Government of the People's Republic of Bangladesh
Ministry of Water Resources

Bangladesh Water Development Board

PROJECT COMPLETION REPORT: IMED 04/2003 (Revised)

Investigation of Morphological Processes at Downstream of Bangabandhu (Jamuna) Bridge and Erosion Control with Environmental and Social Impact Assessment (ESIA) along Left Bank of Jamuna River at Manikganj District.

September 2023

06. Estimated Cost:

(In lakh Taka)

	Original	Latest Revised
(a) Total	431.04	-
(b) Taka	431.04	-
(c) Foreign Currency	-	-
(d) Project Aid	-	-
(e) RPA	-	-

07. Date of Approval	:	PCP/PFS	PP
(a) Original	:	12/12/2021	-
(b) Latest Revised	:	-	-
(c) No Cost Time Extension	:	26/09/2022	-

08. Implementation Period:

	Date of Commencement	Date of Completion
(a) Original	December 2021	September 2022
(b) Latest Revised	December 2021	March 2023
(c) Actual	December 2021	March 2023

09. Financing Arrangement (Source-wise):

9.1 Status of Loan/Grant

a) Foreign Financing : *Not Applicable*

Source (s)	Currency as per Agreement	Amount in US $ (Million)	Nature (Loan/Grant/ supplier's/ credit)	Date of Agreement	Date of Effective-ness	Date of Closing	
						Original	Revised
1	2	3	4	5	6	7	8

b) GOB:

(In lakh Taka)

Total amount	Loan	Grant	Cash Foreign Exchange
1	2	3	4
431.04	-	431.04	-

9.2 Utilization of Project Aid: *Not Applicable*

(In million)

Source (s)	Total Amount		Actual Expenditure		Unutilized Amount	
	In US $	In Local Currency	In US $	In Local Currency	In US $	In Local Currency
1	2	3	4	5	6	7

9.3 Re-imbursible Project Aid (RPA): *Not Applicable*

(In lakh Taka)

R P A Amount		Amount Spent	Amount Claimed	Amount Re-imbursed	Remarks
As per PP	As per Agreement				
1	2	3	4	5	6

B. IMPLEMENTATION POSITION

01. Implementation Period:

Implementation Period as per PP		Actual Implementation period	Time Over-run (% of original implementation period)	Remarks
Original	Latest Revised			
1	2	3	4	5
December 2021-September 2022 (10 months)	December 2021-March 2023 (16 months)	December 2021-March 2023 (16 months)	60.00%	Data collection and mathematical model development of the project took more time than planned for which the consultant could not accomplish the task as scheduled.

02. Cost of the Project:

(In lakh Taka)

Description	Estimated Cost		Actual expenditure	Cost over-run (% of original cost)	Remarks
	Original	Latest revised			
1	2	3	4	5	6
TOTAL	431.04	-	404.548	(-6.15%)	The actual expenditure was less than the estimated cost.
TAKA	431.04	-	404.548		
PA	-	-	-		

03. Project Personnel: Existing manpower of Directorate of Planning-2, BWDB were engaged with implementation of the project.

Sanctioned strength as per PP	Manpower employed during execution	Status of the existing manpower			Manpower Employed	
		Manpower requirement for O&M as per pp	Existing manpower for O & M	Others		
1	2	3	4	5	Male	Female
Officer (s)	-	-	-	-	-	-
Staff(s)	-	-	-	-	-	-
Total :	-	-			-	-

04. Training of Project Personnel (Foreign/Local): No provision of training under this project.

Field of Training /Study tour/workshop/ Seminer etc.	Provision as per PP		Actual		Remarks
	Number of person	Man - months	Number of person	Man - months	
1	2	3	4	5	6
a. Foreign	-	-	-	-	-
b. Local	-	-	-	-	-

05. Component-wise Progress (As per latest approved PFS):

(In lakh Taka)

Items of work (as per PFS)	Unit	Target (as per PFS)		Actual Progress		Reasons for deviation (±)
		Physical	Financial	Physical (%)	Financial	
1	2	3	4	5	6	7
A. Revenue						
1. Honorarium	LS	100%	2.00	28%	0.560	
2. Entertainment expenses	LS	100%	1.00	0%	0.000	
3. Domestic Travel Expenses (TA & DA)	LS	100%	1.00	49%	0.498	
4. Petrol & Lubricant	LS	100%	0.25	34%	0.085	
5. Printing & Binding	LS	100%	0.25	100%	0.250	
6. Other Stationary	LS	100%	0.50	74%	0.370	
7. Consultancy	LS	100%	423.04	100%	399.790	
8. Computers	LS	100%	0.25	100%	0.250	
9. Machineries and Equipment	LS	100%	0.25	100%	0.250	
Sub-total (Revenue):			**428.54**		**402.053**	
B. Capital						
10. Computers & Accessories (2 nos. desktop computer with printer and scanner)	Nos.	2	2.50	2	2.495	
Sub-total (Capital):		**100%**	**2.50**		**2.495**	
Grand-Total		**100%**	**431.04**	**100%**	**404.548**	

06. Information regarding Project Director (s):

Name & Designation with pay Scale.	Full time	Part time	Responsible for more than one project	Date of		Remarks
				Joining	Transfer	
1	2	3	4	5	6	7
Farzana Ahmed Executive Engineer Directorate of Planning-2, BWDB, Dhaka. Grade-5; 43,000-69,850	Yes	-	Yes	03 January 2022	Till date	-

07. **Procurement of Transport (in Nos.):** ***Not Applicable***

Type of transport	Number as per P.P.	Procured with date	Transferred to Transport Pool with date	Transferred to O & M with date	Condemned/ damaged with date	Remarks
1	2	3	4	5	6	7
Jeep	-	-	-	-	-	
Pick-up	-	-	-	-	-	

08. Procurement of Goods, Works and Consultancy Services:

08.1 Goods & Works of the Project costing above Tk. 200.00 lakh. and Consultancy above Tk. 100.00 lakh:

Description of procurement (goods/works /consultancy) as per bid document	Tender/Bid/Proposal Cost (in lakh Taka)		Tender/Bid/Proposal		Date of completion of works/services and supply of goods	
	As per PFS	Contracted value	Invitation date	Contract signing/ L.C opening date	As per contract	Actual
1	2	3	4	5	6	7
Consultancy Services for "Investigation of Morphological Processes at Downstream of Bangabandhu (Jamuna) Bridge and Erosion Control with Environmental and Social Impact Assessment (ESIA) along Left Bank of Jamuna River at Manikganj District (Mathematical Modelling Component)"	349.34	349.01	02.01.2022	09.03.2022	08.09.2022	30.03.2023

8.2 Use of Project Consultant (s) (Foreign/Local):

Name of the Field	Approved man month		Actual man month utilised	Remarks
	As per PP	As per contract		
1	2	3	4	5
a) Foreign :	-	-	-	
b) Local :	Mathematical Modelling Component: 41man month ESIA Component: 14 man month	Mathematical Modelling Component: 41 man month ESIA Component: 14 man month	Mathematical Modelling Component: 41 man month ESIA Component: 14 man month	Mathematical Modelling Component was conducted by IWM and ESIA Component was conducted by CEGIS.

09. Construction/Erection/Installation Tools & Equipment:

Description of items	Quantity (as per PP)	Quantity procured with date	Transferred to O & M with date	Disposed off as per rule with date	Balance	Remarks
1	2	3	4	5	6	7
2 nos. desktop computer with printer and scanner	2 Set	26.06.2022	-	-	2 Set	Being used by Directorate of Planning-2, BWDB, Dhaka.

C. FINANCIAL AND PHYSICAL PROGRAMME:

01. (a) Original and revised schedule as per PFS :

(In lakh Taka)

Financial Year	Financial provision & physical target as per original PP				Financial provision & physical target as per latest revised PP			
	Total	Taka	P.A.	Physical %	Total	Taka	P.A.	Physical %
1	2	3	4	5	6	7	8	9
2021-22	100.00	100.00	-	70%	-	-	-	-
2022-23	331.00	331.00	-	30%	-	-	-	-
Total	**431.00**	**431.00**	**-**	**100%**	-	-	-	-

01. (b) Revised ADP allocation and progress :

(In lakh Taka)

Financial Year	Revised Allocation & target				Taka release	Expenditure & physical progress			
	Total	Taka	P.A.	Physical %		Total	Taka	P.A.	Physical %
1	2	3	4	5	6	7	8	9	10
2021-22	100.00	100.00	-	70%	99.50	99.250	99.250	-	70%
2022-23	317.00	317.00	-	30%	314.64	305.298	305.298	-	30%
Total	**417.00**	**417.00**	**-**	**100%**	**414.14**	**404.548**	**404.548**	**-**	**100%**

D. ACHIEVEMENT OF OBJECTIVES OF THE PROJECT:

Objectives as per PP/PFS	Actual achievement	Reasons for shortfall, if any
Technical Feasibility Study		
(a)Main Objective:		
To assess the feasibility of carrying out dredging along with appropriate measures to improve the navigability and protect the left bank including important existing and proposed installations.	Completed. The feasibility of carrying out dredging along with appropriate measures to improve the navigability has been incorporated in section 3.5 (page 3-10 to 3-12) of the final report.	-
(b) Specific Objectives:		
To assess different possibilities of erosion control for example dredging, bank protection measures, development of stable islands etc.	Completed. Different possibilities of erosion control such as dredging, bank protection measures have been described in section 4.7.4 (page 4-37 to 4-41) of the final report.	-
To assess requirement of structural interventions (bank protection/ river training works) to be in force to make the left bank 'not vulnerable' in the face of extreme hydrological events.	Completed. The study has proposed bank protection work along left bank of Jamuna and Padma river under Daulatpur & Shibalaya upazilla of Manikganj district and right bank of Padma river under charvadrasion upazilla of Faridpur district. The proposed interventions are described under Section-10 (page 10-1 to 10-16) of the final report.	-
To assess the impacts of the interventions on the hydro-morphology along Jamuna river at downstream of Bangabandhu (Jamuna) bridge, the confluence of the Jamuna and the Ganges and a short stretch of Padma river focusing on the left bank of Jamuna	Completed. The impacts of the interventions on the hydro-morphology along Jamuna river at downstream of Bangabandhu (Jamuna) bridge, the confluence of the Jamuna and the Ganges and a short stretch of Padma river focusing on the left bank of Jamuna river in Manikganj district has been	

Objectives as per PP/PFS	Actual achievement	Reasons for shortfall, if any
river in Manikganj district.	described in section 10.3 (page 10-7 to 10-16) of the final report.	
To propose suitable measures of erosion control with cost estimates, economic and financial analysis.	Completed. Best suited option for erosion control has been proposed with cost estimates, economic and financial analysis under section 6 (page 6-1 to 6-5) and section 11 (page 11-1 to 11-3) of the final report.	
To assess the sustainability of the flood control measures under changing hydro-morphology of the Jamuna, Ganges and the Padma River.	Completed. Bank protection work is the key component for the sustainability of flood embankment. This study proposed bank protection work along the left bank of Jamuna river and certain reaches of both bank of Padma river.	
To assess risk analysis, climate resilience and disaster.	Completed. Risk analysis, climate resilience and disaster have been described in section 5 under article 5.1 (page: 5-1 to 5-3), 5.3, 5.4 and 5.5 (page: 5-21 to 5-23) of the final report.	

E. BENEFIT ANALYSIS

01. Annual Out-put: *Not Applicable* for the Study Project.

Items of out-put	Unit	Estimated quantity expected at full capacity	Actual quantity of out-put during the 1st year of operation at full capacity (or during, real production for newly completed project).
(a)			
(b)			

02. Cost / Benefit: *Not Applicable* (It is not an investment project, hence *not applicable*)

Item	Estimated	Actual
(1) Benefit cost ratio of the project (i) Financial (ii) Economic (2) Internal Rate of Return (i) Financial (ii) Economic		

03. Please give reasons for shortfall, if any, between the estimated and actual benefit: *Not Applicable*

F. MONITORING AND AUDITING

Monitoring: Nill.

Name & designation of the inspecting official	Date of Inspection	Identified Problems	Recommendations
1	2	3	4
a) Ministry / Agency:	-	-	-
b) IMED :	-	-	-
c) Others:	-	-	-

0.2. Auditing during and after Implementation:

2.1. Internal Audit: Not conducted yet.

Period of Audit	Date of submission of Audit Report	Major findings/ objections	Whether objections resolved or not.
1	2	3	4

2.2. External Audit: Not conducted yet.

Audit period	Date of submission of Audit Report	Major findings/ objections	Whether objections resolved or not.
1	2	3	4

G. DESCRIPTIVE REPORT

1. General Observations/Remarks of the Project on:

1.1 Background

Daulatpur and Shivalaya are two upazillas of Manikganj District in the Division of Dhaka, Bangladesh. Both the upazillas are situated at the left bank of the Jamuna River. Zafarganj and Aricha Ghat naval ports are two old and traditional area of Shivalaya upazilla. Four union (Baghutia, Char katari, Bachamara and Jiyanpur) of Daulatpur upazilla and three unions (Shivalaya Sadar, Teota and Arua) of Shivalaya upazilla are situated at old char and adjacent to the left bank of the Jamuna River and the Padma River. There are several installations, such as government primary and high school, college, Madrasa, mosque, temple, bazar, land office and other government and non-government organizations in the aforesaid area. Every year all the seven unions are affected by the tremendous river bank erosion of the Jamuna River. During flood of 2019, several structures with school, college bazar were disappeared and people of char Katari union took shelter to the adjacent Bachamjara union due to the river bank erosion. In this situation, it is necessary to stop further propagation of the erosion to protect rest of the area of the seven unions from disappearing into the river.

According to the commitment of honourable Prime Minister, the construction of "150 MW Power Plant and Economic Zone" at Paturia is under process. Besides, there is a proposal to set up an Industrial Park and an International stadium at Shivalaya upazilla in Manikganj district. So for the future development and protection of the mentioned installations, proposed project area should be hazard free. It is to be mentioned that the land level is relatively low at the proposed project area.

Erosion may be controlled if 30 km length of the Jamuna River (from Charkatari union of Daulatpur upazilla upto Maluchi Bazar of Arua union of Shivalaya upazilla of Manikganj district) is dredged for improvement of navigability and bank is protected by cc block/geobag. With the dredging of the Jamuna River, Manikganj district would be protected from erosion of the distributaries of this river (Kaliganga, Dhaleswari and Ichamati River). On the other hand, the dredged material can be used to increase the existing ground level of the adjacent areas.

Under this circumstances, the local member of the parliament sent a DO letter to the honorable Minister of State, Ministry of Water Resource to take necessary actions to protect the project area from erosion. In this context, it has been decided to carry out a feasibility study to investigate the hydro-morphological condition of the Jamuna and Padma river for taking suitable protection to protect the bank and also to dredge for navigability.

Bangladesh Water Development Board (BWDB) intends to conduct a detailed feasibility study and design a development project for navigation and protection of the Jamuna left bank engaging a consulting firm which would conduct a detailed hydrographic survey and hydro-morphological investigation taking certain reaches of the Jamuna and the Padma and to suggest for sustainable river training works and dredging.

The index map of the project is shown in **Figure 1**.

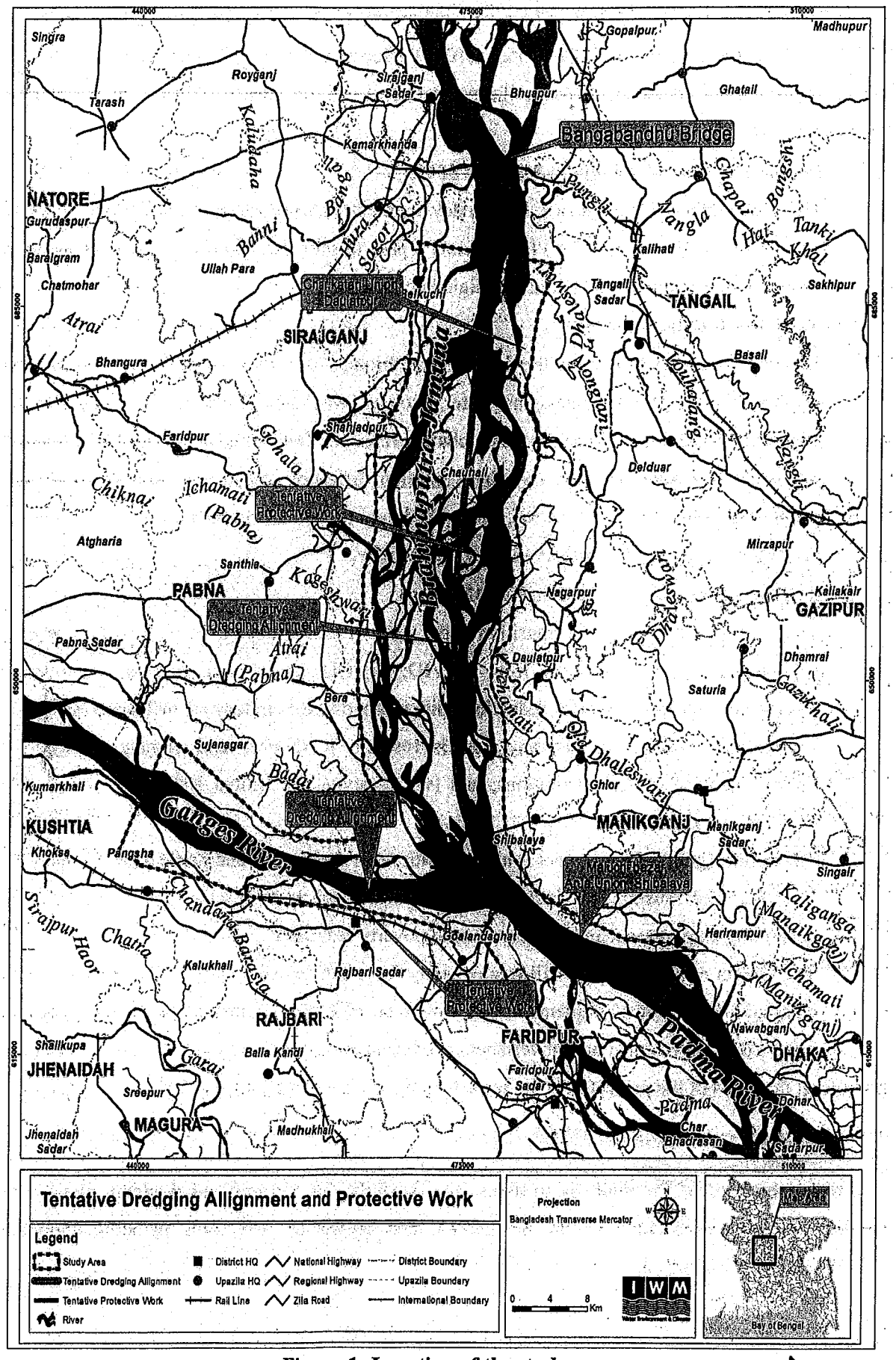

Figure-1: Location of the study area

1.2 Justification/Adequacy

The project relevance has been derived from national master plan and national goal of the country. The National Master Plan, Bangladesh Delta Plan 2100, Perspective Plan of Bangladesh and the 8th Five Year Plan have been consulted to frame the project. The relevant slice of the text of the plans are furnished below:

- **Perspective Plan of Bangladesh 2021 – 2041.**
  This Plan addresses governance, human development, industry and trade, agriculture, climate change and environment. The Plan presents a path to shift Bangladesh from a rural agrarian economy to a primarily industrial and digital economy.
- **Bangladesh Delta Plan 2100.**
  The Plan focuses primarily on the delta agenda through 2050 while reflecting the longer-term challenges of sustainably managing water, ecology, environment, and land resources in the context of natural disaster and climate change risk. The Delta Plan addresses flood control, sea level rise, water logging, river-bank erosion, irrigation, urban and rural water supply, water pollution, land reclamation, river dredging for inland water traffic, environmental protection, fisheries, and preservation of biodiversity.
- **8 th Five Year Plan, FY2021 to FY2025.**
  The 8th FY Plan initiates the transition to the goals of the Perspective Plan and is built around six themes: (i) rapid recovery from COVID; (ii) GDP growth acceleration; employment generation, and rapid poverty reduction, (iii) a broad-based strategy of inclusiveness; (iv) a sustainable development pathway that is resilient to disaster and climate change; (v) improvement of critical institutions; and (vi) achieving the United Nations 17 sustainable development goals.

❖ The impact (goal) of the project is aligned with these documents, and particularly the 8th Five Year Plan for "sustainable, inclusive development resilient to disaster and climate change generating employment and leading to rapid poverty reduction".

❖ The project implementation will ensure safety from bank erosion and climate change related disaster". This project implementation would be protecting Aricha ghat, Paturia ghat and many other government non-government establishments situated along the bank of the river.

Therefore, the goals of the project is in the same line of the Vision Bangladesh 2100- 50.

1.3 Objectives

The main objective of the study is to assess the feasibility of carrying out dredging along with appropriate measures to improve the navigability and protect the left bank including important existing and proposed installations.

The specific objectives of the study are:

- To assess different possibilities of erosion control for example dredging, bank protection measures, development of stable islands etc.
- To assess requirement of structural interventions (bank protection/ river training works) to be in force to make the left bank 'not vulnerable' in the face of extreme hydrological events; and
- To assess the impacts of the interventions on the hydro-morphology along Jamuna river at downstream of Bangabandhu (Jamuna) bridge, the confluence of the Jamuna and the Ganges and a short stretch of Padma river focusing on the left bank of Jamuna river in Manikganj district;
- Propose suitable measures of erosion control with cost estimates, economic and financial analysis.
- To assess the sustainability of the flood control measures under changing hydro-morphology of the Jamuna, Ganges and the Padma River;
- To assess risk analysis, climate resilience and disaster.
- Environmental and Social impact assessment of the proposed interventions.

1.4 Project revision with reasons: Not Applicable

2. Rationale of the project in respect of Concept, Design, Location and Timing.

The right bank of Jamuna river is mostly protected from bank erosion (Bangabandhu Bridge to Hurasagor outfall) but the left bank is still not duly addressed. Initially the project was formulated focusing two upazillas (Daulatpur and Shivalaya) of Manikganj District which are situated at the left bank of the Jamuna River. Zafarganj and Aricha Ghat naval ports are two old and traditional area of Shivalaya upazilla. Four union (Baghutia, Char katari, Bachamara and Jiyanpur) of Daulatpur upazilla and three unions (Shivalaya Sadar, Teota and Arua) of Shivalaya upazilla are situated at old char and adjacent to the left bank of the Jamuna River and the Padma River. Every year all the seven unions are affected by the tremendous river bank erosion of the Jamuna River. During flood of 2019, several structures with school, college bazar were disappeared and people of char Katari union took shelter to the adjacent Bachamjara union due to the river bank erosion. In this situation, it is necessary to stop further propagation of the erosion to protect rest of the area of the seven unions from disappearing into the river. Moreover, according to the commitment of honourable Prime Minister, the construction of "150 MW Power Plant and Economic Zone" at Paturia is under process. Besides, there is a proposal to set up an Industrial Park and an International stadium at Shivalaya Upazilla in Manikganj District. So for the future development and protection of the mentioned installations, proposed project area should be hazard free.

3. Brief description on planning and financing of the project and its applicability.

- **Project Identification**

The study area is located in the left bank of Jamuna river and Padma river in the downstream of Bangabandhu Bridge. Daulatpur and Shivalaya, both the upazillas of Manikganj District are situated at the left bank of the Jamuna River. Zafarganj and Aricha Ghat naval ports are two old and traditional area of Shivalaya upazilla. Four union (Baghutia, Char katari, Bachamara and Jiyanpur) of Daulatpur upazilla and three unions (Shivalaya Sadar, Teota and Arua) of Shivalaya upazilla are situated at old char and adjacent to the left bank of the Jamuna River and the Padma River. There are several installations, such as government primary and high school, college, Madrasa, mosque, temple, bazar, land office and other government and non-government organizations in the aforesaid area. Every year all the seven unions are affected by the tremendous river bank erosion of the Jamuna River.

Under this circumstances, the local member of the parliament sent a DO letter to the honorable Minister of State, Ministry of Water Resource to take necessary actions to protect the project area from erosion. In this context, it has been decided to carry out a feasibility study to investigate the hydro-morphological condition of the Jamuna and Padma river for taking suitable protection to protect the bank and also to dredge for navigability.

In this situation, Bangladesh Water Development Board (BWDB) intends to conduct a detailed investigation of morphological process in Jamuna River for navigation and protection of the Jamuna left bank from downstream of Bangabandhu Bridge (BB Bridge) to Aricha confluence and left bank of Padma river from Paturia to Harirumpur. Further, Ganges River reach at Rajbari, River Right Bank (GRRB) protective works and Padma reach at Char Bhadrason, River Right Bank (PRRB) protective works have been included in the study.

- **Project Preparation**

In view of the above, BWDB prepared a PFS to execute the feasibility study project.

Appraisal: The DPEC meeting was held on 08/11/2021.

- **Credit Negotiation-N/A**
- **Credit Agreement-N/A**
- **Credit Effectiveness-N/A**
- **Loan Disbursement-N/A**
- **Loan Conditionalities-N/A**
- **Project Approval:** The project was approved by honorable state minister, MoWR on 12/12/2021.
- **Others (if any).**

4. <u>Analysis of the Post-Implementation situation and result of the project</u>: *Not Applicable for this study project.*

4.1 Whether the beneficiaries of the project have clear knowledge about the Target/ Objectives of the project.

4.2 Programme for use of created-facilities of the project

4.3 O & M programme of the project.

4.4 Impact of the project -

4.4.1 Direct

4.4.2 Indirect

4.5 Transfer of Technology and Institutional Building through the project

4.6 Employment generation through the project.

4.7 Possibility of Self employment

4.8 Possibility of women-employment opportunity

4.9 Women's participation in development

4.10 Probable Impact on Socio-Economic activity.

4.11 Impact on environment

4.12 Sustainability of the project

4.13 Contribution to poverty alleviation/reduction

4.14 Opinion of the public representatives, local elite, local administration, teachers, religious leaders, women's representatives etc.

4.15 Contribution of Micro-credit programmes and Comments on overlapping with any NGO activities.

5. Problems encountered during Implementation (with duration & steps taken to remove those)

5.1	**Project Management**	**5.12**	**Project aid disbursement and re-imbursment**
5.2	**Project Director**		
5.3	**Land Acquisition**	**5.13**	**Mission of the development partners.**
5.4	**Procurement**	**5.14**	**Time & Cost Over-run**
5.5	**Consultancy**	**5.15**	**Project Supervision/Inspection**
5.6	**Contractor**	**5.16**	**Delay in Decision**
5.7	**Manpower**	**5.17**	**Transport**
5.8	**law & Order**	**5.18**	**Training**
5.9	**Natural clamity**	**5.19**	**Approval**
5.10	**Project financing, allocation and release.**	**5.20**	**Others.**
5.11	**Design formulation/approval**		

This is a consultancy service procurement project. No such problems were occurred.

6. Remarks & Recommendations of the Project Director:

The study was approved by the Ministry of Water Resources (MoWR) vide memo number :42.00.0000.040.014.011.2021-445, dated 12 December 2021. The project was accomplished on 30 March 2023.

The main objective of the study is to assess the feasibility of carrying out dredging along with appropriate measures to improve the navigability and protect the left bank including important existing and proposed installations.

The study has been framed to attain its objectives through two components: Mathematical Modelling Component and ESIA Component. Under Mathematical Modelling Component, deatailed

hydromorphological analysis of the concerned area was done through mathematical modelling. Based on the outputs of the mathematical modelling, project interventions have been proposed. Under ESIA Component of the project, detailed environmental and social impact assessment (ESIA) has been completed to analysis the impact of the proposed interventions on the environment and the society of the project area.

The study proposed four (4) different options to attain its objectives. Among the 4 options best suited option has been selected based on the multicriteria analysis considering technical, environmental and social impacts of the proposed interventions. After analysing the best option, 2 km bank protection work from Charkatari to Bachamara and 1.50 km bank protection work from Nehalpur to Someshgor along the left bank of Jamuna river have been recommended. Also, 10 km bank protection work from Baruria (downstream of Paturia ghat) to Gopinathpur along the left bank of Padma river have been recommended for implementation in this study.

In addition to that 3.025 km bank protection work along right bank of Padma river, located at 3 different reaches under Charvadrasion upazilla of Faridpur district has been suggested for implementation. For 7 km Rajbari Town Protection works, close monitoring is suggested at least twice in every month during monsoon (June-September). The offtake of Pungli, Dhaleswari, Kaligonga and Ghosbarir khal of Jamuna river are suggested to be kept open throughout the season to ensure and fulfil the environmental flow through the rivers.

The study proposed a 4-year investment project considering the recommended bank protection works for both Manikganj O & M Division and Faridpur O & M Division of BWDB.

It is anticipated that the study project output would help in DPP preparation and implementation of the subsequent investment project.

Farzana Ahmed
Project Director & Executive Engineer
Directorate of Planing-2
BWDB, Dhaka.

Date : 26.09.2023 **Signature and seal of the Project Director**

7. Remarks/Comments of Agency Head

The widening phenomenon of Jamuna river negatively impacts the vulnerable lands and establishments at the river bank during monsoon and post monsoon. It causes river bank erosion and subsequent loss of infrastructures, existing settlements and fertile agriculture lands. So, the need of erosion management along the left bank of Jamuna and Padma is an urgent. In this context, a detailed feasibility study has been carried out to investigate the hydro-morphological condition of the Jamuna and Padma river for taking suitable protection to protect the bank. It is expected that implementation of the project based on the study outcomes would improve the livelihood and the socio-economic

condition of the area. It is also anticipated that the project will also generate a significant number of employment opportunities during implementation and post project condition.

(S.M. Shahidul Islam)
ID NO: 650397001
Director General
BWDB, Dhaka.

Date : .....

Signature and Seal

8. Remarks/Comments of the officer in- charge of the Ministry/Division

The study has been completed successfully and an investment project will be taken as per recommendation of the study.

Date :

Signature and Seal