

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 the Management of Karatoa River System and
Rehabilitation of FCD Projects on Both Bank of Nagar River in
Bogura District.**

August 2023

A.

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 the Management of Karatoa River System and Rehabilitation of FCD Projects on Both Bank of Nagar River in Bogura District.
 (Project code- 224354300)
02. **Administrative** : Ministry of Water Resources (MoWR)
03. **Ministry/Division** : Bangladesh Water Development Board (BWDB)
04. **Location of the Project** : Bogura, Gaibandha, Naogaon and Natore District.
05. **Objective of the Project:**

(a) **Main Objective:**
 The main objective of the study is the overall management of Karatoa river basin and assess the feasibility to take up the proposed implementation project titled "Karatoa River Improvement Project" and rehabilitation of FCD project along the banks of Nagar river in Bogura District.

(b) **Specific Objectives:**

The specific objectives of the study are:

- Improvement of water retention capacity of Karatoa river system;
- Flood and erosion risk management of Karatoa river basin;
- Review and revisiting the proposed interventions of "Karatoa River Improvement Project";
- Rehabilitation of existing flood embankment, drainage and irrigation structures along Nagar river;
- Design of proposed interventions;
- Environmental and Social Impact Assessment;
- Preparation of DPP of the subsequent investment project.

06. **Estimated Cost:**

	Original	Latest Revised
(a) Total	499.39	-
(b) Taka	499.39	-
(c) Foreign Currency	-	-
(d) Project Aid	-	-
(e) RPA	-	-

(In lakh Taka)

(In lakh Taka)

(In millions)

(In lakh Taka)

07.	Date of Approval	:	PCP/PFS	PP
	(a) Original	:	04/04/2022	
	(b) Latest Revised	:	-	
	(c) No Cost Time Extension	:	15/09/2022	
			-	-

B. IMPLEMENTATION POSITION

01. Implementation Period:

Implementation Period as per PP	Original	Latest Revised	Actual Implementation period	Time Over-run (% of original implementation period)	Remarks
1	March 2022- November 2022 (9 months)	March 2022- May 2023 (15 months)	04 April 2022- 31 May 2023 (13 months 27 days)	54.44%	Data collection and mathematical model development of the project took more time than planned for which the consultant could not accomplish the task as scheduled.
2			3	4	5

02. Cost of the Project:

Description	Estimated Cost		Actual expenditure	Cost over-run (% of original cost)	Remarks
	Original	Latest revised			
1	2	3	4	5	6
TOTAL	499.39	-	444.13		The actual expenditure was less than the estimated cost.
TAKA	499.39	-	444.13	(-11.07%)	
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	Manpower requirement for O&M as per pp	Status of the existing manpower		Others	Employed Manpower
			Existing manpower for O & M			
1	2	3	4		5	Male Female
Officer (s)	-	-	-		-	-
Staff(s)	-	-	-		-	-
Total :	-	-	-		-	-

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

Field of Training /Study tour/workshop/ Seminar etc.	Number of person	Man - months	Number of person	Man - months	Remarks
1	2	3	4	5	6
a. Foreign	-	-	-	-	-
b. Local	-	-	-	-	-

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

Items of work (as per PFS)	Unit	Target (as per PFS)		Actual Progress		Reasons for deviation (±)
		Physical	Financial	Physical	Financial	
1	2	3	4	5	6	7
A. Revenue						
1. Honorarium	LS	100%	2.00	24%	0.48	
2. Domestic Travel Expenses (TA & DA)	LS	100%	1.00	99%	0.99	
3. Other Stationary	LS	100%	0.50	100%	0.50	
4. Consultancy	LS	100%	491.89	100%	439.67	
5. Computers (Repair and Maintenance)	LS	100%	0.50	100%	0.50	
6. Machineries and Equipment (Repair and Maintenance)	LS	100%	0.50	100%	0.50	
B. Capital						
1. Computer & Accessories (1 no desktop with printer and scanner and 1 no of Laptop)	LS	100%	3.00	50%	1.50	1 no of laptop and 1 no of printer were procured because of 50% of total budget under this item was allocated as per the circular regarding cost reduction in 2022-23 FY.
Total:			499.39	99.39%	444.13	

(In lakh Taka)

06. Information regarding Project Director (s):

Name & Designation with pay Scale.	Full time	Part time	Responsible for more than one project	Date of		Remark
1	2	3	4	Joining	Transfer	
Farzana Ahmed Executive Engineer (Civil) Directorate of Planning-2, BWDB, Dhaka. Grade-5; 43,000-69,850	Yes	-	Yes	30 May 2022	Till date	-
				5	6	7

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:

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

Description of procurement (goods/works)	Tender/Bid/Proposal	Tender/Bid/Proposal	Tender/Bid/Proposal	Tender/Bid/Proposal	Tender/Bid/Proposal	Tender/Bid/Proposal	Tender/Bid/Proposal
as per bid document	As per PFS	Contracted value	Invitation date	Contract signing/ opening date	As per contract	Actual	
1	2	3	4	5	6	7	
Consultancy Services for "Feasibility Study for the Management of Karatoa River System and Rehabilitation of FCD Projects on Both Bank of Nagar River in Bogura District (Mathematical Modelling Component)"	331.17	324.97	25.05.2022	16.08.2022	15.02.2023	29.05.2023	

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

Name of the Field	Approved man month	Actual man month utilised	Remarks
1	2	3	4
(a) Foreign :	-	-	5
(b) Local :	Mathematical Modelling Component: 39 man month Physical Modelling Component: 23 man month Environmental and Social Study Component: 14 man month	Mathematical Modelling Component: 39 man month Physical Modelling Component: 23 man month Environmental and Social Study Component: 14 man month	Mathematical Modelling Component, Physical Modelling Component and Environmental and Social Study Component were conducted by IWM, RRI and CEGIS respectively.

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	-	-	-	-	6	7
2	-	3	4	5		

C. FINANCIAL AND PHYSICAL PROGRAMME:

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

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	499.39	499.39	-	100%	-	-	-	-
Total	499.39	499.39	-	100%	-	-	-	-

(In lakh Taka)

01. (b) Revised ADP allocation and progress :

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	465.00	465.00	-	100%	454.21	444.13	444.13	-	99.39%
Total	465.00	465.00	-	100%	454.21	444.13	444.13	-	99.39%

(In lakh Taka)

D. ACHIEVEMENT OF OBJECTIVES OF THE PROJECT:

Objectives as per PP/PFS	Actual achievement	Reasons for shortfall, if any
(a) Main Objective:		
The main objective of the study is the overall management of Karatoa river basin and assess the feasibility to take up the proposed implementation project titled "Karatoa River Improvement Project" and rehabilitation of FCD project along the banks of Nagar river in Bogura District.	Management of Karatoa river basin is described in section-10 of the final report. Assessment of the feasibility to take up the proposed implementation project titled "Karatoa River Improvement Project" is mentioned in section-10 of the final report. The necessity to rehabilitate the interventions of the FCD projects along the banks of Nagar river has been incorporated in Appendix-I of the final report.	-
Improvement of water retention capacity of Karatoa river system.	The study investigated improvement of water retention capacity of Karatoa river system through dredging which is incorporated in section-4 and section-10 of the final report. Completed.	-
Flood and erosion risk management of Karatoa river basin.	Flood and erosion risk management of Karatoa river basin has been incorporated in section-4 and section-5 of the final report. Completed.	-
Review and revisiting the proposed interventions of "Karatoa River Improvement Project".	The study reviewed and analysed the justification of the proposed interventions of the "Karatoa River Improvement Project" which is incorporated in section-10 of the final report. Completed.	-

Objectives as per PP/PFS	Actual achievement	Reasons for shortfall, if any
Rehabilitation of existing flood embankment, drainage and irrigation structures along Nagar river.	Completed. Analysis to rehabilitate the interventions along Nagar river has been incorporated in Appendix-I of the final report.	-

E. BENEFIT ANALYSIS

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

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

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

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

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

F. MONITORING AND AUDITING

Monitoring: Nil.

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

A project titled "Karatoa River Improvement Project" is being formulated by BWDB as per commitment of the Honorable Prime Minister. The project is aimed to ascertain the flow of the Lower Karatoa river system through re-excavation of the Karatoa, Ichhamoti and Gozaria river as well as Subil Khal & its branches. In addition to that construction of drainage structures (regulator), irrigation infrastructures, bank protection work at vulnerable reaches, flood wall/retaining wall, embankment & roadway construction, foundation treatment of currently existing bridges (40 bridges), waste water treatment plant etc. are important for overall management of the Jamuneshwari-Karatoa river system.

Karatoa is one of the oldest branches of the Teesta river. It flows towards South-East direction and is divided into two branches at Gaibandha district's Gobindogonj upazila. One part flows towards the east through Katakhal River and falls into Bangali River. Another branch flows towards the west as Lower Karatoa. From Gobindogonj upazila, the lower Karatoa flows through Shibgonj, Bagura Sadar, Shahjahanpur & Sherpur of Bagura district and finally falls into Bangali River at Khanpur area of Sherpur upazila. This combined flow is called Karatoa and enters Sirajgonj District. The flow path of the River Karatoa is of meandering type and its flow path has changed several times in the past and so its name. As a result, it has become difficult to identify the main branch of this river. At present it is considered as a part of the Deonai-Choralakatha-

1.1 Background

1. General Observations/Remarks of the Project on:

G. DESCRIPTIVE REPORT

Audit period	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.

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

2.1. Internal Audit: Not conducted yet.

0.2. Auditing during and after Implementation:

Karatoa river system. It is anticipated that the proposed implementation project would help to expand irrigation facilities for agriculture, improve navigation and save the study rivers from illegal possession. But, a detailed feasibility study is required prior to take up the "Karatoa River Improvement Project".

The Nagar river is also originated from Lower Karatoa river near Shibganj Bazar of Bogura district and flows through the upazila of Shibganj, Dupachia, Bogura Sadar, Adamdighi, Kahalu & Nandigram of Bogura district and also through the upazila of Raninagar Atrai of Naogaon district and finally falls into the Atrai river at Singra upazila of Natore district. The Nagar River is a meandering type seasonal river. It is almost 112 km in length and its average width is almost 90m. In monsoon, some portion of the combine flow of Karatoa and Gangnai river and its upstream flow falls into the Nagar River. This heavy flow is more than the water storage capacity of the river. During monsoon, this heavy flow with intense wave overflows on both banks and flooded a large area. The roads, houses, cropland along with government and non-government structure situated on the both side of the river flooded every year during monsoon and cause severe damage.

In view of the above, this feasibility study project was taken up for overall management of Karatoa 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.

- **Bangladesh Delta Plan 2100.**
The Plan focuses primarily on the delta agenda through 2050 while reflecting the longer-term challenges of sustainably managing water, ecology, environment, and land resources in the context of natural disaster and climate change risk. The Delta Plan addresses flood control, sea level rise, water logging, river-bank erosion, irrigation, urban and rural water supply, water pollution, land reclamation, river dredging for inland water traffic, environmental protection, fisheries, and preservation of biodiversity.

- **8 th Five Year Plan, FY2021 to FY2025.**

The 8th FY Plan initiates the transition to the goals of the Perspective Plan and is built around six themes: (i) rapid recovery from COVID; (ii) GDP growth acceleration; employment

generation, and rapid poverty reduction, (iii) a broad-based strategy of inclusiveness; (iv) a sustainable development pathway that is resilient to disaster and climate change; (v) improvement of critical institutions; and (vi) achieving the United Nations 17 sustainable development goals.

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

❖ The present project would help to expand irrigation facilities for agriculture, improve navigation and save the study rivers from pollution and illegal encroachment.

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

1.3 Objectives

a) Main Objective:

The main objective of the study is the overall management of Karatoa river basin and assess the feasibility to take up the proposed implementation project titled "Karatoa River Improvement Project" and rehabilitation of FCD project along the banks of Nagar river in Bogura District.

(b) Specific Objectives:

The specific objectives of the study are:

- Improvement of water retention capacity of Karatoa river system;
- Flood and erosion risk management of Karatoa river basin;
- Review and revisiting the proposed interventions of "Karatoa River Improvement Project";
- Rehabilitation of existing flood embankment, drainage and irrigation structures along Nagar river;
- Design of proposed interventions;
- Environmental and Social Impact Assessment;
- Preparation of DPP of the subsequent investment project.

1.3 Project revision with reasons: Not Applicable

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

The proposed project is aimed for improvement of Karatoa river system. The project is located under "Barind and Drought Prone Areas" which is one of the hotspots of Bangladesh Delta Plan 2100 (BDP 2100). The main strategy for development of the area as specified in the Delta Plan is balancing supply and demand for sustainable and inclusive growth, minimizing losses due to floods and drainage congestion and ensuring water supply and sanitation. Some measures to attain the strategy

are extension of irrigation using the surface water, regulating ground water extraction, water retention for the dry season usage, reclaiming encroached river banks etc. If the project is implemented successfully, it would result in flood control, erosion protection, environmental balance and agricultural expansion. Also dependency on the ground water will be reduced and ground water will be recharged which would help to achieve the goals of BDP 2100.

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

◆ Project Identification

A project titled "Karatoa River Improvement Project" is being formulated by BWDB as per commitment of the Honorable Prime Minister which is aimed to ascertain the flow of the Lower Karatoa river system through re-excavation of the Karatoa, Ichhamoti and Gajarua rivers as well as Subj Khal & its branches. Main findings of the project were in addition to the construction of drainage structures (regulator), irrigation infrastructures, bank protection work at vulnerable reaches, flood wall/ retaining wall, embankment & roadway construction, foundation treatment of existing bridges (40 bridges), wastewater treatment plant etc. have been also found to be important for overall management of the Karatoa river system.

◆ Project Preparation

In view of the above, BWDB prepared a PFS to execute the feasibility study project. Appraisal: The DPPEC meeting was held on 02/02/2022.

◆ 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 Ministry of Water Resources on 04/04/2022.

◆ 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	5.13	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		

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 :42.00.0000.041.14.055.21-265, dated 04 April 2022. The project was accomplished on 31 May 2023. The main objective of the study is the overall management of Karatoa river basin and assess the feasibility to take up the proposed implementation project titled "Karatoa River Improvement Project" and rehabilitation of FCD project along the banks of Nagar river in Bogura District.

The study has been framed to attain its objectives through three components: Mathematical Modelling Component, Physical 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. The necessity and justification of a new regulator proposed under Mathematical Modelling Component was cross checked under Physical Modelling Component of the project. Under Environmental and Social Study Component of the project, detailed

Signature and Seal

Date :

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

The study minutely analysed all proposed intervention in the DPP of the proposed project titled "Karatoa River Improvement Project". After detailed analysis of technical, environmental and social aspects, the best feasible interventions are proposed for implementation. It is anticipated that the project, if implemented, would help to revive the karatoa river system and save the river system from bank erosion.

7. Remarks/Comments of Agency Head

Date : 27/08/2023

Signature and seal of the Project Director

Faizana Ahmed
Project Director & Executive Engineer
Directorate of Planning-2
BWDB, Dhaka.

the subsequent investment projects.

It is anticipated that the study project output would help in DPP preparation and implementation of Bangali/Katakhal River. The implementation period is proposed to 4 years for the project.

from Kamarpura Bazar to Chandpur Arefia Govt. Primary School at the right bank of Karatoa River, around 850 meter bank protective works have been recommended to construct starting occurring in Bangali/Katakhal River. In addition to the proposed bank protection works along the Offtake of the Karatoa River with sill level at least (+) 14.5 mPWD to address any major flood concrete weir) at their offtakes. Moreover, construction of new regulator has been recommended at excavation of Ichamati and Gajaria Rivers considering @ 3cm/km slope with a 0.6m hump (a small its offtake at Khulsi of Gobindaganj up to its outfall at Sherpur of Bogura. Also, the study suggested without any structural interventions has been suggested for implementation which will be started from Karatoa, Ichamati and Nagar River. Excavation of Karatoa River considering @5.5 cm/km slope social and financial criteria. After analysing the best option, excavation has been recommended for option has been selected based on the multicriteria analysis considering technical, environmental, The study proposed five (5) different options to attain its objectives. Among the 5 options, best suited auditing report is also proposed under Environmental and Social Study Component of the project.

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. An environmental

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

