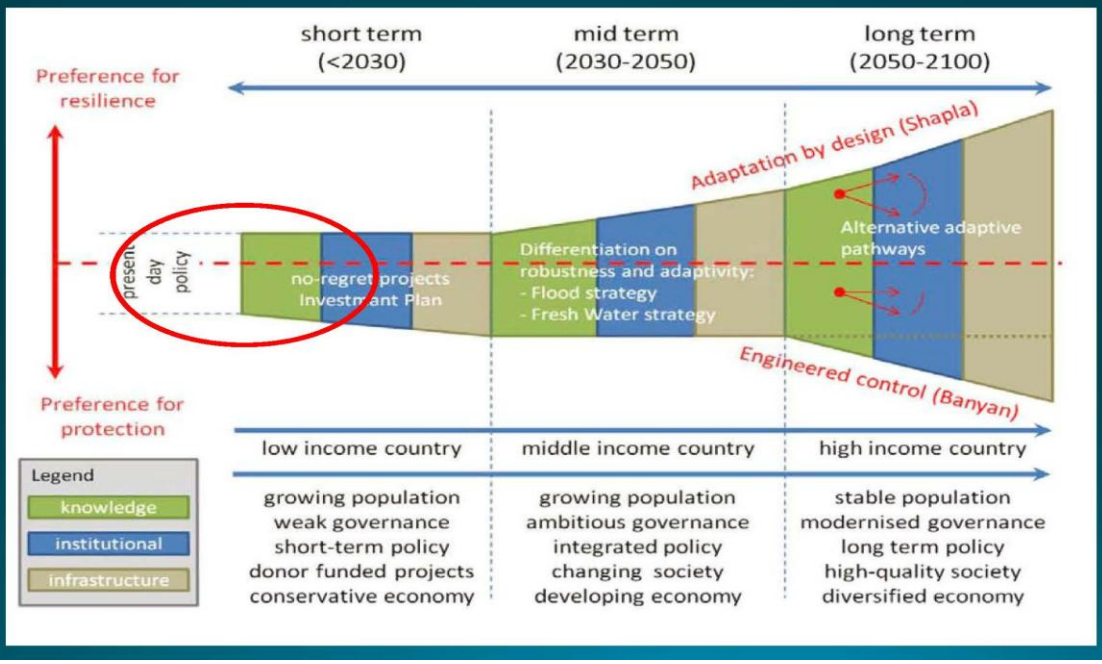
BANDUDELTA - FRERMIP

Ministry of Planning & Water Resources

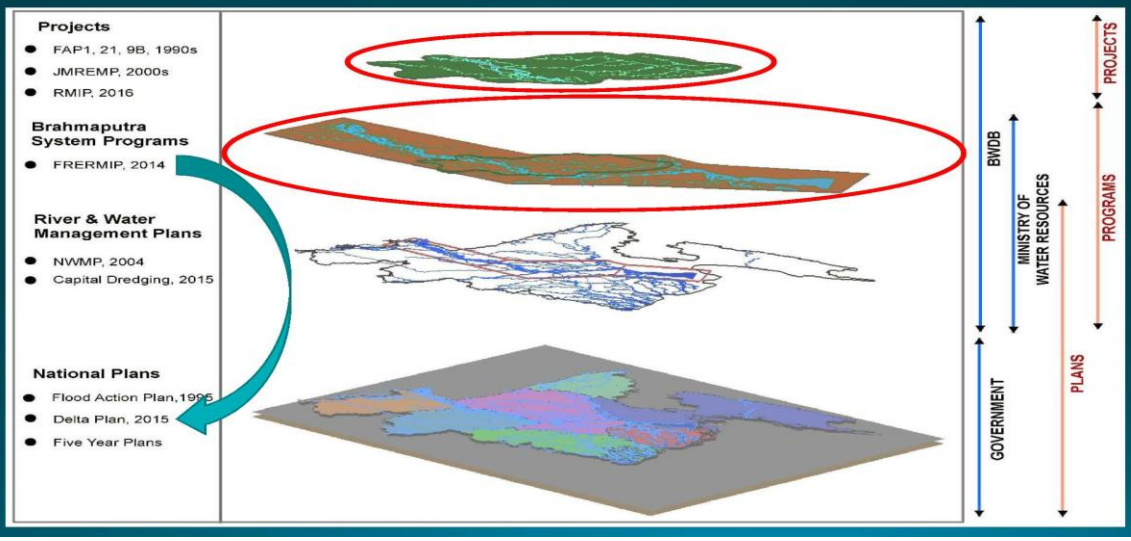
Knut Oberhagemann, Northwest Hydraulic Consultants, Canada

June 2016

LONG-TERM PLANNING FRAMEWORK



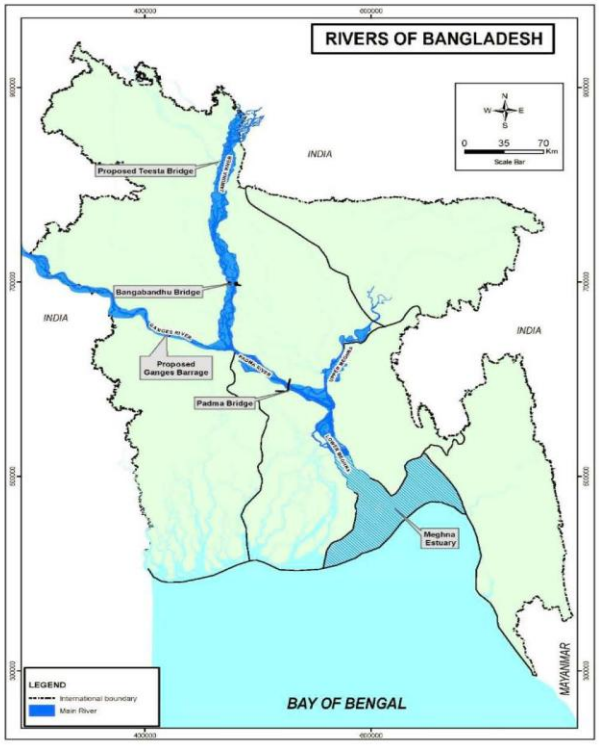
MIULTI-DIMENSIONAL PLANNING FRAMEWORK



BANGLADESH RIVERS

- 405 Rivers with a combined length of around 21,800km
- 7 Major Rivers with a combined length of nearly 1,500km
- 4 Main Rivers with a combined length of nearly 900km.

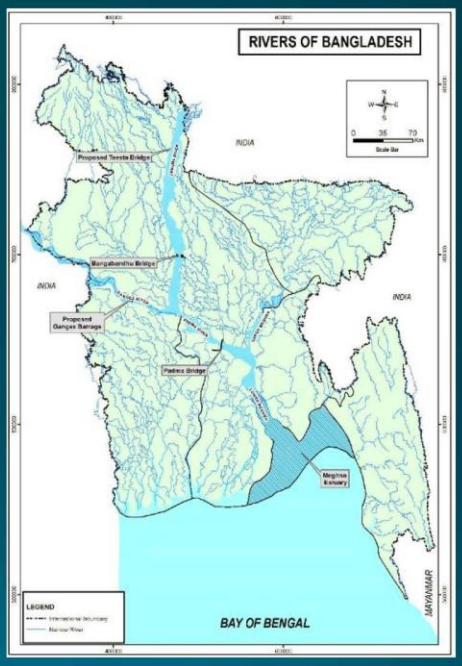
  The Brahmaputra System covers 350km from the Indian border through Jamuna and Padma to Chandpur
  the Ganges covers 150km, and the Lower Meghna Estuary 100km



TWO CLASSES OF RIVERS - TWO TYPES OF PROBLEMS

Major and Minor Rivers	Main Rivers (Brahmaputra System)
Siltation and no channels	Widening and too many channels
Loss of dry season flow	Multiply dry season channels
River restoration	Stable corridor
Capital dredging	Multi-purpose management

CHALLENGE – RIVER DEGRADATION



Problem:
Encroachment and sedimentation of medium and small rivers dries them up during the low flow season

CHALLENGE – RIVER DEGRADATION

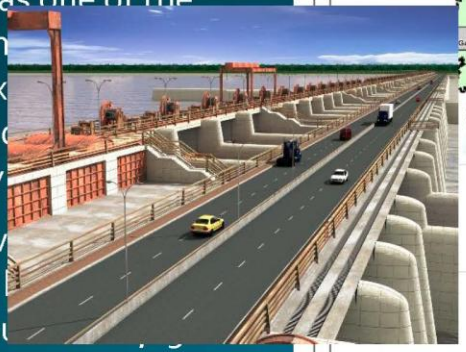
Solution:

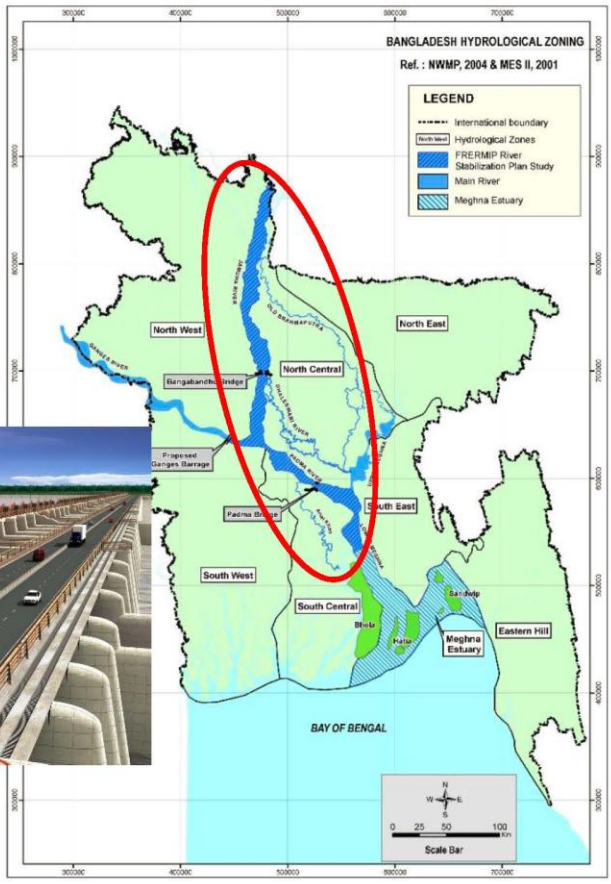
- capital dredging and offtake stabilization
- in line with 7th Five Year Plan focus on coastal river degradation to fight drainage congestion and salinity intrusion

Examples:
Gorai Offtake since the end of the 1990s
Pungli (Dhaleswari) since 2013

CHALLENGING BRAHMAPUTRA DYNAMICS

- Together with the Congo, the Padma ranks second after the Amazone in terms of discharge (40,000m³/s)
- The Padma has one of the highest sedim… world (approx… annually) build… in the estuary
- The rivers hav… 50% over the … which has resu… of floodplain loss along Jamuna and Padma from 1973 - 2016





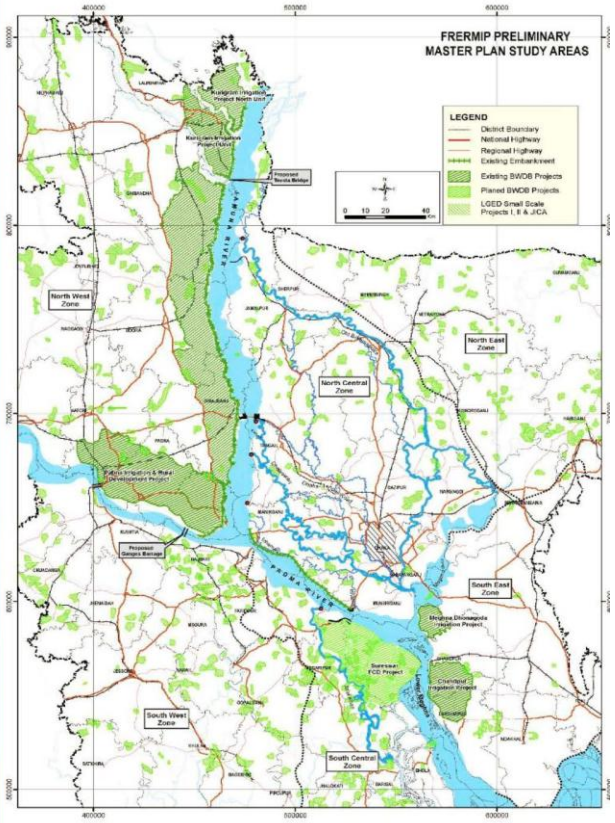
CHALLENGING RIVER DYNAMICS

Key Problem:

- Unstable riverbanks
- No delineation of floodplain and river (land and water)
- No security for planning

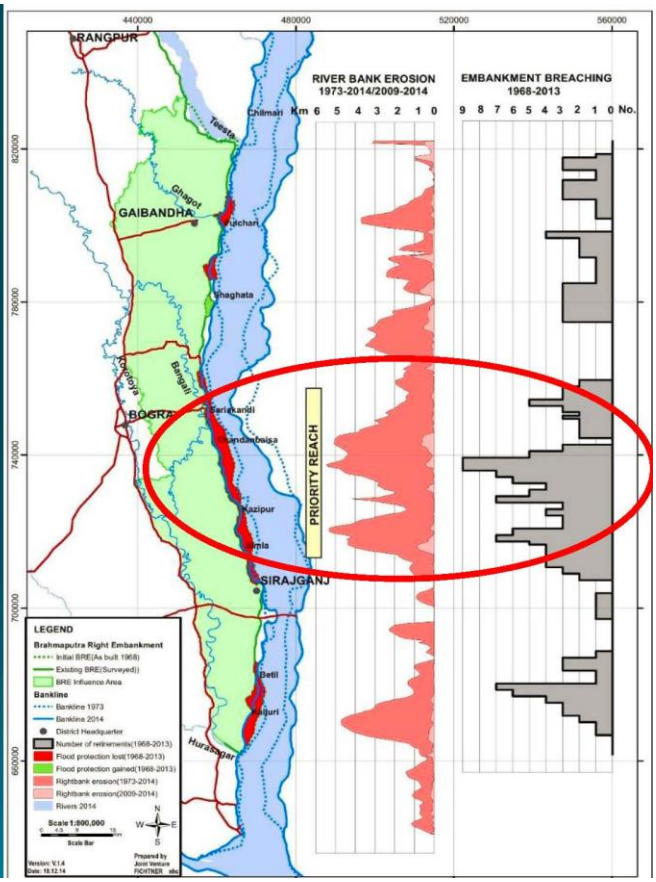
SECURING THE PEOPLE OF THE FLOODPLAIN

- The Jamuna Right Bank from the Indian border to the confluence with the Ganges is systematically protected against flooding since the end of the 1960s
- The Padma Left Bank is protected from Paturia to Mawa with a flood embankment
- Between Padma Bridge and Lower Meghna the Sureswar Flood Control Project is planned



RIVERBANK EROSION IS THE KEY PROBLEM

In places more than 5km of land eroded over the last 40 years making ten throughsands of people homeless and leading to up to nine retirements of the embankment



DEVELOPING FROM TOWN PROTECTION TO RIVER MANAGEMENT

1. Town Protection 1980s
   (Rajshahi, Chandpur, Sirajganj)
2. "Hard Points" 1990s (Jamuna Right Bank)
3. Riverbank Protection – long reach revetments 2000s
   (Jamuna Right Bank, Padma-Meghna Confluence)
4. River Stabilization – 2010 onwards
   (Jamuna – Padma – to Estuary)

EROSION RESPONSE: "HARD POINTS"

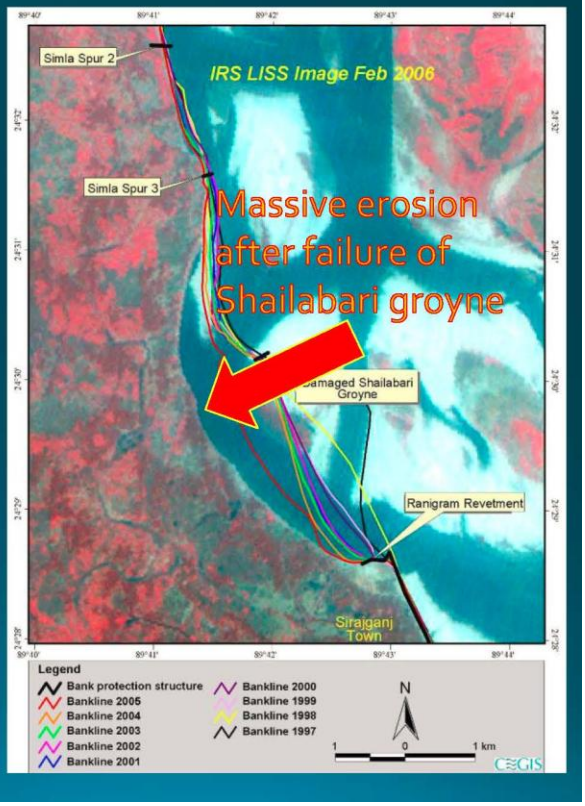
1990 – 2000:

Short limited protection of valuable places, such as Sirajganj or Kalitola at high cost

PROBLEMATIC "HARD POINTS"

Repeated Failures:

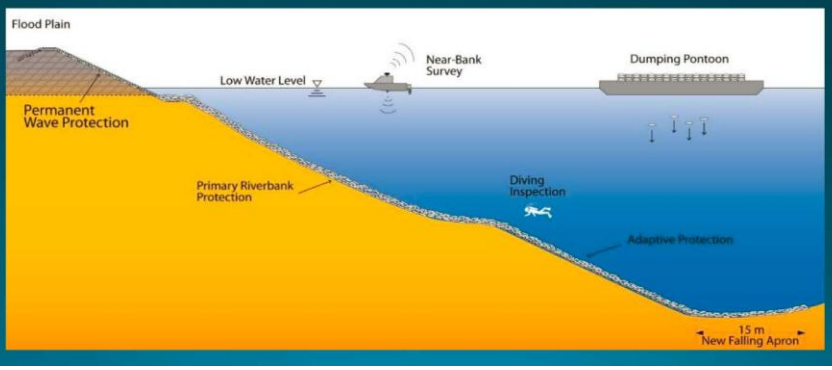
- Outflanking from upstream erosion
- Lack of toe protection to prevent undermining (souring)



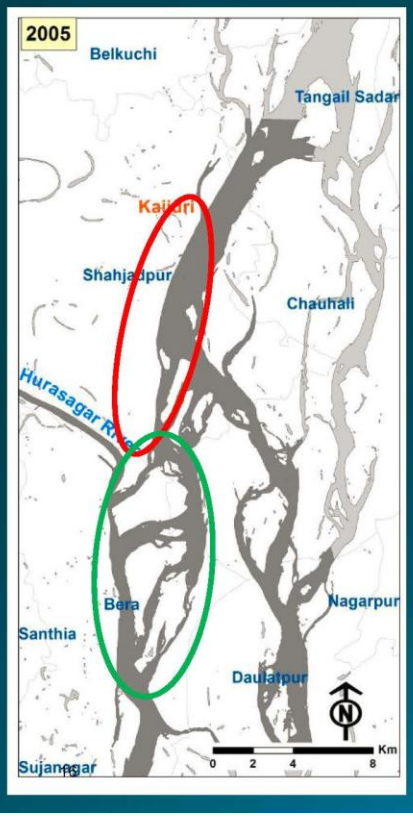
STABLE RIVERBANK PROTECTION SINCE 2004

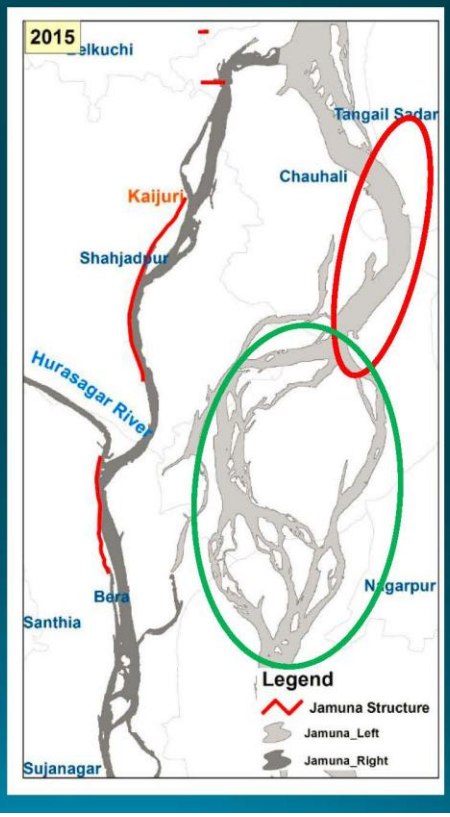
Geotextile Bag Revetments:

- Adaptive approach
- Long-reach protection
- Bangladesh resources
- Guideline 2010
- Stable since 2004

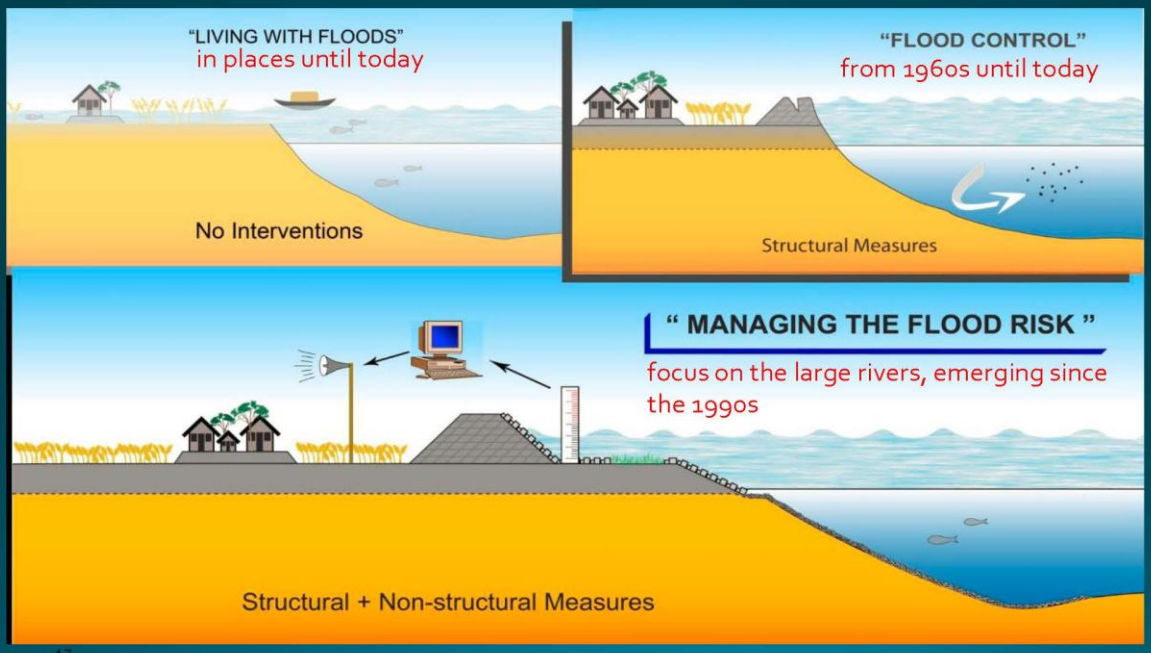


RIVERBANK PROTECTION STABILIZES THE RIVER





FLOOD AND RIVERBANK EROSION RISK MANAGEMENT

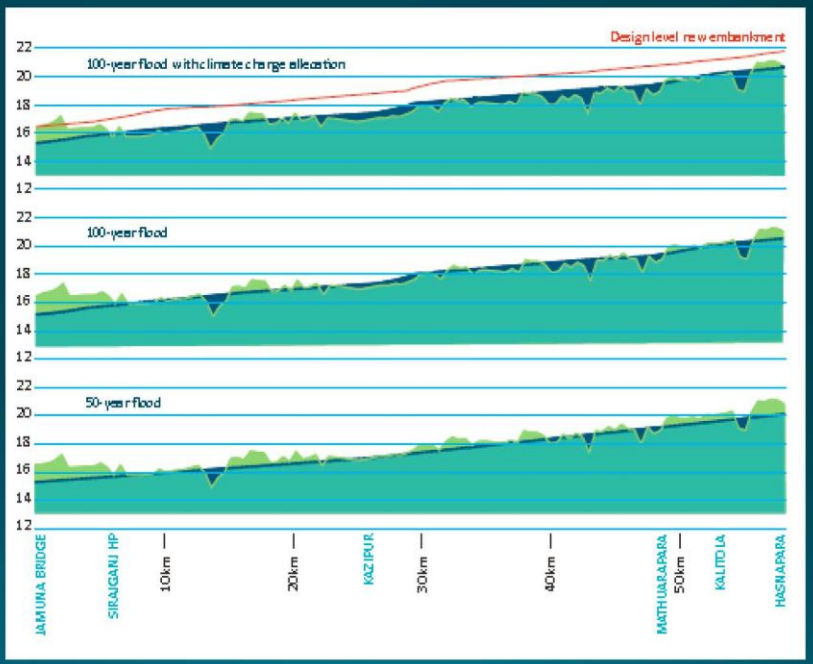


UNSAFE FLOOD EMBANKMENTS

100-year flood + cc
38km overtopped

100-year flood
19.5km overtopped

50-year flood
6km overtopped



GOVERNMENT'S VISION

Stabilizing the Main Rivers to

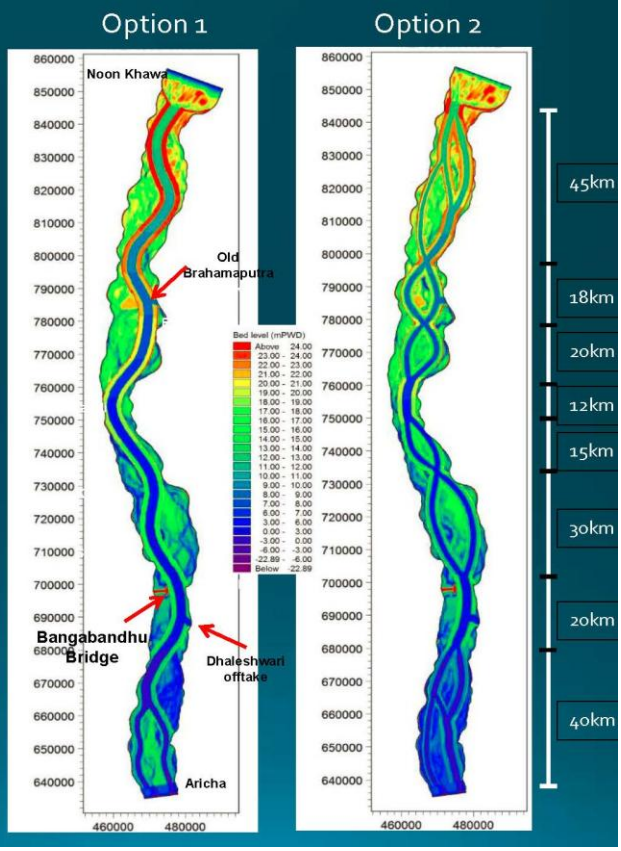
1. Reclaim Land
2. Restore Navigation
3. Reduce the Flood and Erosion Risk
4. Accelerate Economic Development

PLANNING AND IMPLEMENTING RIVER MANAGEMENT

1. Study and Piloting Capital Dredging and Sustainable River Management (2010 – 2015)
2. Flood and Riverbank Erosion Risk Management Investment Program (FRERMIP) – ADB (2014 – 2023)
3. River Management Improvement Program (RMIP) – World Bank (2016 – 2023)

"CAPITAL DREDGING AND SUSTAINABLE RIVER MANAGEMENT"

- Two schematic alternatives based on 1990 studies
- Approach: Riverbank Protection and Dredging
- Investment 64,000 Crore per year for 15 years; 94% for dredging for reclaiming 1.5% of additional land



IMPLEMENTING CHANNELIZATION

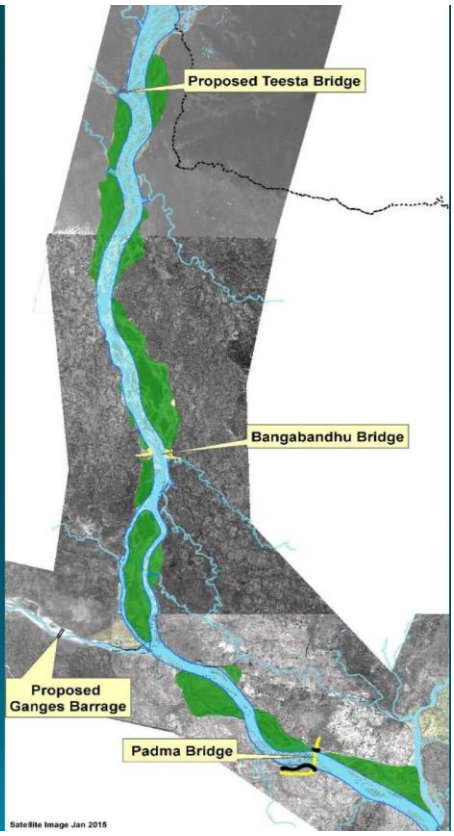
FRERMIP and RMIP intend to optimiz the way towards channelization, by making maximum use of:

(i) The existing riverbank protection works to permanently delineate floodplain and river, and

(ii) The existing main channels to reduce capital and maintenance dredging.

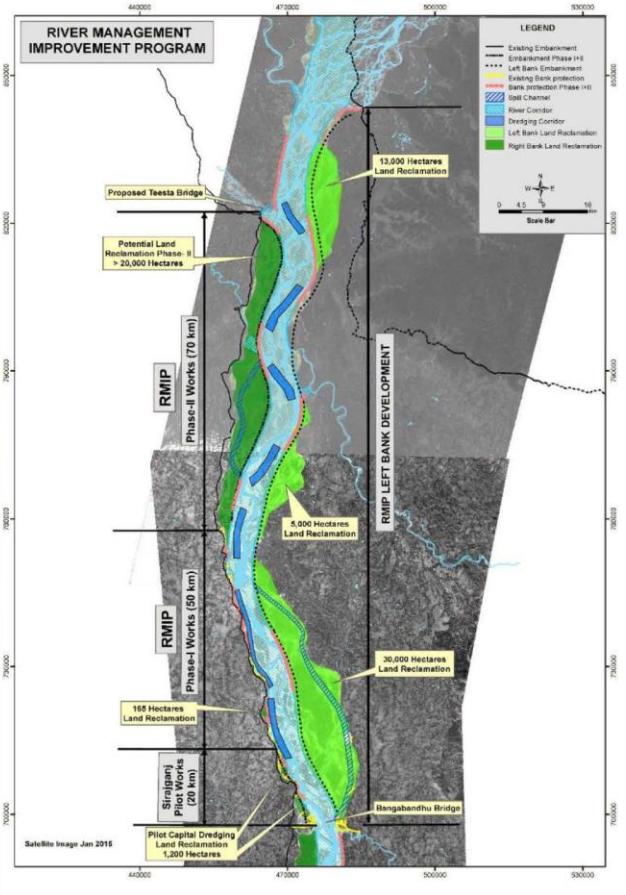
FRERMIP INITIAL STABILIZATION PLAN

- Starting with 2016 morphology
- Reclaiming land on either side of the river or between two channels (some 1700km²)
- Integrating exsiting works
- Phased investement with no regret approach

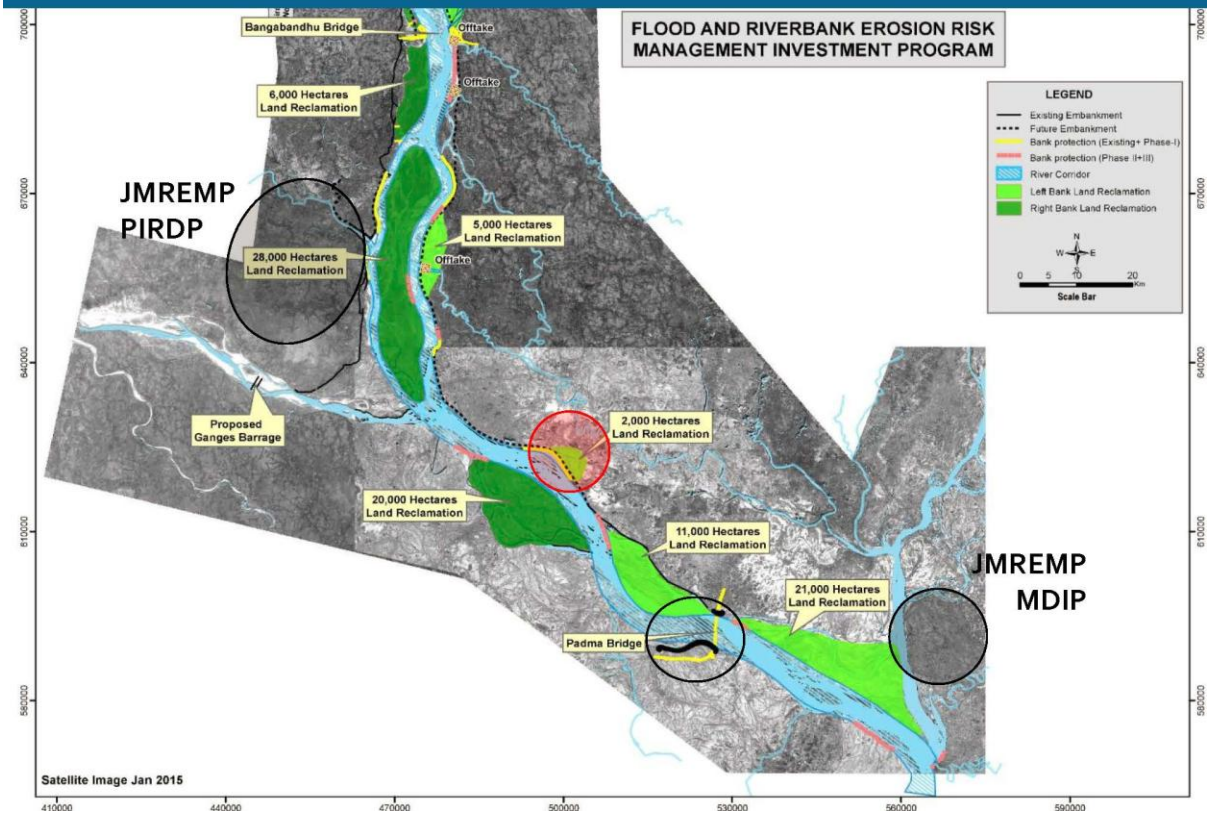


RMIP PHASE I RIVER CHANNELIZATION

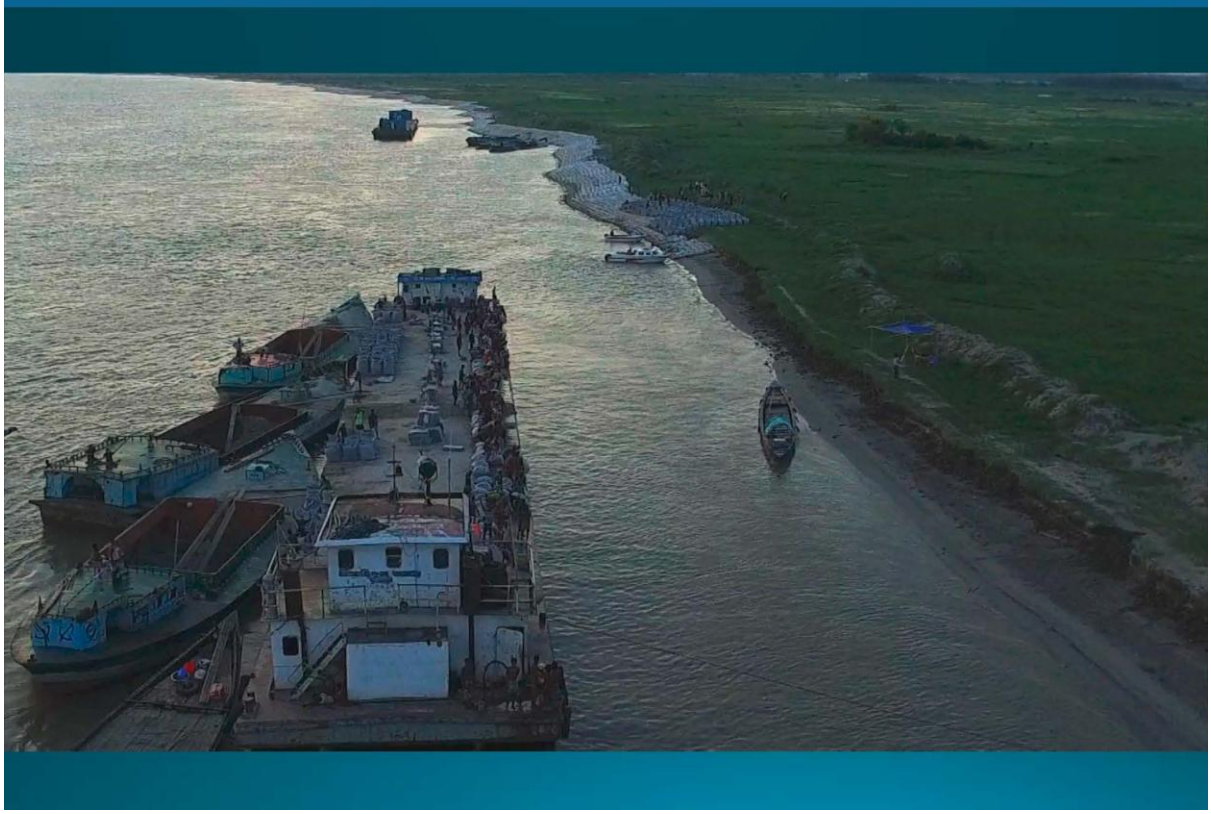
1. Extending Sirajganj pilot dreding (about 20km) in upstream direction
2. Phase I: Channelizing existing right bank channel over 50km
3. Phase II: Channelizing 70km to the Teesta with riverbank protection on both banks
4. RMIP Left Bank: building embankment and Old Brahmaputra Offtake



FRERMIP PHASED IMPLEMENTATION



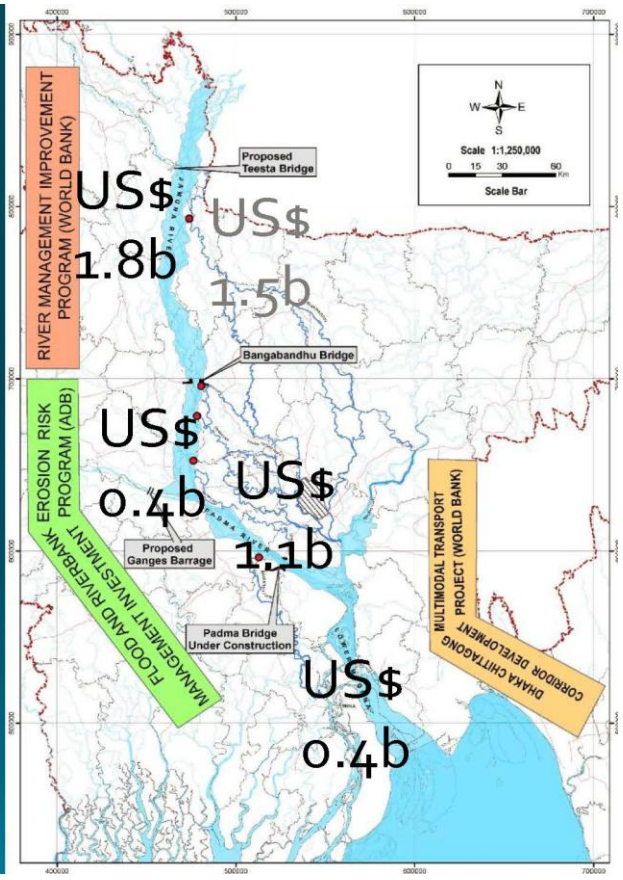
FRERMIP RECLAMATION OF 2000HA OF LAND



10-YEAR PLAN

USD 5 billion Investment :

1. World Bank RMIP:
   US$ 1.8b
   left bank project (initial estimate US$ 1.5b)
2. ADB FRERMIP:
   US$ 370m
3. Padma Bridge RTW:
   US$ 1.1b
4. World Bank DCMTCDP:
   US$ 450m



RIVER MANAGEMENT BENEFITS

- Defined boundary between floodplain and river with an end of displacement through erosion
- Stable flood protection embankments on both banks
- Reclamation of 1,500 – 1,800km² land for industrialization and economic prosperity
- Navigable river corridor from Chandpur to Chilmari
- Opportunity for regional connectivity
- Restoration of Old Brahmaputra and Dhaleswari
- Master planning for Jamuna and Padma
- Environmental enhancement


THANK YOU

Appendix J Photo Annex

ADB mission visit to Harirampur on 4 Apr 2016

ADB mission visit to Zaffarganj on 13 June 2016

Wave damage under repair at Chauhali on 10 May 2016

Rising flood levels at Chauhali, 24 June 2016

Repair of temporary wave protection in area of angular flow attack, Chauhali, 24 June 2016

Sand testing at Zaffarganj, 10 May 2016

Erosion upstream of Zaffarganj protection on 24 June 2016

Construction at Haririampur with multiple sets of dumping barges, 26 May 2016

Small erosion of temporary wave protection at Harirampur on 26 May 2016

Film production at JMRMEMP site at PIRDP, 4 June 2016

Drone filming of riverbank protection works on 5 June 2016