

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



Bangladesh Water Development Board

PROJECT COMPLETION REPORT: IMED 04/2003 (Revised)

for

**Feasibility Study for Integrated Water Resources Management
and Development of Naf River Estuary and Land Development of
Shahparir Dwip**

October, 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 Integrated Water Resources Management and Development of Naf River Estuary and Land Development of Shahparir Dwip.) (Project code- 224358100)
02. Administrative Ministry/Division : Ministry of Water Resources (MoWR)
03. Executing Agency : Bangladesh Water Development Board (BWDB)
04. Location of the Project : Cox's Bazar

05. Objective of the Project:

The overall objective of the project is to carry out a comprehensive study for integrated water resources management and development of Naf River Estuary by investigating the dynamic erosion and sedimentation mechanism and analyzing the need for dredging and other protective measures for sustainable solutions. The study also aims to devise an integrated plan for land development of Shahparir Dwip.

The specific objectives of the study (component wise) but not limited to the following are:

Hydrological and Morphological Model Study (Component-1):

- To identify and analyze the sedimentation, wave attack and erosion problems in the Naf River Estuary and suggest sustainable measures;
- To assess the necessity and adequacy of dredging of the Naf river to establish uninterrupted navigation and prepare a sustainable plan for creating natural harbor in suitable places;
- To prepare a holistic, integrated and sustainable river management plan for the Naf River Estuary along with Shahparir Dwip considering Climate Change and Sea Level Rise;
- To provide sustainable and economically viable solutions for land improvement/development measures of Shahparir Dwip;
- To assess the viability of tourism considering all the tourism aspects;
- To estimate the detail cost of the project including economic and financial analysis to acquire the extended project outcomes.

Environmental and Social Impact Study (Component-2):

The overall objective of the ESIA study is to assess the impacts of the proposed interventions on the environmental and social components and suggest an environmental management plan for sustainable development of the project. The ESIA would ensure to involve beneficiaries in project conceptualization, Planning and Implementation. The study will assess the biophysical and socio environmental impact with recommendation of appropriate mitigation plan in the project area and to prepare report on ESIA to obtain necessary clearances from the Department of Environment (DoE). The specific objectives of the consultancy service are following:

The specific objectives are:

- Provide a consistent and common basis for the application of ESIA to protect environment by ensuring that the project is environmentally sound.
- Identifying, quantifying and evaluating the potential environmental consequences so that the impacts before implementation of the project & impacts of the projects are highlighted. The negative impacts would be addressed in a way conserving the society and environment.

- Ensure that all development with full consideration for economic and environmental optimization, and for a long-term sustainability and equitability of environmental resource conservation.
- Assess the project with respect to Environmental Sustainability, Climate Resilience and Disaster Risk and find the ways for reducing/mitigating negative impacts;

The ESIA study should specifically include the following:

- Establish the environmental and social baseline conditions of the specified project considering the coastal aspects;
- Obtain information on the proposed interventions;
- Select important environmental and social components presently being impacted and of course likely to be addressed by the proposed interventions;
- Identify the opportunities of Blue Economy (Mangrove Forest, Fisheries, Oysters, Salt Production, etc) and prepare a sustainable plan;
- Identify the places, number and classification of trees for tree plantation program;
- Assess environmental and social impacts of proposed project interventions;
- Prepare an Environmental Management Plan (EMP) which should include mitigation measures, enhancement measures, compensation measures and an environmental monitoring plan;

06. Estimated Cost:

	(In lakh Taka)	
	Original	Latest Revised
(a) Total	332.00	-
(b) Taka	332.00	-
(c) Foreign Currency	-	-
(d) Project Aid	-	-
(e) RPA	-	-

07.

	Date of Approval	:	PCP/PFS	PP
(a) Original		:	07.06.2022	
(b) Latest Revised		:	-	
(c) No cost time extension		:	12.03.2023	

08. Implementation Period:

	Date of Commencement	Date of Completion
(a) Original	June 2022	March 2023
(b) Latest Revised	-	-
(c) Actual	June 2022	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 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
332.00	-	332.00	-

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-imburseable 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
June 2022- March 2023 (10 months)	June 2022- June 2023 (13 months)	June 2022- June 2023 (13 months)	30.00 %	The commencement of survey activities at the trans-boundary River Naf was delayed due to the requirement of obtaining appropriate permission and security clearance from the Border Guard Bangladesh (BGB). (Annexure-1)

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	332.00	-	313.34	-5.62%	
TAKA	332.00	-	313.34		
PA	-	-	-	-	

03. Project Personnel: There was no provision of manpower in the PFS¹

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

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

Field of Training /Study tour/workshop/Seminer etc.	Provision as per PP		Actual		Remarks
	Number of persons	Man - months	Number of persons	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 (±)
		Financial	Physical (%)	Financial	Physical (%)	
1	2	3	4	5	6	7
A. Revenue						
1. Feasibility Study (Hydrological & Morphological Model Study) (Local Professionals 37.00 Man-month)	Lot	204.93	100.00%	195.07	100.00%	
2. Feasibility Study (ESIA)	Lot	118.36	100.00%	112.41	100.00%	

¹ There was no provision of manpower for conducting the project in the approved PFS. So, existing officers and staffs of the Project Director's office i.e. Officer of the Superintending Engineer (Civil), Directorate of Planning-1, BWDB execute the project.

Items of work (as per PFS)	Unit	Target (as per PFS)		Actual Progress		Reasons for deviation (±)
		Financial	Physical (%)	Financial	Physical (%)	
1	2	3	4	5	6	7
Study) (Local Professionals 26.00 Man-month						
3. Other stationary	Lot	1.41	100.00%	1.38	100.00%	
4. Honorarium	LS	3.80	100.00%	1.53	40.26%	
5. Domestic Travel Expenses	LS	1.00	100.00%	0.97	100.00%	
Sub-total (Revenue):		329.50	100.00%	311.36	99.31%	
B. Capital						
6. Office Equipment	Lot	2.50	100.00%	1.98	100.00%	
Sub-total (Capital):		2.50	100.00%	1.98	100.00%	
Grand-Total		332.00	100.00%	313.34	99.32%	

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
Dr. Robin Kumar Biswas Superintending Engineer (Civil) Directorate of Planning-1 BWDB, Dhaka Grade-4 (50,000 to 71,200)	Full time	-	Yes	18.07.2022	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
Car	-	-	-	-	-	
Jeep	-	-	-	-	-	

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
"Hydrological and Morphological Model Study for Integrated Development and Management of Naf River Estuary and Land Development of Shahparir Dwip"	204.93	199.50	07.08.2022	06.10.2022	Original: 31.03.2023 Revised: 26.06.2022	26.06.2022
"Environmental and Social Impact Assessment Study for Integrated Development and Management of Naf River Estuary and Land Development of Shahparir Dwip"	118.36	114.96	07.08.2022	10.10.2022	Original: 31.03.2023 Revised: 26.06.2022	26.06.2022

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:				
Hydro-morphological Model Study	37	37	37	Conducted by IWM
ESIA Study	23	23	23	Conducted by CEGIS

09. Construction/Erection/Installation Tools & Equipment: Not Applicable

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
2021-22	0.00	0.00		0.00%				
2022-23	332.00	332.00	-	100.00%	-	-	-	-
Total	332.00	332.00	-	100.00%	-	-	-	-

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	0.00	0.00	-	0.00%	0.00	0.00	0.00	-	0.00%
2022-23	322.00	322.00		100.00%	322.00	313.34	313.34		99.32%
Total	322.00	322.00	-	100.00%	322.00	313.34	313.34	-	99.32%

D. ACHIEVEMENT OF OBJECTIVES OF THE PROJECT:

Objectives as per PP/PFS	Actual achievement	Reasons for shortfall, if any
Hydro-morphological Model Study		
To identify and analyze the sedimentation, wave attack and erosion problems in the Naf River Estuary and suggest sustainable measures;	The wave climate, accretion/erosion, hydro-morphological characteristics of the Naf River Estuary, as well as longshore sediment transport along the beach area, were analyzed to identify erosion-prone areas. Finally, sustainable erosion mitigation measures were suggested for the erosion-prone area.	
To assess the necessity and adequacy of dredging of the Naf river to establish uninterrupted navigation and prepare a sustainable plan for creating natural harbor in suitable places;	The dredging requirement of Naf River and Estuary was assessed for uninterrupted navigation. Dredging is mainly needed for a 4.4 km stretch with an 80m bottom width at the river mouth of Naf River, which is far from the international border. Moreover, it is recommended to construct a harbor facility at Golar Char to provide safe anchorage for local country boats during rough weather. It will be able to accommodate 90 country boats.	
To prepare a holistic, integrated	The river management plan is devised by integrating different sectoral requirements (i.e.,	

Objectives as per PP/PFS	Actual achievement	Reasons for shortfall, if any
and sustainable river management plan for the Naf River Estuary along with Shahparir Dwip considering Climate Change and Sea Level Rise;	agriculture, tourism, waterway, fisheries, etc.). The impact of climate change and sea level rise has been considered in project planning.	
To provide sustainable and economically viable solutions for land improvement/development measures of Shahparir Dwip;	Land development at Golar Char requires 2.3Mm ³ to raised up the whole island up to 3mMSL land level. The dredged materials will be used for the land development of Golar Char. During the disposal period, a temporary ring dyke will be construct around the Golar Char using sand fill geo-tube to protect the disposal materials from normal tide intrusion. Thus, the study has provided sustainable and economically viable solutions for land development.	-
To assess the viability of tourism considering all the tourism aspects;	The master plans for Sabrang Tourism Park and Naf Tourism Park have been subjected to a thorough review. These parks are currently under development, with oversight provided by the Bangladesh Economic Zones Authority (BEZA). Ambitious plans for sea vessel operations in the Naf River, linking to various destinations, including Saint Martin Island, have been formulated. In consideration of prospective tourism opportunities, the selection of the most suitable navigation route has been made to ensure the accessibility of all water vessels and ships throughout the day.	-
To estimate the detail cost of the project including economic and financial analysis to acquire the extended project outcomes.	The proposed interventions have been thoroughly designed, with corresponding cost estimations based on these designs. Subsequently, a comprehensive economic and financial analysis was conducted, revealing the project's strong economic viability.	-
ESIA Study		
Provide a consistent and common basis for the application of ESIA to protect environment by ensuring that the project is environmentally sound.	The application of ESIA to protect environment by ensuring that the project is environmentally sound are provided. (Chapter-05)	
Identifying, quantifying and evaluating the potential environmental consequences so that the impacts before implementation of the project & impacts of the projects are highlighted. The negative impacts would be addressed in a way	Environmental consequences of the project have been evaluated considering Future with Project (FWIP) and Future Without Project (FWOP) scenario. (Chapter-08)	

Objectives as per PP/PFS	Actual achievement	Reasons for shortfall, if any
conserving the society and environment.		
Ensure that all development with full consideration for economic and environmental optimization, and for a long-term sustainability and equitability of environmental resource conservation.	The project is environmentally sustainable and socially acceptable according to the assessments of the ESIA study team. (Chapter-04)	
Assess the project with respect to Environmental Sustainability, Climate Resilience and Disaster Risk Resilience and find the ways for reducing/mitigating negative impacts.	Environmental Sustainability, Climate Resilience and Disaster Risk are assessed and the ways for reducing /mitigating negative impact are found out. (Chapter-09)	
Establish the environmental and social baseline conditions of the specified project considering the haor aspects	The environmental and social baseline conditions of the specified project have been prepared based on Primary and Secondary data collection. (Chapter-05)	
Obtain information on the proposed interventions;	Detailed information for proposed interventions has been collected from Technical Study Team (IWM). (Chapter-04)	
Select important environmental and social components presently being impacted and of course likely to be addressed by the proposed interventions;	Important Environmental and Social Components (IESCs) have been prepared considering the proposed interventions provided by Technical Study Team (IWM). (Chapter-07)	
Identify the places, number and classification of trees for tree plantation program;	The places, number and classification of trees for tree plantation program has been identified and classified under afforestation plan. (Report Appendix)	
Conservation of bio-diversity of the study area considering its importance regarding the hotspots of BDP-2100;	Conservation of bio-diversity of the study area has been considered. (Report Appendix)	
Assess environmental and social impacts of proposed project interventions;	The impacts before implementation of the project are identified and quantified and evaluated. (Chapter-08)	
Prepare an Environmental Management Plan (EMP) which should include mitigation measures, enhancement measures, compensation measures and an environmental monitoring plan.	Environmental Management Plan (EMP) including mitigation measures, enhancement measures, compensation measures, and an environmental monitoring plan for different resources based on positive or negative impacts have been prepared considering the proposed interventions provided by Technical Study Team (IWM). (Chapter-09)	



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).
-	-	-	-

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	-	-

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

F. MONITORING AND AUDITING

1. Monitoring: Nil

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

2. Auditing during and after Implementation:

2.1. Internal Audit: No audit conducted.

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:

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

Naf River is a trans-boundary river along the south-eastern border of Bangladesh with Myanmar. The river flows through Ukhia and Teknaf upazillas under Cox's Bazar district and meets the Bay of Bengal near Shahparir Dwip under Polder 68. The embankment of Polder 68 was totally damaged due to severe erosion of the right bank of Naf River and at its outfall due to the wave action at the sea. The embankment of polder 68 is being re-constructed but its sustainability is under threat due to riverbank/coastline erosion at many places.

Moreover, delta development has been observed in the southwestern part of the Naf River with development of ebb and flood channels which is reducing the navigability of this river in Bangladesh part. This route is very important because this is the tourism route for the ships to go to Saint Martin which is one of the prime tourist spot of Bangladesh. However due to the low navigability, these vessels have to pass along the border of Myanmar which is very risky due to international border.

In 06/06/2020 Senior Secretary of Ministry of Water Resource visited the location. Due to the severity of the situation, he gave directions to dredge the river and improve the navigability of Naf river Estuary in Bangladesh part. He also gave suggestions to improve the land of Shahparir Dwip by dredged materials.

In view of the above, BWDB decided to conduct a detailed feasibility study for Improvement of Navigability in Naf River Estuary by dredging and Erosion Management & Land Development of Shahparir Dwip considering environmental and social issues.

1.2 Justification/Adequacy

This project has an immense importance because it is linked with the Sustainable Development Goals (SDG) and Bangladesh Delta Plan 200 (BDP2100). The linkages are given below;

Linkage with Sustainable Development Goals (SDGs)

To achieve Sustainable Development Goal (Goal no-6, Target no- 6.6) it is essential to protect and restore water related ecosystems, including mountains, forests, wetlands, rivers, aquifers and lakes river by 2020, a River Management Plan is essential. Goal 13 of SDG # 13 is take urgent action to combat climate change and its impacts. Goal 14 is to conserve and sustainably use the oceans, seas and marine resources for sustainable development.

Linkage with Bangladesh Delta Plan (BDP) 2100

The Project will contribute to the implementation of the Bangladesh Delta Plan 2100 from technical aspect.

The study area falls into the Coastal Zone of Bangladesh which is one of the Hotspot of Bangladesh Delta Plan, BDP-2100. This project complies with the Goal 1 of Higher Level Goals of BDP 2100 which is "eradicate extreme poverty by 2030".

The concept of the project is in line with BDP2100. Particularly, the Project contributes to the following Goal, strategies and sub-strategies:

BDP 2100 Specific Goals

- Goal 1: Ensure safety from floods and climate change related disasters;
- Goal 2: Enhance water security and efficiency of water usages;
- Goal 3: Ensure sustainable and integrated river systems and estuaries management
- Goal 6: Achieve optimal and integrated use of land and water resources.

Strategy at National Level

- Sub-strategy FR 3.1 Management of rivers and embankments with provision of fastest drainage of water during monsoon and flood

Hotspot Specific Strategies

Coastal zone

- Combating storm surge and salinity intrusion through effective management of existing polders.
- Increase drainage capacity and reduce flood risk management
- Reclaim new land in the Coastal zone;

As the Naf River flowing through this hotspot, the contribution of this study project may be considered significantly to achieve the Goal of Delta Plan.

1.3 Objectives

The overall objective of the project is to carry out a comprehensive study for integrated water resources management and development of Naf River Estuary by investigating the dynamic erosion and sedimentation mechanism and analyzing the need for dredging and other protective measures for sustainable solutions. The study also aims to devise an integrated plan for land development of Shahparir Dwip.

The specific objectives of the study (component wise) but not limited to the following are:

Hydrological and Morphological Model Study (Component-1):

- To identify and analyze the sedimentation, wave attack and erosion problems in the Naf River Estuary and suggest sustainable measures;
- To assess the necessity and adequacy of dredging of the Naf river to establish uninterrupted navigation and prepare a sustainable plan for creating natural harbor in suitable places;
- To prepare a holistic, integrated and sustainable river management plan for the Naf River Estuary along with Shahparir Dwip considering Climate Change and Sea Level Rise;
- To provide sustainable and economically viable solutions for land improvement/development measures of Shahparir Dwip;
- To assess the viability of tourism considering all the tourism aspects;
- To estimate the detail cost of the project including economic and financial analysis to acquire the extended project outcomes.

Environmental and Social Impact Study (Component-2):

The overall objective of the ESIA study is to assess the impacts of the proposed interventions on the environmental and social components and suggest an environmental management plan for sustainable development of the project. The ESIA would ensure to involve beneficiaries in project conceptualization, Planning and Implementation. The study will assess the biophysical and socio environmental impact with recommendation of appropriate mitigation plan in the project area and to prepare report on ESIA to obtain necessary clearances from the Department of Environment (DoE). The specific objectives of the consultancy service are following:

The specific objectives are:

- Provide a consistent and common basis for the application of ESIA to protect environment by ensuring that the project is environmentally sound.
- Identifying, quantifying and evaluating the potential environmental consequences so that the impacts before implementation of the project & impacts of the projects are highlighted. The negative impacts would be addressed in a way conserving the society and environment.

- Ensure that all development with full consideration for economic and environmental optimization, and for a long-term sustainability and equitability of environmental resource conservation.
- Assess the project with respect to Environmental Sustainability, Climate Resilience and Disaster Risk and find the ways for reducing/mitigating negative impacts;

The ESIA study should specifically include the following:

- Establish the environmental and social baseline conditions of the specified project considering the coastal aspects;
- Obtain information on the proposed interventions;
- Select important environmental and social components presently being impacted and of course likely to be addressed by the proposed interventions;
- Identify the opportunities of Blue Economy (Mangrove Forest, Fisheries, Oysters, Salt Production, etc) and prepare a sustainable plan;
- Identify the places, number and classification of trees for tree plantation program;
- Assess environmental and social impacts of proposed project interventions;
- Prepare an Environmental Management Plan (EMP) which should include mitigation measures, enhancement measures, compensation measures and an environmental monitoring plan;

1.4 Project revision with reasons: Not Applicable

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

The embankment of Polder 68 was totally damaged due to severe erosion of the right bank of Naf River and at its outfall due to the wave action at the sea. The embankment of polder 68 is being re-constructed but its sustainability is under threat due to riverbank/coastline erosion at many places.

The navigability of the river is severely hampered due to the delta development along the southwestern part of the Naf River. This route is very important because this is the tourism route for the ships to go to Saint Martin which is one of the prime tourist spot of Bangladesh. However due to the low navigability, these vessels have to pass along the border of Myanmar which is very risky due to international border.

In view of the above, BWDB decided to conduct a detailed feasibility study for Improvement of Navigability in Naf River Estuary by dredging and Erosion Management & Land Development of Shahparir Dwip considering environmental and social issues.

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

◆ Project Identification

The project is being taken to improve the current river management practice of the Naf River estuary. This river is a major route to the Saint Martin Island which is very popular tourist spot in Bangladesh. Several ships ferry along Naf River towards the island every day. However, these vessels have to pass along the border of Myanmar due to the loss of navigation of Naf river in Bangladesh side which is very risky due to international border. Another fact is western part of Shahparir Dwip is under constant threat of erosion. The scenic beauty of the sea beach has developed a strong tourism business which is contributing the economic growth of the country. But the recent sea shore erosion has made the tourism zone vulnerable which eventually threatening the tourism business of the area. In view of this situation, the project is identified for implementation.

◆ Project Preparation

To achieve Sustainable Development Goal (Goal no-6, Target no- 6.6) it is essential to protect and restore water related ecosystems, including mountains, forests, wetlands, rivers, aquifers and lakes

river by 2020, a River Management Plan is essential. Besides this, river system is one of the hotspots of Bangladesh Delta Plan-2100. To cope up upcoming challenges and to meet the water needs effective and sustainable management of rivers is a crying need.

In view of these above stated reasons it is demand of time to prepare a River Management Plan for the The Naf River estuary.

♦ **Appraisal**

In 06/06/2020 Senior Secretary of Ministry of Water Resource visited the study area and gave directions to dredge the river and improve the navigability of Naf river estuary in Bangladesh part. He also gave suggestions to improve the land of Shahparir Dwip by dredged materials. The DPEC meeting regarding this project was held on 25/03/2021 at MoWR. To overcome this problem, a PFS is formulated by addressing the issues regarding the Naf River estuary and land development of Shahparir Dwip. A review meeting was held on 20/01/2022 regarding the PFS of this. Decisions were taken and the PFS was corrected based on the decisions taken in that meeting. Finally the DPEC meeting held on 06/04/2022 and the project was approved on 07/06/2022.

♦ **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 the Honorable State Minister, MoWR on 07.06.2022

♦ **Others (if any):** N/A

4. **Analysis of the Post-Implementation situation and result of the project:** *Not Applicable*

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

It is a contract base consultancy service procurement project. The above problems don't occur

6. **Remarks & Recommendations of the Project Director:**

The main objective of the project is to carry out a comprehensive study for integrated water resources management and development of Naf River Estuary by investigating the dynamic erosion and sedimentation mechanism and analyzing the need for dredging and other protective measures for sustainable solutions. The erosion of Shahparir Dwp sea beach has been a major concern for the past 32 years. The erosion is so severe that it has endangered all the beach's attractive objects.

The study has been framed to attain its objectives through two components: Mathematical Modelling Component and ESIA Component. Under Mathematical Modelling Component, detailed hydro-morphological 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 identified the most significant reason for the erosion of Shahparir Dwp sea beach to be wave action. The study also assessed the erosion vulnerability of the Shahparir Dwp sea beach considering severity of erosion in the past, present and future, long shore sediment transport characteristics, wave dynamics and place of importance based on model results, field visits, satellite image analysis and consultation with various stakeholders. Two different sub-reaches were found as vulnerable for erosion: i) sub-reach-I: from southern part of Shahparir Dwp Closer point to most southern part of polder-68: 1.9 km and ii) sub-reach II: western part of the Golar char: 1.7km. Among which the sub-reach I is already protected by protection work but still vulnerable in the recent years. Both sub-reaches are directly exposed to sea and vulnerable to wave action.

A number of potential erosion protection measures such as breakwater, revetment, beach nourishment and groynes were considered and analyzed to select the best suited nature based protective measures in the perspective of long-term solution. Silt Accumulation Basin (combination of Breakwater and Groynes) is finally selected as the erosion mitigation measure.

The study also focuses on the navigability of the Teknaf to Saint-martin route. To improve navigability, a 4.4 km long and 80 m wide channel is proposed to be dredged at the Naf River estuary. The total volume of capital dredging is estimated to be about 1.1 Mm³ and 1.4 Mm³ for maintenance dredging for two years. A temporary ring dyke will be constructed around Golar Char using sand fill geo-tubes to protect the disposal materials from normal tide intrusion during the dredging and land development activities. This dredging project is expected to improve navigation and create new land for development in the area.

After land development at Golar Char, the proposed measures include the construction of a 3.45 km long embankment with slope protection around Golar Char, aimed at safeguarding the land from erosion. Additionally, approximately 16 hectares of land will be afforested, with the planting of around 71,100 plants, including Jhau trees. This afforestation effort serves to enhance the environment and create a habitat for wildlife. Furthermore, a harbor facility will be developed, providing a secure anchorage for local boats during turbulent weather conditions.

Total Financial investment cost of the project is estimated as BDT 78,071.14 (Phase 1 is 25,202.54 + Phase 2 is 52,868.60) lakh. The economic analysis are summarized in the following Table which indicate project is economically viable, as it secures a rate of return that exceeds 12%.

The technical report i.e., the feasibility study report has been prepared according to specific format of Planning Commission. On the Environmental and Social Impact Assessment report has been prepared according to the Terms of Reference approved by the Department of Environment.

Finally, all the objectives and scopes have been accomplished under this study project. The design, cost estimate and ESIA have been conducted through the project. The feasibility study has shown that the project is technically feasible, environmentally friendly, socially acceptable, and economically viable. So, the DPP of the investment project would be finalized for implementation of the proposed physical components based on the findings of this study project.

Date: 26.10.23

Signature and seal of the Project Director

(Dr. Robin Kumar Biswas)
Superintending Engineer (Civil)
Directorate of Planning-1
BWDB, Dhaka.

7. Remarks/Comments of Agency Head:

The study area falls in one of the hotspots (Coastal) zone identified by Bangladesh Delta Plan 2100. The project holds immense significance as it addresses multiple critical issues in the region. It will effectively mitigate erosion problems in Shahparir Dwip and enhance navigation in the Naf river estuary while facilitating land development at Golar Char. The project has been thoroughly evaluated for its technical, environmental, and economic viability, ensuring its potential to deliver substantial benefits to the local residents upon completion.

To maximize the benefits and ensure the project's long-term sustainability, it is imperative to adhere to the suggestions and recommendations outlined in the feasibility study. The integrated plan for all interventions has been thoughtfully designed, aligning with the needs of field officials, and the project's implementation costs have been prepared. The concerned DPP is now in MoWR. Once the DPP receives approval, the Bangladesh Water Development Board (BWDB) will promptly initiate the necessary steps for the project's implementation.

Date:

(S.M. Shahidul Islam)
Signature and Seal
Director General
BWDB, Dhaka.

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

The study has been completed successfully and in accordance with the study's recommendations, an investment project will be taken.

Date:

Signature and Seal

Government of the People's Republic of Bangladesh

Ministry of Water Resources



Bangladesh Water Development Board

Hydrological and Morphological Model Study for Integrated Development and Management of Naf River Estuary and Land Development of Shahparir Dwip



Final Report

June 2023



INSTITUTE OF WATER MODELLING

Government of the People's Republic of Bangladesh

Ministry of Water Resources



Bangladesh Water Development Board

**Hydrological and Morphological Model Study for
Integrated Development and Management of Naf River
Estuary and Land Development of Shahparir Dwip**

Approved

28.06.2023

(Md. Romjan Ali Pramanik)
Director General
BWDB, Dhaka.

Final Report

June 2023



INSTITUTE OF WATER MODELLING

EXECUTIVE SUMMARY

E1 Introduction

The Naf River Estuary, located along the south-eastern border of Bangladesh with Myanmar, is facing significant coastal erosion, which is a major natural disaster in Bangladesh. The study area is situated in polder 68, which is being re-constructed, but its sustainability is under threat due to riverbank/coastline erosion at many places.

The study focuses on understanding the hydrodynamics and morphology of the Naf River Estuary and its surrounding areas, including the development of ebb and flood channels, which are reducing the navigability of the river in the Bangladesh part. Additionally, the study will assess the sustainability of polder 68, which is being reconstructed but is facing significant erosion issues.

The proposed study is of significant importance as Saint Martin Island, a popular tourist spot in Bangladesh, is located along the Naf River. Several ships ferry along the river towards the island every day, but due to the loss of navigation of the river in the Bangladesh side, these vessels have to pass along the border of Myanmar. This issue not only affects the tourism industry but also has significant economic implications for Bangladesh.

The overall objective of the project is to carry out a comprehensive study for integrated water resources management and development of Naf River Estuary by investigating the dynamic erosion and sedimentation mechanism and analyzing the need for dredging and other prospective measures for sustainable solutions. The study also aims to devise an integrated plan for land development of Shahparir Dwip. The study area map is shown in Figure E-1

The Bangladesh Water Development Board (BWDB) has proposed this study to address these issues, titled the "Hydrodynamic and Morphological Model Study for Integrated Development and Management of Naf River Estuary and Land development of Shahparir Dwip." The study has been conducted by the Institute of Water Modelling (IWM), with the aim of developing an integrated development and management plan for the Naf River Estuary and its surrounding land.

E2 Problem Statement and Demand Analysis

Coastal Erosion

Figure E-2 illustrates the planform changes in the study area over the past three decades. The focus of this study area is primarily on the southern part, encompassing Shahparir Dwip and the Naf River Estuary. Analysis of the data reveals a consistent trend of erosion in this region throughout the specified time period.

During the initial phase, from 1989 to 2000, the study area experienced the highest level of net erosion, measuring approximately 5 square kilometers. This substantial erosion was accompanied by minimal accretion, resulting in a significant net loss of land. However, in the subsequent two decades, spanning from 2000 to 2011 and from 2011 to 2022, the extent of erosion decreased notably.

Table E-1 provides a comprehensive summary of the erosion and accretion areas within the study area, expressed in square kilometers, for the specified time intervals. The data reveals that during the 1989-2000 period, the erosion area amounted to 5.35 square kilometers, while the accretion area was a mere 0.44 square kilometers. Consequently, the net erosion for this time period was calculated at approximately -4.92 square kilometers.

In the following decade, from 2000 to 2011, the erosion area decreased to 3.66 square kilometers, accompanied by a slightly increased accretion area of 1.04 square kilometers. As a result, the net erosion reduced to -2.62 square kilometers. Continuing this trend, during the 2011-2022 period, the erosion area further declined to 2.58 square kilometers, while the accretion area experienced a slight increase to 0.37 square kilometers. Consequently, the net erosion for this time period amounted to -2.21 square kilometers.

Furthermore, it is noteworthy that the most severe erosion within the study area occurred in the vicinity of the southern tip of the spit, near the Naf River estuary. This particular region experienced the greatest land loss and erosion compared to other areas in the study site.

Table E-1: Summary of erosion/accretion area in square kilometer in the study area

Extent area	1989-2000			2000-2011			2011-2022		
	Erosion	Accretion	Net	Erosion	Accretion	Net	Erosion	Accretion	Net
1	5.35	0.44	-4.92	3.66	1.04	-2.62	2.58	0.37	-2.21

Tropical Cyclone and Storm Surge

The study area, specifically Shahparir Dwip, is vulnerable to multiple natural hazards such as tropical cyclones, storm surge, coastal erosion, and sea-level rise. Historical data from 1965, 1983, 1985, 1991, 1998 2009 reveal that this area has been affected by devastating cyclones. The present study focuses on the analysis of severe cyclones that occurred between 1960 and 2022 to simulate an inundation scenario of Shahparir Dwip under present and future climate change conditions. The existing embankment is also included in the model in both cases. The projection in cyclonic wind speed and sea-level rise due to climate change is considered under the climate change scenario of 2050 (AR-5, RCP-8.5). The inundation map is prepared by combining the effect of all the cyclones, and it reveals the vulnerability of Shahparir Dwip to cyclonic storm surge under present and future climate change conditions.

The inundation depth inside the polder is almost negligible. However, the maximum inundation depth varies from 3m to 3.5m in the Golar Char area. The impact of climate change will increase the inundation depth and consequently, the damage and vulnerability due to storm surge. The study indicates that the maximum inundation depth will be between 4m and 4.5m under the climate change scenario of 2050 in the Golar Char area.

Existing set bank distance for Polder 68

The reach of the bank line is vulnerable to erosion where the setback distance of the embankment is not adequate for the sustainability of the embankment for next 10 years considering the present rate of bank/shoreline erosion. Setback distance of existing embankment is shown in Figure E-3.

From the above analysis, Naf river side has sufficient setback distance and present erosion rate is not vulnerable for the existing polder for next 10 years. Moreover, upstream reach from section 46 to 58 has accretion trend. However, the seaside reach 31 to 28 has huge erosion rate and the setback distance is almost negligible. This portion of the polder is the most vulnerable reach which is directly exposed to sea and vulnerable to wave action and storm surge. BWDB has several protection measures around this portion. Moreover, the western part of the Golar char is also vulnerable to erosion. Currently there are no erosion protection measures for Golar Char area.

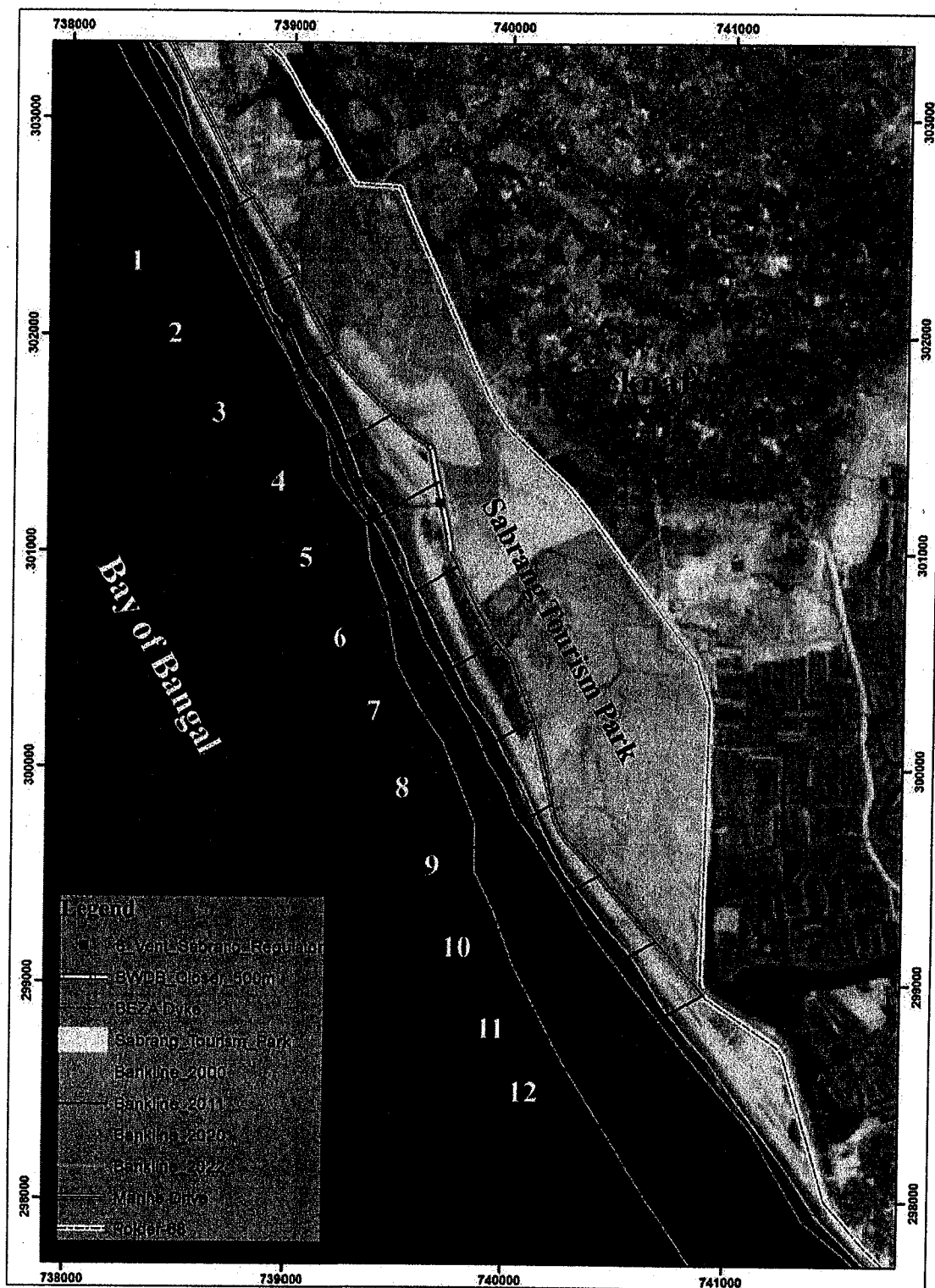


Figure E-4: Setback distance of existing embankment from shoreline/bankline 2022

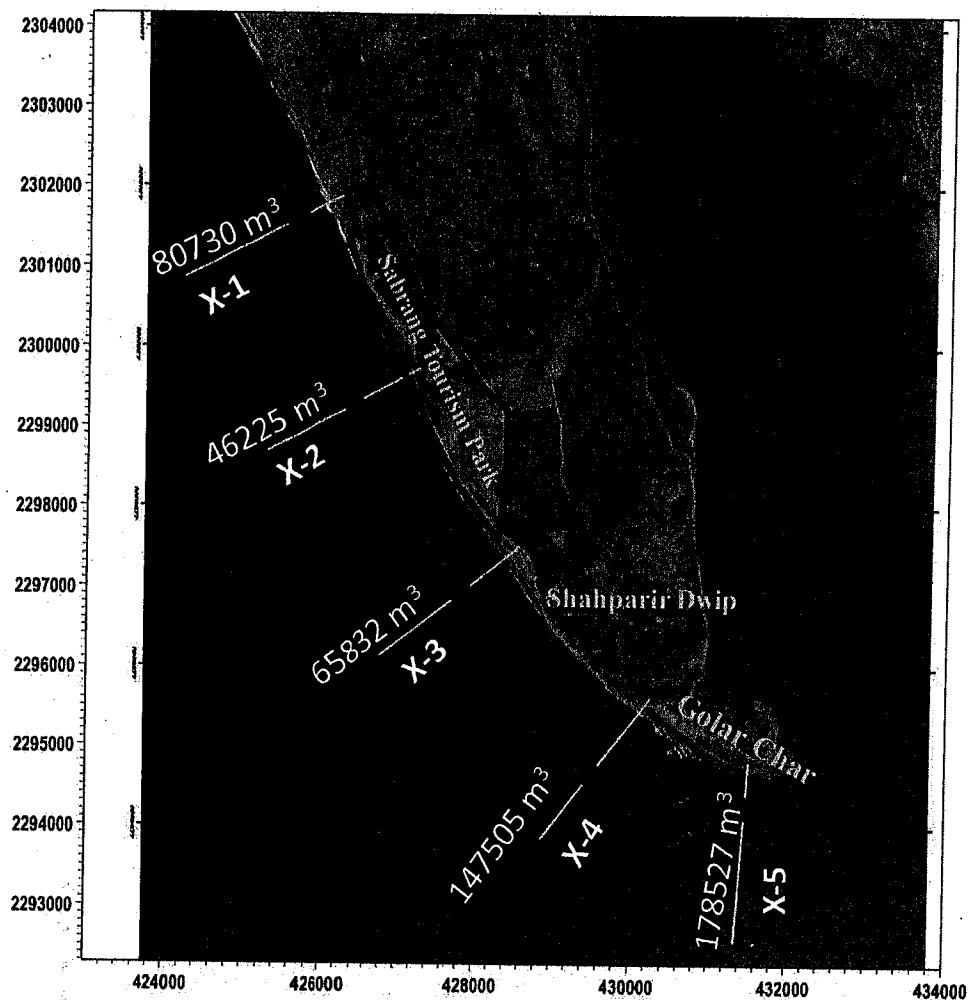


Figure E-5: Net annual littoral drift (longshore transport) and direction of longshore transport along the study area.

Identification of erosion vulnerable area

The erosion vulnerability of the Shahparir Dwip sea beach was assessed considering severity of erosion in the past, present and future, long shore sediment transport characteristics, wave dynamics and place of importance based on model results, field visits, satellite image analysis and consultation with various stakeholders. Two different sub-reaches were found as vulnerable for erosion: i) sub-reach-I: from southern part of Shahparir Dwip Closer point to most southern part of polder-68: 1.9 km and ii) sub-reach II: western part of the Golar char: 1.7km. Among which the sub-reach I is already protected by protection work but still vulnerable in the recent years. Both sub-reaches are directly exposed to sea and vulnerable to wave action. Figure E-6 shows the location of erosion vulnerable area.

Navigability problem in Naf River Estuary

The Teknaf to Saint Martin Island navigation route is a crucial tourist attraction in Bangladesh, spanning approximately 35 km and taking around two to three hours to traverse by sea truck. This route is primarily active during the winter season when the wave climate is calm. However, recent challenges have arisen due to the formation of a bar in the river mouth and the deeper channel being located in the international border.

The formation of a bar at the Naf estuary has become a significant obstacle for deep draft vessels, making dredging essential to maintain the channel's design depth. Despite this, no dredging program has been carried out in the bar area thus far. Once artificial channels are dredged, natural processes will attempt to revert them to their original state through sedimentation. To minimize this, it is essential to locate the dredged channel away from deposition-prone areas and ensure its alignment is parallel to the dominant current direction. This will help reduce the re-siltation rate, which is exacerbated by cross currents.

Demand Analysis

Shahparir Dwip is an island located in the southernmost part of Teknaf, situated in the Sabrang Union of Teknaf Upazila, extends to the peninsula of Teknaf Upazila. The island is impoldered with coastal embankment Polder 68. Golar char is located in the most southern part of this coast which does not currently have any polder or protection work. This is one of the oldest islands of Bangladesh and near about 450,00 people lives here. However, this area is prone to multiple natural hazards such as tropical cyclones, storm surge, coastal erosion and sea level rise.

The peoples of Shahparir Dwip are demanding strong protection work to protect the island from storm surge flooding. Combination of breakwater and series of groynes, afforestation, land development and new embankment slope protection works around the vulnerable reach around the Shahparir Dwip and Golar Char area will improve the life and livelihood of the peoples of Shahparir Dwip as well as country's economic growth.

Sabrang Tourism Park, covering an extensive 1027-acre area in Cox's Bazar district, is poised to become the region's primary destination for exclusive tourism. To address these vulnerabilities and raise the embankment's level for future protection without disrupting harmony with adjacent areas, a comprehensive plan is required. It is therefore proposed to upgrade the existing dyke and raise its crest level from 5.15 m(PWD) to 7.5 m(PWD) which would make its height consistent with the existing dyke at Shahparir Dwip. The proposed length of dyke north of Sabrang Park is 1.43 km and length of dyke south of Sabrang Park is 2.41km.

The Teknaf to Saint Martin Island navigation route is a crucial tourist attraction in Bangladesh, spanning approximately 35 km and taking around two to three hours to traverse by sea truck. This route is primarily active during the winter season when the wave climate is calm. However, recent challenges have arisen due to the formation of a bar in the river mouth and the deeper channel being located near the international border. Dredging is required to solve the navigability problem. As a result, more tourists will travel to this area which will improve the life and livelihood of the peoples of local people of Shahparir Dwip.

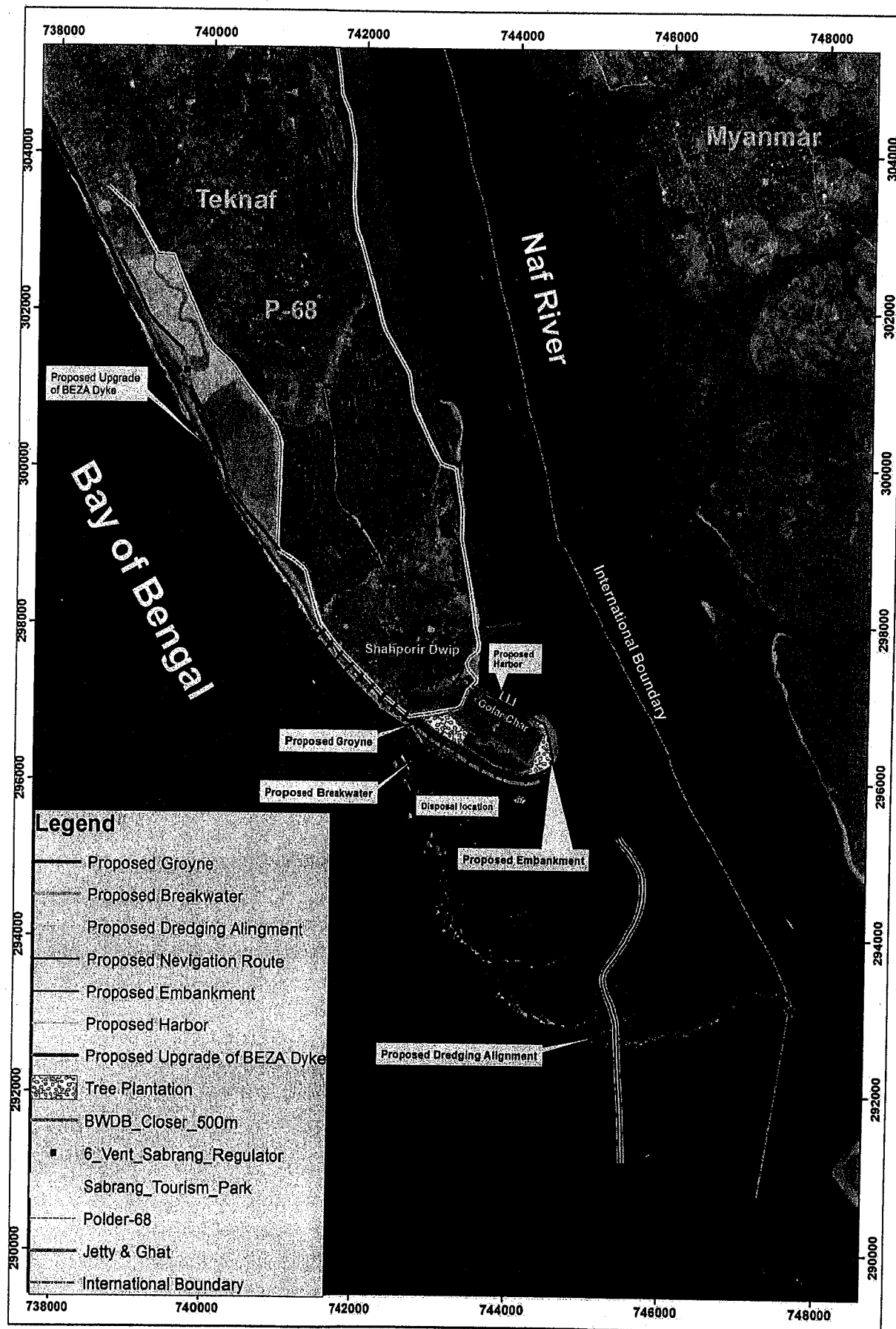


Figure E-7: Locations of the proposed interventions in project area

E3-4 Dredging at Naf river estuary and Land Development at Golar Char

The Teknaf to Saint Martin Island navigation route is a crucial tourist attraction in Bangladesh, spanning approximately 35 km and taking around two to three hours to traverse by sea truck. This route is primarily active during the winter season when the wave climate is calm. However, recent challenges have arisen due to the formation of a bar in the river mouth and the deeper channel being located in the international border. Dredging is a necessary solution to ensure the safe operation and maintenance of the navigable channel. The formation of a bar at the Naf estuary has become a significant obstacle for deep draft vessels, making dredging essential to maintain the channel's design depth. Despite this, no dredging program has been carried out in the bar area thus far.

The design channel width was 80m with a navigation depth of 3.5m for all day vessel movement. The required capital dredging is about 1.1 Mm^3 . In this study, 26-inch cutter suction will be employed for dredging the submerged bar in Naf River Estuary. Normally in the field condition, capacity of cutter suction is $1200 \text{ m}^3/\text{h}$.

It is assumed that, dredger will operate 8 hours a day & 22 days in a month

Duration of Dredging for each Month: 22 days @8 hour = 176 hour;

Amount of cutting volume per month = $1200 \text{ m}^3 \times 176 \text{ hour} = 0.2112 \text{ Mm}^3$

Dredging period considering calm wave climate (November ~March): Total volume each year per dredger = $0.2112 \times 5 = 1.06 \text{ Mm}^3$

Morphological model result has been used to estimate the re-siltation rates in dredged channel. Due to limitations in the mesh resolution, dredging in existing riverbed according to actual design channel is not possible. The channel is dredged with bottom width 80m (size of three rectangular grid) and maintained design bed level of -5.5 mMSL. But this will not affect the re-siltation rate calculation due to the mechanism of backfilling process.

To estimate the bed level change in dredged channel, two model setup -one with existing bathymetry and other with bathymetry that includes dredged channel are prepared and run to simulate bed thickness change for one-year period. The bed level change in dredged channel due to siltation is obtained from bed thickness change result file which is simulated with dredged bathymetry. The simulated bed level change represents the siltation depth in dredged channel that occurs by sedimentation in channel over one-year period. On the other hand, dredged bathymetry is subtracted from existing bathymetry to get the dredging depth in the dredged channel. In the next step, volume at dredging depth and siltation depth for entire length of dredged channel is calculated. These calculated volume for dredging and siltation depth represents cutting and filling volumes respectively, and ratio of filling to cutting represents re-siltation rate over the period.

There is a potential area on the southern tip of Shahparir Dwip which is known as Golar Char situated outside of Polder-68. The land development of this area will be done by dredging materials. After land development, this area has potential for empoldering as its elevation will be high compared to the height of tide. Construction of new polder will protect almost 110 hectares of land from tidal flood, storm surge, wave and salinity intrusion. This study suggested construction of 3.45 km new embankment with seaside slope protection. The safety level of the embankment is selected based on the discussions with the climate and coastal experts, stakeholders and implementing agencies. Considering the present land use pattern and economic importance of the area, embankment crest level for **100-yr. return period** has been adopted for implementation from current situation. The selected embankment crest level for 100-yr. return period is about **8.12mPWD (7.66 mMSL)**. After discussion with BWDB design office, it was finalized as **7.75mMSL**.

E3-7 Construction of a new Harbor at Golar Char

Assessment of a suitable location for a natural harbor involves a variety of factors that must be taken into account. A natural harbor is a protected body of water that is deep enough to accommodate vessels and boats and has a natural shelter against the effects of the sea. The harbor is important for commercial and industrial purposes as they provide a safe haven for vessels to anchor. Considering all factors, harbor is proposed to be constructed at "Golar Char". The wave climate of the location is comparatively calm.

The harbor location is considered easier to construct, but the draft for the vessel is not adequate, as the area is very shallow, ranging from 0 to -1.5 mMSL. As such, frequent dredging would be required to ensure the operational effectiveness of the Harbor. For a large fishing boat with a 1.5-meter draft, capital dredging of 1.5 meters to 3.0 meters would be required to anchor vessel inside the harbor. Nonetheless, the initial construction cost of the Harbor would be relatively low, given that it would be built in a shallow area.

Finally, the location was selected for natural harbor as the construction cost is less compared to other options and it has direct connection with mainland. The final layout plan for harbor is shown in Figure E-9 and it will accommodate about 90 country boats inside the harbor basin.

habitat condition of the intervened area. It is anticipated that the impact on fish habitat would be temporarily as tidal water carrying with sediment mixed nutrients recover the area soon. Around the intervention site, the local flora will be disturbed. The implementation of project work will damage a few of the terrestrial and aquatic floral species. The noise created due to project works will disrupt the habitat of aquatic avifauna, reptiles, and amphibians of the char land and connected wetlands. Employment opportunities for technical and non-technical work will be created because of protective work and construction activities. Cutting and digging into the bank to place geo bags and CC blocks could make it difficult for individuals to communicate with each other.

During Post Construction Phase, protection works in the study area would have significant local positive impacts by protecting the water resources infrastructure and productive agricultural and homestead land from progressive erosion. The overall impact of the project on land pollution is expected to be positive. It is expected that the proposed permanent embankment with slope protection would fix the bank along the Golar Char if the normal hydro-morphological condition prevails. It would save valuable lands and assets of the study area. Navigability problem at Naf River mouth will be improved using dredging at the proposed alignment. the Polder. It is assumed that tourists will increase due to an increase in tourist vessels in the route. Moreover, the overall socio-economic condition of the study area will be positively impacted.

The Environmental Management Plan (EMP) has been prepared with the aim of ensuring avoidance, minimization, and offsetting of adverse environmental impacts and enhancement of beneficial impacts. The EMP includes mitigation and enhancement measures to be taken during pre-construction, construction and post-construction phases. An environmental monitoring plan has been suggested at the end with the mention of agencies responsible for implementing the monitoring plan.

E4.2 Climate Change and Disaster Risk Analysis

The study area is highly prone to cyclones, storm surge, sea level rise, salinity and erosion. Tropical Cyclones frequently cause damage to people's lives and property in the study area. In addition, cyclone-generated water waves and persistent rain contribute to erosion. As island, Shahparir Dwip and Golar Char are highly vulnerable to cyclone damage.

Due to a combination of estuary and Bay of Bengal tidal effects, the island experiences severe morphological and hydrological changes over time. Over several decades, the island's size has been declining. A larger number of people become displaced and are forced to move to Dhaka or other big cities for survival due to erosion on the island.

Sea level rise is a very severe issue for the coastal area of Bangladesh. Increasing sea level is creating inundation and increasing salinity in coastal lowlands. This will be a major issue for the project area.

E5 Cost-Benefit Analysis

E5.1 Project Costs

Capital Costs

The Consultant Engineers and the subject specialists have prepared cost estimates of the project, based on field visits and field surveys. Total Financial investment cost of the project is estimated as BDT 78,071.14 (Phase 1 is 25,202.54 + Phase 2 is 52,868.60) lakh.

Table E-2: Year wise Financial and Economic Investment Cost (Lakh taka)

Year	Project Costs	Economic cost
1	1755.03	1394.27
2	8649.21	6722.80
3	7566.80	5600.56
4	7231.50	5097.06
5	Monitoring	
6	1406.47	895.04
7	25181.56	15332.13
8	25133.30	14573.29
9	1147.26	629.19
Total	78071.14	50244.34

Project O&M Costs

Annual Operation and Maintenance (O&M) costs of the project facilities have been estimated based on the civil works cost. The annual O&M cost is estimated as 1812.87 (Phase 1 is 1237.71+ Phase 2 is 575.16) BDT lakh.in financial and 1445.40 (Phase 1 is 986.83+ Phase 2 is 458.58) BDT Lakh in economic detailed given in **Appendix- B7**.

E5.2 Project Benefits

The whole population of the project area will be the beneficiaries. All of them will be benefitted directly indirectly by implementing the project intervention. Working communities will be the most benefitted groups. day labor and households living on project area will be the other beneficiaries' groups.

Project Economic Benefits

The Economic benefits of the project have been identified and quantified as far as possible for economic analysis. The objective of establishing the project intervention. Therefore, the benefits of the project intervention are listed below.:

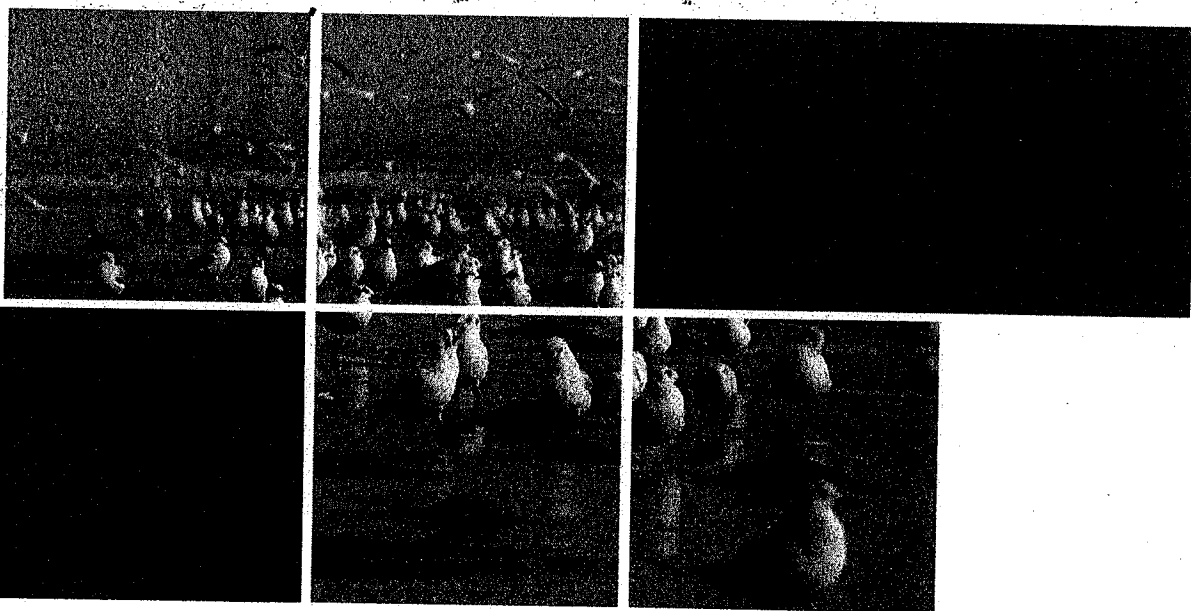
- Agriculture
- Fisheries
- Green House Gas (GHG)
- Asset and infrastructure safe
- Tourism
- Employment Creation
- Developed area Land value

- Land development at Golar Char requires 2.3Mm^3 to raised up the whole island up to 3mMSL land level. The dredged materials will be used for the land development of Golar Char. During the disposal period, a temporary ring dyke will be construct around the Golar Char using sand fill geo-tube to protect the disposal materials from normal tide intrusion.
- It is recommended to construct new embankment with slope protection works for Golar Char. Embankment crest level is designed for 100-yr return period considering cyclonic storm surge and wave under climate change condition. The selected embankment crest level for 100-yr. return period is about 8.12mPWD (7.66 mMSL). After discussion with BWDB design office, it was finalized as 7.75mMSL. CC block is suggested for protection of embankment slope with a side slope 5H:1V in the seaside.
- It is recommended to construct harbor facility at Golar Char for safe anchorage of local country boat during rough weather. It will accommodated 90 country boats.
- Afforestation of about 16 hectares of land where 4443 nos. plant will be planted per hectare of land. Thus, about 71100 nos. plants will be planted. The suggested species for afforestation are Jhau (*Casuarina equisetifolia*) trees.
- Monitoring of sedimentation, seabed scouring, erosion of shoreline, placement and displacement of armor materials and beach nourishment during and after implementation is required to assess the effectiveness of protective measures and devising proper maintenance.
- In the implementation phase, detailed design, detailed EIA, supervision & quality control and monitoring the effectiveness of the erosion mitigation measures are essential and recommended to accomplish.
- The Environmental Monitoring Plan shall be strictly followed in order to ensure contractor's compliance with the mitigation measures.
- Both BWDB and the contractor shall abide by relevant environmental rules, regulations including workers' health and safety aspect, prevention of air and water pollution and protection of aquatic fauna and flora.
- The suggested interventions will be implemented into two phases in 9 years which is illustrated into the following bar chart.



Bangladesh Water Development Board

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on
Environmental and Social Impact Study
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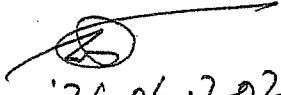


June 2023

C&GIS

Center for Environmental and Geographic Information Services

APPROVED


'26.06.2023

(Md. Romjan Ali Pramanik)
Director General
BWDB, Dhaka.

Final Report
on
Environmental and Social Impact Study
for Integrated Development and Management
of Naf River Estuary and Land Development of Shahparir Dwip

Executive Summary

The study focuses on ESIA of the Integrated Development and Management of Naf River Estuary and Land Development of Shahparir Dwip Project. The southernmost tip of Shahparir Dwip in Teknaf, Cox's Bazar, also known as Golar Char is the primary focus of the Project and thus, the study. The south-western bank of Golar Char, along with the south-western bank of Shahparir Dwip is highly susceptible to erosion due to wave action and littoral drift. A portion of this sediment circulates counter-clockwise due to wave and tide effect and deposits along the south-eastern portion of Golar Char, in the Naf River Estuary. Due to this, river draft is decreasing and sea going vessels are facing difficulties. For this reason, vessels are forced to cross over into Myanmar territories in order for passage on to the sea. So, the issue here is two-fold; on the one hand, high susceptibility to erosion may result in the loss of significant portions of Golar Char in the future, which is a location rich in biodiversity, as well as probable damages to the southwestern portion of polder 68; and on the other hand, the decrease in Naf River draft raises serious security concerns for booming business and tourism in the region.

On this backdrop, the project proposes several interventions to alleviate the situation. Proposed interventions include a 3.45 km embankment around Golar Char, with revetment slope works. Breakwaters will be constructed parallel to the shore about 100m away from the shoreline in a distance of about 3.7km. 19 groynes will be constructed in the vulnerable reach with a 200m spacing at Shahparir Dwip as well as Golar Char seaside. Dredging at Naf River estuary will be done at a length of 4.4km with 80m bottom width. Coastal afforestation will be done in Golar Char with plantation of 71,100 trees in 16 hectares of land. The dredge material will be used to develop 55 hectares of inter-tidal area within Golar Char.

The study area falls within the Cox's Bazar-Teknaf Peninsula Ecological Critical Area (ECA), thus asserting restrictions regarding certain development. Being an ecologically sensitive zone, any activity that may hamper the existing biodiversity is prohibited. Moreover, as the Naf is an international river shared between Bangladesh and Myanmar, dredging activities within certain proximity of the Myanmar bordering left bank of the river may spark international debate concerning probable detrimental morphological impacts on the Myanmar side. Therefore, appropriate NOC (No Objection Certificate) from the Department of Environment (DoE) and Coastal Forest Department has to be obtained in order to proceed with project activities, and has been recommended. Also, bilateral talks with Myanmar have to be initiated, in accordance with existing treaty to come to a mutual agreement regarding following through with dredging activities in the Naf Estuary.

As mentioned, the Project Area falls within the polder 68 encompassed area, with prime focus on the southernmost portion of the polder enclosure and Golar Char, which falls just outside the polder bounds. There is defined internal khal network within polder enclosure and there are no major water logging and/ or drainage issues, save that which arises from severe cyclones. Approximately one-third of the land area within the Project Area is human settlement, and more than half of the area is agriculture land which is almost equally divided between salt and crop cultivation. The major livelihood of the people of the region is fisheries as total fishing area is approximately 10,786 hectares among which ~73% is marine and ~25% is riverine fisheries. Golar Char is rich in biodiversity and has several floral and faunal species of marine, terrestrial and aquatic ecosystem. Major plant species of the Golar Char is Jhaw; 50,000 of Jhaw trees have been planted by Forest Department of Bangladesh in the session year 2020-21. Two types of sea

নম্বর ৪২.০০.০০০০.০৪৩.১৪.০১১.২১.২৯

তারিখ: ১৬ চৈত্র ১৪২৮

৩০ মার্চ ২০২২

বিভাগীয় প্রকল্প মূল্যায়ন কমিটির (ডিপিইসি) সভার বিজ্ঞপ্তি

পানি সম্পদ মন্ত্রণালয়ের সিনিয়র সচিব মহোদয়ের সভাপতিত্বে "নাফ নদীর মোহনার সমন্বিত পানি সম্পদ ব্যবস্থাপনা ও উন্নয়ন এবং শাহপীরী দ্বীপের ভূমি উন্নয়ন এর নিমিত্ত সম্ভাব্যতা সমীক্ষা" এর ওপর বিভাগীয় প্রকল্প মূল্যায়ন কমিটির (ডিপিইসি) আগামী ০৬-০৪-২০২২ তারিখ (বুধবার) বেলা ১২:০০ ঘটিকায় মন্ত্রণালয়ের সভাকক্ষে (কক্ষ নং-৪০৬, ভবন নং-৬, বাংলাদেশ সচিবালয়, ঢাকা) শীর্ষক প্রকল্পের ডিপিইসি সভা অনুষ্ঠিত হবে।

০২। বর্তমান পরিস্থিতিতে সদস্যগণ যথাযথ স্বাস্থ্যবিধি অনুরসণপূর্বক সভায় সরাসরি অংশগ্রহণ করতে পারবেন অথবা সরাসরি উপস্থিতিতে অপারগ সদস্যগণ Zoom App এর মাধ্যমে অংশগ্রহণ করতে পারবেন। বর্ণিত সভায় অংশগ্রহণের জন্য সংশ্লিষ্ট সকলকে নির্দেশক্রমে অনুরোধ করা হলো। মিটিং আইডি, পাসওয়ার্ড নিম্নরূপ:

Meeting ID: 827 2625 6004; Passcode: 497559

সংযুক্তি: (সভার কার্যপত্র)।

Wahar

৩০-৩-২০২২

খায়রুন নাহার

উপসচিব

ফোন: ৯৫৪৫৫১৩

সদয় অবগতি ও কার্যার্থে প্রেরণ করা হল:

- ১) সিনিয়র সচিব, অর্থ বিভাগ, অর্থ মন্ত্রণালয়, বাংলাদেশ সচিবালয়, ঢাকা (একজন উপর্যুক্ত প্রতিনিধি প্রেরণের অনুরোধসহ)।
- ২) সিনিয়র সচিব, জনপ্রশাসন মন্ত্রণালয়, বাংলাদেশ সচিবালয়, ঢাকা (একজন উপর্যুক্ত প্রতিনিধি প্রেরণের অনুরোধসহ)।
- ৩) সদস্য, কার্যক্রম বিভাগ (সদস্য)-এর দপ্তর, পরিকল্পনা কমিশন, (একজন উপর্যুক্ত প্রতিনিধি প্রেরণের অনুরোধসহ)।
- ৪) সদস্য, সাধারণ অর্থনীতি বিভাগ (সদস্য)-এর দপ্তর, পরিকল্পনা কমিশন, (একজন উপর্যুক্ত প্রতিনিধি প্রেরণের অনুরোধসহ)।
- ৫) সদস্য, কৃষি, পানি সম্পদ ও পল্লী প্রতিষ্ঠান বিভাগ, শেরে বাংলা নগর, ঢাকা, (একজন উপর্যুক্ত প্রতিনিধি প্রেরণের অনুরোধসহ)।
- ৬) সচিব বাসাবায়ন পরিবীক্ষণ ও মূল্যায়ন বিভাগ শেরে বাংলা নগর ঢাকা (একজন উপর্যুক্ত প্রতিনিধি প্রেরণের অনুরোধসহ)।

বিষয়ঃ গত ০৬/০৪/২০২২ তারিখে “নাফ নদীর মোহনার সমন্বিত পানি সম্পদ ব্যবস্থাপনা ও উন্নয়ন এবং শাহপরীর দ্বীপের ভূমি উন্নয়ন এর নিমিত্ত সম্ভাব্যতা সমীক্ষা” শীর্ষক সমীক্ষা প্রকল্পের ওপর অনুষ্ঠিত ডিপিইসি সভার কার্যবিবরণী।

সভাপতি	কবির বিন আনোয়ার সিনিয়র সচিব
সভার তারিখ	৬/০৪/২০২২ খ্রিঃ।
সভার সময়	১২:০০ ঘটিকা
স্থান	সিনিয়র সচিব এর দপ্তর, পানি ভবন (লেভেল-৫), বাপাউবো, ৭২ গ্রীনরোড, ঢাকা (অনলাইন প্ল্যাটফর্ম zoom এর সাহায্যে বিভিন্ন সদস্যগণ সংযুক্ত হয়েছিলেন)
উপস্থিতি	পরিশিষ্ট ‘ক’

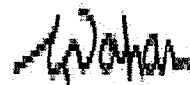
উপস্থিত সকলকে স্বাগত জানিয়ে সভাপতি সভার কার্যক্রম শুরু করেন। সভাপতির আহবানে সভাকে অবহিত করা হয় যে, টেকসই উন্নয়নের নিমিত্ত নদী ভাঙ্গন, পলিপতন প্রক্রিয়া বিশ্লেষণ, ড্রেজিং ও নদীতীর সংরক্ষণ এর প্রয়োজনীয়তা নিরূপণপূর্বক সমন্বিত পানি সম্পদ ব্যবস্থাপনা এবং উন্নয়ন এর মাধ্যমে সমগ্র নাফ নদীর মোহনা এবং শাহ পরীর দ্বীপের উন্নয়ন সাধন এই সমীক্ষা প্রকল্পের উদ্দেশ্য। সভাকে আরো অবহিত করা হয় যে, এই উদ্দেশ্য অর্জনের সুবিধার্থে সমীক্ষা প্রকল্পের কম্পোনেন্ট-১ এর অধীন Hydrological and Morphological Model Study, IWM কর্তৃক এবং কম্পোনেন্ট-২ এর অধীন Environmental and Social Impact Study, CEGIS কর্তৃক সম্পন্ন করার প্রস্তাব করা হয়েছে। প্রস্তাবিত সমীক্ষা প্রকল্পটির প্রাক্কলিত ব্যয় ৩৫২.২৯ লক্ষ টাকা এবং বাস্তবায়ন মেয়াদকাল মার্চ, ২০২২ হতে ফেব্রুয়ারী, ২০২৩ পর্যন্ত।

০২। সভায় প্রকল্প এলাকার নাব্যতা সংকট নিয়ে বিশদ আলোচনা হয়। সভাপতি নাফ নদীতে নাব্যতা বৃদ্ধি সংক্রান্ত বিষয়টি সমীক্ষায় অন্তর্ভুক্ত করার পরামর্শ দেন। সভায় নাফ নদীতে ড্রেজিং সংক্রান্ত কার্যপরিধি নিয়ে আলোচনা করা হয়। সভাপতি নাফ নদীতে ড্রেজিং করে ড্রেজিংকৃত মাটি দিয়ে শাহ পরীর দ্বীপের সম্মুখভাগ ভরাট করে ভূমি উন্নয়ন করার বিষয়ে দিক-নির্দেশনা প্রদান করেন। এছাড়াও তিনি প্রকল্প এলাকায় মেইটেন্যান্স ড্রেজিং করার জন্য একটি স্থায়ী ডেজার এর সংস্থান এর উপযোগীতার সম্ভাব্যতা প্রতিবেদনে সন্নিবেশিত করার বিষয়ে পরামর্শ দেন। ঘূর্ণিঝড় এবং অন্যান্য প্রাকৃতিক দুর্যোগের সময় নৌকাসমূহ যেন আশ্রয় নিতে পারে সে লক্ষ্যে প্রকল্প এলাকার উপযুক্ত স্থানে প্রাকৃতিক পোতাশ্রয় (Natural Harbor) নির্মাণ করার বিষয়ে সভায় আলোচনা করা হয়। প্রকল্প এলাকায় ভাঙ্গন প্রতিরোধে ম্যানগ্রোভ বনাঞ্চল সৃজন করার পাশাপাশি ঢেউয়ের আঘাত মোকাবেলা করার জন্য কিছু প্রতিরক্ষামূলক ব্যবস্থা গ্রহণ করার বিষয়ে সভায় গুরুত্বারোপ করা হয়। এ পর্যায়ে সমীক্ষা প্রকল্পের মেয়াদ নিয়ে আলোচনা করা হয়। সভাপতি সমীক্ষা কাজের মেয়াদ ১০ (দশ) মাস এর পরিবর্তে ০৭ (সাত) মাস করার বিষয়ে নির্দেশনা প্রদান করেন। এক্ষেত্রে তিনি এপ্রিল-মে সময়ে শুল্ক মৌসুমের এবং জুন-আগস্ট সময়ে বর্ষা মৌসুমের তথ্য-উপাত্ত সংগ্রহ করে সেপ্টেম্বর-অক্টোবরে সমীক্ষা প্রকল্পের প্রতিবেদন চূড়ান্ত করার নির্দেশ দেন।

০৩। বিস্তারিত আলোচনা শেষে নিম্নবর্ণিত সিদ্ধান্ত সমূহ গৃহীত হয়-

- ৩.১) নাফ নদীতে নাব্যতা বৃদ্ধি সংক্রান্ত বিষয়টি সমীক্ষা প্রকল্পের পিএফএস এ অন্তর্ভুক্ত করতে হবে;
- ৩.২) নাফ নদীতে ড্রেজিং করে ড্রেজিংকৃত মাটি দিয়ে শাহ পরীর দ্বীপের সম্মুখভাগ ভরাট করে ভূমি উন্নয়নে সম্ভাব্যতা যাচাই আলোচ্য সমীক্ষাভুক্ত করতে হবে;
- ৩.৩) প্রকল্প এলাকায় মেইটেন্যান্স ড্রেজিং করার জন্য একটি ডেজার স্থায়ীভাবে ঐ এলাকায় নিয়োজিত করনের সম্ভাব্যতা

- ২১) প্রধান প্রকৌশলী, প্রধান প্রকৌশলী, ডিজাইন, ঢাকা, বাংলাদেশ পানি উন্নয়ন বোর্ড
২২) উপসচিব, পরিকল্পনা-৬ শাখা, পানি সম্পদ মন্ত্রণালয়
২৩) উপসচিব, পরিকল্পনা-৩ শাখা, পানি সম্পদ মন্ত্রণালয়
২৪) উপসচিব, পরিকল্পনা-২ শাখা, পানি সম্পদ মন্ত্রণালয়
২৫) তত্ত্বাবধায়ক প্রকৌশলী, কক্সবাজার পওর সার্কেল, বাপাউবো, কক্সবাজার।
২৬) তত্ত্বাবধায়ক প্রকৌশলী (পুর), পরিকল্পনা-১ পরিদপ্তর, বাংলাদেশ পানি উন্নয়ন বোর্ড।
২৭) সিনিয়র সহকারী সচিব, পরিকল্পনা-৪ শাখা, পানি সম্পদ মন্ত্রণালয়
২৮) সিনিয়র সহকারী সচিব, পরিকল্পনা-১ শাখা, পানি সম্পদ মন্ত্রণালয়
২৯) নির্বাহী প্রকৌশলী, কক্সবাজার পওর বিভাগ, বাপাউবো, কক্সবাজার।
৩০) সিনিয়র সচিবের একান্ত সচিব, সিনিয়র সচিবের দপ্তর, পানি সম্পদ মন্ত্রণালয়।
৩১) নির্বাহী প্রকৌশলী(পুর), পরিকল্পনা-১ পরিদপ্তর, বাংলাদেশ পানি উন্নয়ন বোর্ড।



খায়রুল নাহার
উপসচিব

গণপ্রজাতন্ত্রী বাংলাদেশ সরকার
পানি সম্পদ মন্ত্রণালয়
পরিকল্পনা শাখা-৫
বাংলাদেশ সচিবালয়, ঢাকা



পত্র সংখ্যা: ৪২.০০.০০০০.০৪৩.১৪.০১১.২১-২৯০

তারিখ: ২৪ জ্যৈষ্ঠ, ১৪২৯
০৭ জুন, ২০২২

প্রেরকঃ খায়রুন নাহার
উপসচিব

প্রাপকঃ চিফ একাউন্টস এন্ড ফিন্যান্স অফিসার
পানি সম্পদ মন্ত্রণালয়,
২য় ১২ তলা সরকারি অফিস ভবন, সেগুন বাগিচা, ঢাকা।

বিষয়: “নাফ নদীর মোহনার উন্নয়ন ও ব্যবস্থাপনা এবং শাহপরীর দীপের ভূমি উন্নয়ন এর নিমিত্ত সম্ভাব্যতা সমীক্ষা” শীর্ষক সমীক্ষা প্রকল্পের প্রশাসনিক অনুমোদন।

আমি নিম্নস্বাক্ষরকারী নির্দেশক্রমে বাংলাদেশ পানি উন্নয়ন বোর্ডের আওতায় “নাফ নদীর মোহনার উন্নয়ন ও ব্যবস্থাপনা এবং শাহপরীর দীপের ভূমি উন্নয়ন এর নিমিত্ত সম্ভাব্যতা সমীক্ষা” শীর্ষক অনুমোদিত সমীক্ষা প্রকল্পের প্রশাসনিক অনুমোদন জ্ঞাপন করছি। প্রকল্পটির অনুমোদিত মোট ব্যয় ৩৩২.০০ লক্ষ (তিন কোটি বত্রিশ লক্ষ) টাকা যা সম্পূর্ণ জিওবি।

- ০২। প্রকল্পটির অনুমোদিত বাস্তবায়ন মেয়াদকাল জুন, ২০২২ হতে, মার্চ ২০২৩ পর্যন্ত।
০৩। অনুমোদিত প্রকল্পটির অঙ্গ ও অঙ্গাণুগত ব্যয় বিভাজন নিম্নরূপ:

ক্রমিক	ইকনমিক কোড	অংশের নাম	পরিমাণ/সংখ্যা	প্রাকল্পিত ব্যয়
১	২	৩	৪	৫
	ক)	রাজস্ব খাত		
১	৩২৫৭১০১	হাইড্রোলজিক্যাল এন্ড মরফোলজিক্যাল মডেল স্টাডি	৩৭ জন মাস	২০৪.৯৩
		এনভায়রনমেন্টাল এন্ড সোশ্যাল ইম্প্যাক্ট স্টাডি	২৩ জন মাস	১১৮.৩৬
২	৩২৫৫১০৫	অন্যান্য স্টেশনারী	-	১.৪১
৩	৩১১১৩৩২	সম্মানি ভাতা	-	৩.৮০
৪	৩২৪১১০১	অভ্যন্তরীণ ভ্রমণ ব্যয়	-	১.০০
		উপ-মোট রাজস্ব=		৩২৯.৫০
	খ)	মূলধন খাত		
৫	৪১১২৩১০	অফিস ইকুইপমেন্ট	-	২.৫০
		উপমোট মূলধন:		২.৫০
		সর্বমোট (ক+খ):		৩৩২.০০

০৪। অনুমোদিত PFS (প্রত্যেক পাতায় স্বাক্ষরিত) এর এক প্রস্থ পরবর্তী ব্যবস্থা গ্রহণের জন্য এতদসঙ্গে প্রেরণ করা হলো।

(খায়রুন নাহার)
উপসচিব
ফোনঃ ৯৫৪৫৫১৩

সদস্য অবগতি ও প্রয়োজনীয় ব্যবস্থা গ্রহণের জন্য অনুলিপি (জ্যেষ্ঠতার ক্রমানুসারে নহে):

১. সিনিয়র সচিব, অর্থ বিভাগ, অর্থ মন্ত্রণালয়, বাংলাদেশ সচিবালয়, ঢাকা (দৃঃ আঃ উপসচিব, বাজেট শাখা-১৯)।
২. সিনিয়র সচিব, জনপ্রশাসন মন্ত্রণালয়, বাংলাদেশ সচিবালয়, ঢাকা।
৩. সচিব, বাস্তবায়ন ও পরিবীক্ষণ ও মূল্যায়ন বিভাগ, পরিকল্পনা মন্ত্রণালয়, শের-ই-বাংলা নগর, ঢাকা।
৪. সদস্য, কৃষি, পানি সম্পদ ও পল্লী প্রতিষ্ঠান বিভাগ, পরিকল্পনা কমিশন, শের-ই-বাংলা নগর, ঢাকা।
৫. সদস্য, কার্যক্রম বিভাগ, পরিকল্পনা কমিশন, শের-ই-বাংলা নগর, ঢাকা।
৬. সদস্য, সাধারণ অর্থনীতি বিভাগ, পরিকল্পনা কমিশন, শের-ই-বাংলা নগর, ঢাকা।
৭. সচিব, পরিবেশ, বন ও জলবায়ু পরিবর্তন মন্ত্রণালয়, বাংলাদেশ সচিবালয়, ঢাকা।
৮. সচিব, মহিলা ও শিশু বিষয়ক মন্ত্রণালয়, বাংলাদেশ সচিবালয়, ঢাকা।
৯. অতিরিক্ত সচিব (উন্নয়ন), পানি সম্পদ মন্ত্রণালয়, বাংলাদেশ সচিবালয়, ঢাকা।
১০. মহাপরিচালক, বাংলাদেশ পানি উন্নয়ন বোর্ড, পানি ভবন, ঢাকা।
১১. উপসচিব, উন্নয়ন-১ শাখা, পানি সম্পদ মন্ত্রণালয়, বাংলাদেশ সচিবালয়, ঢাকা।

অনুলিপি:

১. মাননীয় প্রতিমন্ত্রী মহোদয়ের একান্ত সচিব, পানি সম্পদ মন্ত্রণালয়, বাংলাদেশ সচিবালয়, ঢাকা।
২. মাননীয় উপমন্ত্রী মহোদয়ের একান্ত সচিব, পানি সম্পদ মন্ত্রণালয়, বাংলাদেশ সচিবালয়, ঢাকা।
৩. সিনিয়র সচিব মহোদয়ের একান্ত সচিব, পানি সম্পদ মন্ত্রণালয়, বাংলাদেশ সচিবালয়, ঢাকা।
৪. অতিরিক্ত সচিব (পরিকল্পনা) মহোদয়ের ব্যক্তিগত কর্মকর্তা, পানি সম্পদ মন্ত্রণালয়, বাংলাদেশ সচিবালয়, ঢাকা।
৫. উপপ্রধান (পরিকল্পনা-১ অধিশাখা) মহোদয়ের ব্যক্তিগত কর্মকর্তা, পানি সম্পদ মন্ত্রণালয়, বাংলাদেশ সচিবালয়, ঢাকা।
৬. অফিস কপি/মাস্টার নথি।



ব্যয় বৃদ্ধি ব্যতিরেকে প্রকল্পের মেয়াদ বৃদ্ধির প্রস্তাব

প্রকল্পের নামঃ

নাফ নদীর মোহনার সমন্বিত পানি সম্পদ ব্যবস্থাপনা ও উন্নয়ন
এবং শাহপারীর দীপের ভূমি উন্নয়ন এর নিমিত্ত সম্ভাব্যতা
সমীক্ষা।

মূল অনুমোদিতঃ

জুন, ২০২২ হইতে মার্চ, ২০২৩।

প্রস্তাবিতঃ

জুন, ২০২২ হইতে জুন, ২০২৩।

বাস্তবায়নকারী সংস্থাঃ

বাংলাদেশ পানি উন্নয়ন বোর্ড।

উদ্যোগী মন্ত্রণালয়/বিভাগঃ

পানি সম্পদ মন্ত্রণালয়।

৯। প্রভাবিত বর্ষিত মেয়াদকালে যে সকল অশোর কাজ বাস্তবায়িত হবে এবং যে সকল অশোর জন্য অর্থ ব্যয় হবে তার বিবরণ:				
(লক্ষ টাকায়)				
অশোর নাম	এ কাজ কখন শুরু হয়েছে বা হবে? (এবং এ কাজ কখন শেষ হবে)	ডিপি/টিপি/অনুযায়ী প্রাক্কলিত ব্যয় (এবং ইতোমধ্যে ব্যয়িত অর্থ)	ভবিষ্যতে সম্পাদন যোগ্য বাস্তবিক কাজের পরিমাণ এবং এজন্য ব্যয় যোগ্য অর্থ	শুরু করতে বা শেষ হতে বিলম্ব কেন তার বিস্তারিত ব্যাখ্যা
১	২	৩	৪	৫
হাইড্রোলজিক্যাল এন্ড মরফোলজিক্যাল মডেল স্টাডি (কম্পোনেন্ট-১) (স্থানীয় পরামর্শক) (৩২৫৭১০১)	অক্টোবর, ২০২২ (জুন, ২০২৩)	২০৪.৯৩ (০.০০)	৪৪% (১৯৯.৫০)	প্রকল্পটির পিএফএস বিগত ০৭/০৬/২০২২ খ্রিঃ তারিখে অনুমোদিত হয়। বিগত ১৮/০৭/২০২২ খ্রিঃ তারিখে প্রকল্পের প্রকল্প পরিচালক নিয়োগ হয়। অতঃপর প্রকল্পের কারিগরি এবং পরিবেশগত ও সামাজিক প্রভাব মূল্যায়ন সমীক্ষা সম্পাদনের নিমিত্ত বিগত ০৬/১০/২০২২ ও ১০/১০/২০২২ খ্রিঃ তারিখে যথাক্রমে পরামর্শক প্রতিষ্ঠান আইডরিউএম ও সিইজিআইএস এর সাথে চুক্তি স্বাক্ষরিত হয়। প্রকল্প এলাকাটি বাংলাদেশ ও মিয়ানমার এর সীমান্তবর্তী। প্রকল্পের কাজ সম্পাদনের সময় সীমান্তে অস্থিতিশীল অবস্থা বিরাজমান ছিল বিধায় নিরাপত্তাজনিত কারণে জরিপ কাজ যথাযথ সময়ে সম্পাদন করা সম্ভব হয়নি। বর্ডার গার্ড বাংলাদেশ হতে যথাযথ অনুমতি ও নিরাপত্তা ছাড়পত্র পেতে অতিরিক্ত সময়ের প্রয়োজন হয়েছে। যার কারণে প্রকল্পের গাণিতিক মডেলিং সম্পন্ন করতে অতিরিক্ত সময় প্রয়োজন মর্মে পরামর্শক প্রতিষ্ঠান আইডরিউএম হতে জানানো হয় (কপি সংযুক্ত-১)। এছাড়া, সিইজিআইএস কর্তৃক অবকাঠামোসমূহের ওপর পরিবেশগত ও সামাজিক প্রভাব মূল্যায়নের নিমিত্ত অতিরিক্ত সময় প্রয়োজন মর্মে জানানো হয় (কপি সংযুক্ত-২)।
এনভায়রনমেন্টাল এন্ড সোশ্যাল ইম্প্যাক্ট স্টাডি (কম্পোনেন্ট-২) (স্থানীয় পরামর্শক) (৩২৫৭১০১)	অক্টোবর, ২০২২ (জুন, ২০২৩)	১১৮.৩৬ (০.০০)	৫৫% (১১৪.৯৬)	
অন্যান্য স্টেশনারী (৩২৫৫১০৫)	মে, ২০২৩ (মে, ২০২৩)	১.৪১ (০.০০)	১০০% (১.৪১)	
সম্মানি ভাতা (৩১১১৩৩২)	জুন, ২০২২ (জুন, ২০২৩)	৩.৮০ (০.০০)	১০০% (৩.৮০)	
অভ্যন্তরীণ ভ্রমণ ব্যয় (৩২৪১১০১)	অক্টোবর, ২০২২ (জুন, ২০২৩)	১.০০ (০.০০)	১০০% (১.০০)	
অফিস সামগ্রী (৪১১২৩১০)	মে, ২০২৩ (মে, ২০২৩)	২.৫০ (০.০০)	১০০% (২.৫০)	
সর্বমোট ব্যয়		৩৩২.০০	৩২৩.১৭	

১০। ব্যয় বৃদ্ধি ব্যতিরেকে মেয়াদ বৃদ্ধির যৌক্তিকতাঃ

১০.১। প্রকল্প এলাকাটি বাংলাদেশ ও মিয়ানমার এর সীমান্তবর্তী। প্রকল্পের কাজ সম্পাদনের সময় সীমান্তে অস্থিতিশীল অবস্থা বিরাজমান ছিল বিধায় নিরাপত্তাজনিত কারণে জরিপ কাজ যথাযথ সময়ে সম্পাদন করা সম্ভব হয়নি। বর্ডার গার্ড বাংলাদেশ হতে যথাযথ অনুমতি ও নিরাপত্তা ছাড়পত্র পেতে অতিরিক্ত সময়ের প্রয়োজন হয়েছে। যার কারণে প্রকল্পের গাণিতিক মডেলিং সম্পন্ন করতে অতিরিক্ত সময় প্রয়োজন মর্মে পরামর্শক প্রতিষ্ঠান আইডরিউএম হতে জানানো হয়। এছাড়া, সিইজিআইএস কর্তৃক অবকাঠামোসমূহের ওপর পরিবেশগত ও সামাজিক প্রভাব মূল্যায়নের নিমিত্ত অতিরিক্ত সময় প্রয়োজন মর্মে জানানো হয়।

প্রকল্পটি ২০২২-২৩ অর্থবছরে এডিপি বহির্ভূত এবং বরাদ্দবিহীন। অতএব, প্রকল্পের সুষ্ঠু বাস্তবায়নের স্বার্থে এবং আরএডিপি'তে অন্তর্ভুক্তকরণের নিমিত্ত জুন, ২০২২ হতে জুন, ২০২৩ পর্যন্ত সময় বৃদ্ধি করা প্রয়োজন।

১০.২। প্রভাবিত কাজসমূহ প্রভাবিত মেয়াদের মধ্যে সমাপ্ত করা সম্ভব হবে কি নাঃ হয়।

১০.৩। প্রভাবিত কাজগুলি কেন রাজস্ব বাজেট বা অন্য কোন প্রকল্পের আওতায় বাস্তবায়ন সম্ভবপর নহে তা বিস্তারিতভাবে উল্লেখ করতে হবেঃ সমীক্ষা কাজটি একটি গবেষণামূলক এককভাবে সম্পূর্ণ কাজ, এর আংশিক কাজ আলাদাভাবে করলে কার্যকর কোনো ফলাফল পাওয়া যাবে না। রাজস্ব বাজেটে পর্যাপ্ত বরাদ্দ পাওয়া যায় না। তাই প্রভাবিত কাজগুলো রাজস্ব বাজেট বা অন্য কোনো প্রকল্পের আওতায় বাস্তবায়ন সম্ভবপর নয়।

১০.৪। প্রকল্পে লোকবলের ক্ষেত্রে (যদি থাকে) বর্ষিত সময়ের জন্য তাদের প্রয়োজন থাকলে তজ্জন্য আর্থিক সংশ্লেষ, লোকবলের পদওয়ানী সংখ্যাসহ সংরক্ষণের যৌক্তিকতাঃ প্রযোজ্য নয়।

১০.৫। প্রকল্পে গাড়ী রক্ষণাবেক্ষণের সংস্থানের ক্ষেত্রে (যদি থাকে) বর্ষিত সময়ের জন্য তাদের প্রয়োজন থাকলে তজ্জন্য আর্থিক সংশ্লেষ, গাড়ীর সংখ্যাসহ সংরক্ষণের যৌক্তিকতাঃ প্রকল্পের জন্য আলাদা কোনো গাড়ির সংস্থান নেই। অন্য কাজে ব্যবহৃত গাড়ি সাময়িকভাবে বিভিন্ন সময় এই প্রকল্পের কাজে ব্যবহার করা হয়।

২৬/৬/২৬
(ড. রবীন কুমার বিশ্বাস)
তত্ত্বাবধায়ক প্রকৌশলী (পুঃ)
পটুখাঙ্গা সরকারি
পানি ও বায়ু বিভাগ

সংস্থা প্রধানের
নাম ও স্বাক্ষর
১০/০৬/২০২৬

মুখ্য-প্রধান/দায়িত্ব প্রাপ্ত কর্মকর্তার
নাম ও স্বাক্ষর

কেন্দ্র ইন্সপেক্টর সরকার)
মহাপরিচালক
বাণাউদ্যোগ, ঢাকা।



গণপ্রজাতন্ত্রী বাংলাদেশ সরকার
পানি সম্পদ মন্ত্রণালয়
পরিকল্পনা-৫ শাখা
বাংলাদেশ সচিবালয়, ঢাকা
www.mowr.gov.bd



নম্বর: ৪২.০০.০০০০.০৪৩.১৪.০১১.২১.৩৪

তারিখ: ২৭ ফাল্গুন ১৪২৯

১২ মার্চ ২০২৩

প্রাপক:

চিফ একাউন্টস এন্ড ফিন্যান্স অফিসার, পানি সম্পদ মন্ত্রণালয়, ২য় ১২ তলা সরকারি অফিস ভবন,
সেগুন বাগিচা, ঢাকা।

বিষয়: “নাফ নদীর মোহনার সমন্বিত পানি সম্পদ ব্যবস্থাপনা ও উন্নয়ন এবং শাহপারীর দ্বীপের ভূমি
উন্নয়ন এর নিমিত্ত সম্ভাব্যতা সমীক্ষা” শীর্ষক সমীক্ষা প্রকল্পটির ব্যয় বৃদ্ধি ব্যতিরেকে বাস্তবায়ন
মেয়াদ বৃদ্ধির প্রশাসনিক অনুমোদন।

আমি নিম্নস্বাক্ষরকারী নির্দেশক্রমে “নাফ নদীর মোহনার সমন্বিত পানি সম্পদ ব্যবস্থাপনা ও উন্নয়ন এবং শাহপারীর
দ্বীপের ভূমি উন্নয়ন এর নিমিত্ত সম্ভাব্যতা সমীক্ষা” শীর্ষক সমীক্ষা প্রকল্পটির ব্যয় বৃদ্ধি ব্যতিরেকে বাস্তবায়ন মেয়াদ জুন,
২০২২ হতে মার্চ, ২০২৩ এর পরিবর্তে জুন, ২০২২ হতে জুন, ২০২৩ পর্যন্ত বৃদ্ধির প্রশাসনিক অনুমোদন জ্ঞাপন করছি।

০২। প্রকল্পটির অনুমোদিত মোট ব্যয় (সম্পূর্ণ জিওবি) ৩৩২.০০ লক্ষ টাকা।

০৩। প্রকল্পটির অনুমোদিত বাস্তবায়ন মেয়াদকাল জুন, ২০২২ হতে জুন, ২০২৩ পর্যন্ত।

আপনার বিশ্বস্ত,

১২-৩-২০২৩

খান মোঃ হাসানুজ্জামান

সিনিয়র সহকারী সচিব

ফোন: ৯৫৪৫৫১৩

নম্বর: ৪২.০০.০০০০.০৪৩.১৪.০১১.২১.৩৪/১(১৮)

তারিখ: ২৭ ফাল্গুন ১৪২৯

১২ মার্চ ২০২৩

অবগতি ও প্রয়োজনীয় (প্রয়োজ্য ক্ষেত্রে) ব্যবস্থা গ্রহণের জন্য অনুলিপি প্রেরণ করা হইল:

- ১) সিনিয়র সচিব, জনপ্রশাসন মন্ত্রণালয়, বাংলাদেশ সচিবালয়, ঢাকা।
- ২) সিনিয়র সচিব, অর্থ বিভাগ, বাংলাদেশ সচিবালয়, ঢাকা, (দৃঃ আঃ উপসচিব, বাজেট শাখা-১৯)।
- ৩) সচিব, বাস্তবায়ন পরিবীক্ষণ ও মূল্যায়ন বিভাগ, শেরে বাংলা নগর, ঢাকা।
- ৪) সদস্য, কৃষি পানি সম্পদ ও পল্লী প্রতিষ্ঠান বিভাগ (সদস্য)-এর দপ্তর, পরিকল্পনা কমিশন, শেরে বাংলা নগর, ঢাকা।