

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



Bangladesh Water Development Board

PROJECT COMPLETION REPORT: IMED 04/2003 (Revised)

**Feasibility Study for Surface Water Retention in Hurasagor
River System and Flood Risk Management of Jamuna River in
Sirajganj District**

September 2023

Government of the People's Republic of Bangladesh
Ministry of Planning
Implementation Monitoring and Evaluation Division

PROJECT COMPLETION REPORT : IMED 04/2003 (Revised)

A. PROJECT DESCRIPTION :

01. **Name of the Project** : Feasibility Study for Surface Water Retention in Hurasagor River System and Flood Risk Management of Jamuna River in Sirajganj District. (Project code- 224357500)
02. **Administrative** : Ministry of Water Resources (MoWR)
03. **Ministry/Division** : Bangladesh Water Development Board (BWDB)
04. **Executing Agency** : Bangladesh Water Development Board (BWDB)
05. **Location of the Project** : Sirajganj, Gaibandha and Bogura District.
06. **Objective of the Project:**

The main objective of the study is to manage the flood and erosion of Jamuna river and improve the water retention capacity of Bangali-Karatoa-Fuljor-Hurasagor river system.

The specific objectives of the study are:

- Surface water retention of the Bangali-Karatoa-Fuljor- Hurasagor river system;
- Flood and erosion risk management along the right bank of Jamuna river from the west end of the Bangabandhu bridge to Enayetpur.
- Design of proposed interventions;
- Environment and Social Impact Assessment;
- Preparation of DPP of the subsequent investment project.

06. Estimated Cost:

	(In lakh Taka)	
	Original	Latest Revised
(a) Total	482.60	-
(b) Taka	482.60	-
(c) Foreign Currency	-	-
(d) Project Aid	-	-
(e) RPA	-	-

07.	Date of Approval	:	PCP/PFS	PP
(a) Original		:	01/06/2022	-
(b) Latest Revised		:	-	-
(c) No Cost Time Extension		:	23/10/2022	-

08. Implementation Period:

	Date of Commencement	Date of Completion
(a) Original	May 2022	December 2022
(b) Latest Revised	May 2022	June 2023
(c) Actual	01 June 2022	26 June 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 Effectiveness	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
482.60	-	482.60	-

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

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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
May 2022- December 2022 (08 months)	May 2022- June 2023 (14 months)	01 June 2022 - 26 June 2023 (13 months)	(75%)	The administrative order of the project was issued on 01/06/2022 and RFP was issued to the Consultants on 27/06/2022. As project activities can not be started before signing the contract with the consultants, all project activities has been shifted accordingly.

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	482.60	-	391.86	(-18.80%)	
TAKA	482.60	-	391.86		
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 :	-	-	-	-	-	-

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04. Training of Project Personnel (Foreign/Local): An on-the job training for BWDB officials was arranged under this project.

Field of Training /Study tour/workshop/ Seminar 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	-	-	10	-	2 days' training

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%	2.000	28%	0.560	
2. Domestic Travel Expenses (TA & DA)	LS	100%	1.000	98%	0.976	
3. Other Stationary	LS	100%	0.250	100%	0.250	
4. Consultancy Expenditure	LS	100%	478.850	100%	389.580	
5. Computers (Repair)	LS	100%	0.500	100%	0.500	
Sub-total (Revenue):			482.600		391.860	
B. Capital						
-	-	-	-	-	-	-
Sub-total (Capital):	-	-	-	-	-	-
Grand-Total		100%	482.600	99.7%	391.860	

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
Bidyut Kumar Saha Superintending Engineer Directorate of Planning-2, BWDB, Dhaka. Grade-4; 50,000-71,200	Yes	-	Yes	25 July 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
Procurement of Consultancy Services (Mathematical Modelling Component) in connection with the project "Feasibility Study for Surface Water Retention in Hurasagor River System and Flood Risk Management of Jamuna River in Sirajganj District"	328.73	319.94	27.06.2022	03.10.2022	02.04.2023	30.06.2023

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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: 28 man month Physical Modelling Component: 21 man month Environmental and Social Study Component: 13 man month	Mathematical Modelling Component: 28 man month Physical Modelling Component: - Environmental and Social Study Component: 13 man month	Mathematical Modelling Component: 28 man month Physical Modelling Component: - Environmental and Social Study Component: 13 man month	Mathematical Modelling Component was conducted by IWM and Environmental and Social Study Component was conducted by CEGIS. As negotiation was failed between BWDB and RRI, the Physical Modelling Component was not conducted.

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
-	-	-	-	-	-	-

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
2022-23	482.60	482.60	-	100%	-	-	-	-
Total	482.60	482.60	-	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
2022-23	402.00	402.00	-	100%	400.74	391.86	391.86	-	100%
Total	402.00	402.00	-	100%	400.74	391.86	391.86	-	100%

D. ACHIEVEMENT OF OBJECTIVES OF THE PROJECT:

Objectives as per PP/PFS	Actual achievement	Reasons for shortfall, if any
Technical Feasibility Study		
Surface water retention of the Bangali-Karatoa-Fuljor- Hurasagor river system;	Completed. Detailed assessment to retain surface water of Bangali-Karatoa-Fuljor-Hurasagor river system is incorporated in Section-4 of the Final Report.	-
Flood and erosion risk management along the right bank of Jamuna river from the west end of the Bangabandhu bridge to Enayetpur;	Completed. Analysis of flood and erosion risk management along the right bank of Jamuna river from the west end of the Bangabandhu bridge to Enayetpur is incorporated in Section-4 of the Final Report.	-
Design of proposed interventions;	Completed. Design of all proposed interventions are attached in Volume-III of the Final Report.	-
Environment and Social Impact Assessment;	Completed. A detailed ESIA is done and incorporated in Section-5 of the Final Report together with a separate ESIA report.	-
Preparation of DPP of the subsequent investment project.	Completed. All necessary documents to prepare DPP are attached in the Final Report. The respective DPP will be prepared by the concerned field office of BWDB.	-

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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: Nil.

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

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

Bangali-Karatoa-Fuljor-Hurasagor River System: To increase the water conservation capacity of the Bangali-Karatoa-Fuljor-Hurasagor river system, BWDB has taken a project titled "Dredging/ re-excavation and bank protection of Bangali-Karatoa-Fuljor-Hurasagor river system". Bangali, Karatoa, Fuljor, Hurasagor, Ichhamoti, Baral, Atrai, Saraswati, Beelshurjo, Mora Karatoa etc. are other rivers within the command area of Bangali-Karatoa-Fuljor-Hurasagor river system. All the rivers of the system finally fall into the Hurasagor river and the Hurasagor river falls into the Jamuna river. If the water of the river system can be retained, it would help to improve the irrigation system, navigation, ground water recharge and ecology of the command area. The former Senior Secretary of the Ministry of Water Resources (MoWR) emphasized on construction of water retention structure at Hurasagor river to retain the water of the river system.

Jamuna River: Since independence, several projects have been taken to protect the right bank of Brahmaputra-Jamuna river from erosion. The "Brahmaputra Right Bank Flood Control Embankment (BRE)" project covered Rangpur, Gaibandha and Sirajganj district. Around 78.89 km of the total 220 km embankment of BRE project belongs to Sirajganj Division of BWDB. The Jamuna river is shifted to the west side because of dredging and bank protection work during construction of the Bangabandhu bridge. At the west bank of the Jamuna river beside the Bangabandhu bridge, Sirajganj Economic Zone has been developed. Another economic zone proposed by Bangladesh Economic Zone Authority (BEZA) is going to be established beside the east side of the Sirajganj Economic

Zone. Since independence, several projects have been taken by BWDB to protect Sirajganj district from flood and bank erosion.

Currently 3 projects of BWDB are being implemented in Sirajganj through which 37.0 km flood embankment, 7 spurs/groynes and 4 crossbars are already constructed. Besides that, 15.50 km riverbank protection work is under implementation. Mentionable that, right bank of the Jamuna river under Sirajganj O&M Division of BWDB would completely be protected from riverbank erosion after completion of the ongoing projects.

Still, around 20 km length of the reclaimed land from the west bank of the Bangabandhu bridge to Enayetpur is found vulnerable towards erosion. Bank protection work of 7 km of the aforementioned 20 km has already been included under FRERMIP project. To protect the rest vulnerable length, a detailed feasibility study is necessary.

In view of the above, BWDB conducted a detailed feasibility study to assess the feasibility of construction of bank protection work from the west bank of the Bangabandhu bridge to Enayetpur and construction of water retention structure in Hurasagor river system.

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.

- **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.

- **National Women Development Policy (2011).**

National Women Development Policy (2011) provides clear goals relating to women, poverty, water, and agriculture in the context of climate change.

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- **Linkage with Sustainable Development Goal (SDG)**

SDGs' targets	Integrated Issues (Development Targets) with Government 8FYP
SDG 13. Take urgent action to combat climate change and its impacts	i) Protection against Flood for safety of people, crop, and other resources. Conservation of rivers, waterways, wetlands etc. ii) River dredging to enhance navigability and to facilitate water transportation and utilization of surface water irrigation.
Achievement of Targets due to implementation of the project	
• Mitigation of Flood in the study area. • Protection of riverbanks vis-vis lands and rural resources along the banks of the river. • Enhance food security by taking necessary measures of embankment damage along the banks of the river. • Retention of water in rivers.	

- **Linkage with Bangladesh Delta Plan (BDP), 2100**

- The Project will contribute to the implementation of the Bangladesh Delta Plan 2100 from technical aspect.
- The concept of the project is in line with BDP 2100. Particularly, the Project contributes to the following strategies and sub-strategies:
 - Strategy at National Level.
 - Strategy FR 1: Protecting Economic Strongholds and Critical Infrastructure.
 - Strategy FR 2: Equipping the FMD Schemes for the future.
 - Sub-strategy FR 2.5: River management, excavation and smart dredging preceded by appropriate feasibility study.
 - Strategy FR 3: Safeguarding Livelihoods of Vulnerable Communities.
 - Sub-strategy FR 3.7: River management as well as improved flood management, drainage, O&M and flow management.

1.3 Objectives

The main objective of the study is to manage the flood and erosion of Jamuna river and improve the water retention capacity of Bangali-Karatoa-Fuljor-Hurasagor river system.

The specific objectives of the study are:

- Surface water retention of the Bangali-Karatoa-Fuljor- Hurasagor river system;

- Flood and erosion risk management along the right bank of Jamuna river from the west end of the Bangabandhu bridge to Enayetpur.
- Design of proposed interventions;
- Environment and Social Impact Assessment;
- Preparation of DPP of the subsequent investment project.

1.4 Project revision with reasons: Not Applicable

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

This project would be a milestone in utilization of surface water resources in the “Barind and Drought Prone Areas” which is one of the hotspots of Bangladesh Delta Plan 2100 (BDP 2100). Additionally, it would help to recharge ground water and improve the ecological and environmental balance of the area. If implemented, this project will contribute to provide adequate irrigation opportunities to a significant area of lands throughout the year. Consequently, crop production will increase vastly, fish production will increase, naval navigation will become easier overall socio-economic condition of the mentioned area will be improved.

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

◆ Project Identification

Bangali-Karatoa-Fuljor-Hurasagor river sysem falls under the jurisdiction of Gaibandha O & M Division, BWDB, Bogura O & M Division, BWDB and Sirajganj O & M Division, BWDB. A project titled “Dredging/ Re-excavation and bank protection of Bangali-Karatoa-Fuljor-Hurasagor river system” is presently under implementation in the study area. As per DPP, the ongoing implementation works (dredging and bank protection) is expected to be completed by June, 2024. Further, there is severe erosion in the right bank of the Jamuna river from downstream of Bangabandhu bridge to Bethil-Enayetpur about 20 km is also included in the study to save an economic zone, power plant and other establishments, now under threat of the Jamuna river bank erosion.

The right bank of Jamuna river is mostly protected from bank erosion (Bangabandhu Bridge to Hurasagor Outfall) but the length of jamuna river at right bank in Belkuchi Upazilla is about 10 km and right bank of Radhunibari river is unprotected. On the other hand, the bank protection works and dredging works are going on in the Bangali-Karatoa-Fuljor-Hurasagor river sysem for the length of 217 km. The river is not perennial and there is scarcity of water during dry season for irrigation, navigation, and other uses. Still some length of the river needs protection as per field condition to save villages, markets, roads and other establishments.

In view of the above, BWDB conducted this feasibility study to manage the flood and erosion of Jamuna river and improve the water retention capacity of Bangali-Karatoa-Fuljor-Hurasagor river system.

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Project Preparation

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

Appraisal: The DPEC meeting was held on 12/04/2021.

- ◆ 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 01/06/2021.
- ◆ Others (if any).

4. Analysis of the Post-Implementation situation and result of the project: *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 calamity	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 :42.00.0000.041.14.057.22-345, dated 01 June 2022. The project was accomplished on 30 June 2023.

The main objective of the study is to manage the flood and erosion of Jamuna river and improve the water retention capacity of Bangali-Karatoa-Fuljor-Hurasagor river system.

The study has been framed to attain its objectives through two components: Mathematical Modelling Component and Environmental and Social Study Component. Under Mathematical Modelling Component, detailed 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 Environmental and Social Study Component of the project, detailed environmental and social impact assessment (ESIA) has been completed to analyse the impact of the proposed interventions on the environment and the society of the project area.

Recommendation of the study domain is divided into three major parts: (a) River bank protection works, (b) Early flood protection and (c) Water retention of Bangali-Karatoa-Fuljor-Hurasagor river system.

The study recommended river bank protection works at 31 nos. locations on both banks of the Bangali river and at 2 locations on the right bank of the Radhunibari channel. Also, 9.5 km bank protection work on the right bank of Jamuna river at Radhunibari area have been recommended for implementation in this study.

1.5 km submersible embankment including slope and crest protection together with 2 Nos. flood fuses each of 15 meters length in Rawtara area is recommended for construction in order to manage flood.

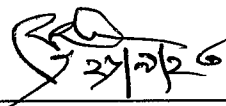
For water retention of Bangali-Karatoa-Fuljor-Hurasagor river system, the study recommended three humps under bridges located in Bothuyabari, Bilchapr, and Nimgachi area.

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One 3 vent drainage cum flushing regulator over Beel Surja River is recommended for construction. In addition, two existing regulators (11 vent Rawtara Regulator and 1 vent Milkvita regulator) are recommended for rehabilitation.

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

Date :

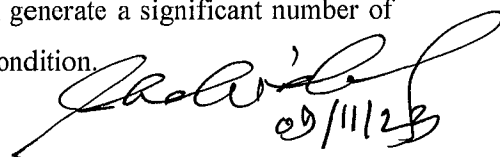


Signature and seal of the Project Director

Bidyut Kumar Saha
Project Director
&
Superintending Engineer (Civil)
Directorate of Planning-2
BWDB, Dhaka.

7. Remarks /Comments of Agency Head

In order to retain the water of Bangali-Karatoa-Fuljor-Hurasagor river system and manage flood of the Jamuna river, BWDB has conducted this detailed feasibility study. It is expected that implementation of the project based on the study outcomes would bring lots of benefits to the people living in the project area. It is also anticipated that the project will generate a significant number of employment opportunities during implementation and post project condition.



Date :

(S.M. Shahidul Islam)
ID NO: 650307001
Director General
BWDB, Dhaka.

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

The project has been done successfully and subsequent investment project will be taken as per recommendations of the study.

Date :

Signature and Seal

