

BANGLADESH WATER DEVELOPMENT BOARD



PROJECT COMPLETION REPORT: IMED-04/2003 (Revised)

Name of the Project: RE-CONSTRUCTION OF EMBANKMENT WITH PROTECTIVE WORK IN POLDER NO. 68 OF SHAHAPARIR DWIP (SEA-DYKE) IN UPAZILA-TEKNAF & UKHIYA, DISTRICT-COX'S BAZAR (2nd REVISED).

PROJECT PERIOD: JULY 2016 TO JUNE 2022.

DIVISION : Cox's Bazar O&M Division, BWDB, Cox's Bazar.
CIRCLE : Cox's Bazar Water Development Circle, BWDB, Cox's Bazar.
ZONE : Southern Eastern Zone, BWDB, Chattogram.

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

PROJECT COMPLETION REPORT: IMED 04/2003 (REVISED)

A. PROJECT DESCRIPTION:

- 01. Name of Project** : Re-Construction Of Embankment With Protective Work In Polder No. 68 Of Shahaparir Dwip (Sea-Dyke) In Upazila-Teknaf & Ukhiya, District-Cox's Bazar. (2nd Revised)
- 02. Administrative Ministry/ Division** : Ministry of Water Resources (MoWR)
- 03. Executing Agency** : Bangladesh Water Development Board (BWDB)
- 04. Location of the Project** : Upazilla: Teknaf; District: Cox's Bazar.
- 05. Objective of the Project:**
- ❖ Ensure food security and prevention of bank erosion at the sea-side of Shahaporir Dwip area through construction of embankment and protective works.
 - ❖ Prevention of saline water intrusion in the project area.
 - ❖ Promote socio-economic development by protecting valuable lands from natural hazards for crop, salt and fish cultivation.

06. Estimated Cost:

	Original	1 st revised	Latest Revised (2nd)
a) Total	10616.01	12184.00	15188.90
b) Taka	10616.01	12184.00	15188.90
c) Foreign Currency	-	-	-
d) Project Aid	-	-	-
e) RPA	-	-	-

07. Date of Approval:

	PCP	PP
a) Original :	-	16/08/2016
b) 1 st revised :	-	09/10/2018
c) No cost time extension (1 st) :	-	27/05/2019
d) No cost time extension (2 nd):	-	02/07/2020
e) Latest Revised (2nd) :	-	26/08/2021



08. Implementation period :

	Date of Commencement	Date of Completion
a) Original	July, 2016	June, 2019
b) 1 st revised	July, 2016	June, 2019
c) No cost time extension (1 st)	July, 2016	June, 2020
d) No cost time extension (2 nd)	July, 2016	June, 2021
e) Latest Revised (2 nd)	July, 2016	June, 2022
f) Actual	July, 2016	June, 2022

09. Financial Agreement (source wise):**9.1 Status of Loan / Grant:****a) Foreign Financing:**

Source(s)	Currency as per Agreement	Amount in US\$ (Million)	Nature (Loan/Grant Supplier's credit)	Date of Agreement	Date of Effectiveness	Date of Closing	
1	2	3	4	5	6	7	8

..... N.A.

b) GOB:

(In Lakh Taka)

Total Amount	Loan	Grant	Cash Foreign Exchange
1	2	3	4
15188.90	-	15188.90	-

9.2 Utilization of Project Aid: (Source wise)

(In Million)

	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

..... N/A.

9.3 Reimbursable Project Aid (RPA)

(In Lakh Taka)

RPA Amount		Amount Spent	Amount claimed	Amount Reimbursed	Remarks.
As Per DPP	As per Agreement				
1	2	3	4	5	6

..... N/A.

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B. IMPLEMENTATION POSITION

01. Implementation Period:

Implementation Period as per DPP		Actual Implementation Period	Time Over Run (% of Original Implementation Period)	Remarks
Original	Latest Revised			
1	2	3	4	5
July/2016 to June/2019	July/2016 to June/2022	July/2016 to June/2022	100%	Due to circumstances arisen at the project site, the design went through major review. It led to change in design after approval of the project. As a result, the DPP needed to revise in compliance with the change in design and inclusion of new works. To accommodate that interruption regarding RDPP, duration of the project needed to be extended.

02. Cost of the Project:

(Taka in lacs)

Description	Estimated Cost		Actual Expenditure	Cost Over-run (% of original cost)	Remarks
	Original	Latest Revised			
1	2	3	4	5	6
Total	10616.01	15188.90	14968.23	40.99%	Tremendous wave action was exhibited which impacted the on-going works badly. Some portions were damaged after repeated strong tidal motion during spring tides and neap tides. Several tidal surges affected the project area during the implementation period causing several damages. To address such damage, design had been modified and new works were included. It resulted in increase of project cost.
Taka	10616.01	15188.90	14968.23		
PA	-	-	-	-	

03. Project Personnel: Project work has been implemented by existing manpower of Cox's Bazar O&M Division, BWDB, Cox's Bazar. There was no provision of project personnel recruitment on this project.

Sanctioned strength as per PP	Manpower employed during execution	Status of the existing Manpower			Manpower Employed	
		Manpower requirement for O&M as per PP	existing Manpower for O&M	Others	Male	Female
1	2	3	4	5	6	7
Officer (s)	Existing manpower of the implementing agency had been deployed during execution of the project.					
Staff (s)						
Total						

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

Field of Training /Study tour/work shop/ Seminar etc.	Provision as per PP		Actual		Remarks.
	Number of Person	Man- months	Number of Person	Man months	
1	2	3	4	5	6

a) Foreign Nil

b) Local Nil

05. Component wise Progress (As per Latest approved DPP):

Taka in lacs

Item of Works (as per PP)	Unit	Target as per PP		Actual Progress		Reasons for deviation (±)
		Financial	Physical (Quantity)	Financial	Physical (Quantity)	
1	2	3	4	5	6	7
(a) Revenue Component						
Petrol and lubricant	Item	9.00	100%	8.94	99.33%	
Printing & publication	Item	1.50	100%	1.50	100.00%	
Stationery, Seal & Stamps	Item	6.00	100%	5.98	99.67%	
Honorarium/Fee/Remuneration	Item	5.00	100%	4.92	98.40%	
Mid-term evaluation	Item	12.00	100%	11.87	98.92%	
Survey & investigation	Item	5.00	100%	4.99	99.80%	
Repair & maintenance of vehicles	Item	5.00	100%	4.99	99.80%	
Sub Total (a)		43.50		43.19	99.29%	
(b) Capital						
Acquisition of Assets						
a) Motar byke (1 No)	Nos	1.50	1	1.50	1	
Tree Plantation on slope & Berm of Embankment	Item	4.00	100%	3.98	99.50%	
Construction of Work:						
Reconstruction of Embankment (Sea Dyke) from km 14.685 to km 17.720 (Total Length=3.035 km)	KM	1829.42	3.035	1690.03	3.035	
Slope Protection Work of Embankment(Sea Dyke) from km 14.685 to km 17.570 (Total Length=2.885 km)	KM	10310.58	2.885	10229.63	2.885	
Strengthening for the Re- construction of Embankment with Protective work in Polder no. 68 of Shahaporir dwip Sea- dyke from km. 14.685 to km. 16.245 = 1.56 km.	KM	2999.90	1.56	2999.90	1.56	
Sub-Total (b)		15145.40		14925.04		
Sub-Total (a+b)		15188.90		14968.23		
(c) Physical Contingency		-		-		
(d) Price Contingency		-		-		
Total (a+b+c+d)		15188.90	100.00%	14968.23	98.55%	

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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
Md. Sabibur Rahman Executive Engineer (43000-69850) (5 th Grade)	Full time	-	Yes	05-02-2017	17-01-2019	
Tayan Kumar Tripura Executive Engineer (43000-69850) (5 th Grade)	Full time	-	Yes	30-01-2019	21-11-2019	
Probi Kumar Goshwami Executive Engineer (43000-69850) (5 th Grade)	Full time	-	Yes	06-02-2020	20-01-2022	
Dr. Tanjir Saif Ahmed Executive Engineer (43000-69850) (5 th Grade)	Full time	-	Yes	13-04-2022	Till date	

07. Procurement of Transport (in nos.):

Type of Transport	Number as per DPP	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
Motor Cycle	1	15-05-2018	-	Cox's Bazar O&M Division, BWDB, Cox's Bazar 15/05/2018	-	Being used by Sectional officer for future inspection & maintenance of the Project. (CoxsBazar-ha-11-8450).

08. Procurement of Goods, Works and Consultancy Service.

08.1. Goods & Works of the Project Costing above Tk. 200.00 lakh and Consulting above 100.00 lakh.

Description of procurement (goods/work/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 DPP	Contract value	Invitation date	Contract signing/L C opening date	As per contract	Actual
1	2	3	4	5	6	7
Re-construction of 3.035km Sea-dyke (From km 14.685 to km 17.720 including 220m length closure) with 2.285 km slope protection work (from km 14.685 to km 17.570) in polder no. 68 at Shahaporir dwip in connection with Re-Construction of Embankment with Protective work in Polder no. 68 of Shahaporir dwip (Sea-dyke) in Upazilla-Teknaf and Dist. Cox's bazar (Tender no :-DPM-03/SHAHAPARI/2016-17, Package No-DPM-03/SHAHAPARI)	12140.00	10497.84 (Original) 12134.39 (Revised)	04-06-2017	03-10-2017	04-06-2019	30-06-2021

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Description of procurement (goods/work/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 DPP	Contract value	Invitation date	Contract signing/L C opening date	As per contract	Actual
1	2	3	4	5	6	7
Strengthening for the Re-construction of embankment with protective work in Polder no-68 at Shahaparir Dwip Sea-Dyke from km. 14.685 to km. 15.465 0.70 km in connection with Re-construction of Embankment with Protective work in polder no-68 of Shahaparir dwip Sea Dyke in Upazilla-Teknaf and Dist. Cox's Bazar under the Cox's Bazar O&M Division, BWDB, Cox's Bazar during the year 2020-21 (ID No-546849, Package No- Shahpori-W-01/2020-21).	1500.14	<u>1495.07</u> (Original) <u>1561.53</u> (Revised)	10-02-2021	30-09-2021	30-06-2022	30-06-2022
Strengthening for the Re-construction of embankment with protective work in Polder no-68 at Shahaparir Dwip Sea-Dyke from km. 15.465 to km. 16.245 = 0.780 km in connection with Re-construction of Embankment with Protective work in polder no-68 of Shahaparir dwip Sea Dyke in Upazilla-Teknaf and Dist. Cox's Bazar under the Cox's Bazar O&M Division, BWDB, Cox's Bazar during the year 2020-21 (ID No-547112, Package No- Shahpori-W-02/2020-21).	1499.76	<u>1486.35</u> (Original) <u>1554.26</u> (Revised)	10-02-2021	30-09-2021	30-06-2022	30-06-2022

08.2. Use of Project Consultant (s) (Foreign / Local): No provision of deploying consultant in this project.

Name of the field	Approved man month		Actual man month utilized	Remarks
	As per PP	As per contract.		
1	2	3	4	5

a) Foreign Nil
b) Local Nil

09. Construction / Erection / Installation Tools & Equipment:

Description of items	Quantity (As per DPP)	Quantity procured with date	Transferred to O&M with date	Deposed off as per rule with date	Balance	Remarks
1	2	3	4	5	6	7

..... N / A.

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C. FINANCIAL AND PHYSICAL PROGRAMME:

11. (a) Original and revised schedule as per DPP.

(In Lakh Taka)

Financial year	Financial Provision & Physical target as per original DPP				Financial Provision & Physical target as per latest revised DPP			
	Total	Taka	PA	Physical %	Total	Taka	PA	Physical %
1	2	3	4	5	6	7	8	9
2016-17	2013.31	2013.31	-	18.97%	8.94	8.94	-	0.06%
2017-18	4328.60	4328.60	-	40.77%	4407.66	4407.66	-	29.02%
2018-19	4274.10	4274.10	-	40.26%	3990.63	3990.63	-	26.27%
2019-20	-	-	-	-	2470.04	2470.04	-	16.26%
2020-21	-	-	-	-	1302.70	1302.70	-	8.58%
2021-22	-	-	-	-	3008.93	3008.93	-	19.81%
Total	10616.01	10616.01	-	100.00%	15188.90	15188.90	-	100.00%

11. (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
2016-17	100.00	100.00	-	0.65%	11.50	8.94	8.94	-	0.06%
2017-18	4500.00	4500.00	-	29.23%	4499.00	4407.66	4407.66	-	29.45%
2018-19	5000.00	5000.00	-	25.98%	3999.85	3990.61	3990.61	-	26.66%
2019-20	2475.00	2475.00	-	16.08%	2475.00	2470.04	2470.04	-	16.50%
2020-21	1109.00	1109.00	-	7.21%	1109.00	946.46	946.46	-	6.32%
2021-22	3210.00	3210.00	-	20.85%	3210.00	3144.52	3144.52	-	19.56%
Total	16394.00	16394.00	-	100.00%	15304.35	14968.23	14968.23	-	98.55%

D. ACHIEVEMENT OF OBJECTIVES OF THE PROJECT:

Objective as per DPP	Actual achievement	Reasons for shortfall, if any.
(a) Ensure food security and prevention of bank erosion at the sea-side of Shahaporir Dwip area through construction of embankment and protective works.	<p>Shahporir Dwip faced severe bank erosion of more than 1 km in last 20 years due to strong tidal motion from the seaside. Even the area got disconnected from the mainland of Bangladesh in 2012.</p> <p>Through construction of dykes and slope protection works, bank line retreat has been arrested. Western bank of Shahparir dwip is now protected from bank erosion.</p> <p>The area is potential for crop, fish and salt cultivation. After implementation of the project,</p>	No shortfall

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Objective as per DPP	Actual achievement	Reasons for shortfall, if any.
	<p>crops and salt are being cultivated during dry season whereas fish in monsoon.</p> <p>A considerable number of inhabitants choose the place for living. Safety to natural hazards have been ensured through construction of permanent protective measures.</p>	
(b) Prevention of saline water intrusion in the project area.	Strong protection works along the west coast of Shahporir Dwip (the seaside) has prevented saltwater intrusion in the benefitted area.	
(c) Promote socio-economic development by protecting valuable lands from natural hazards for crop, salt and fish cultivation.	<p>Through implementation of the project, safety and security from cyclonic storm and other natural disasters have been ensured.</p> <p>Local inhabitants have been benefitted greatly as they can live in a place safe from natural disasters. Such safety is promoting sustainability in other development initiatives. For example, after implementation of the project, permanent roads and bridges have been constructed and link with Teknaf is re-established. Such road-link has ensured faster movement of cultivated crops, salt and fish from the project area.</p> <p>Thus, a comprehensive socio-economic boost is imparted through construction of permanent protective measures.</p>	

E. BENEFIT ANALYSIS:

01. Annual Out-put:

Items of out-put	Unit	Estimated quantity expected at full capacity	Actual quantity of out-puts during the 1 st year of operation at full capacity (or during real production for newly completed project)
1	2	3	4
Ensure safeguard of following items/establishments from tidal flood and subsequent embankment erosion:			
Aman Crop cultivation land	Hectare	1803	1800
Borro Crop cultivation land	Hectare	165	165
Robi Crop cultivation land	Hectare	160	160
Salt Cultivation land	Hectare	590	590
Prawn Cultivation land	Hectare	200	190
Mosque	No	35	35
High School	No	1	1
Primary School/Cyclone Shelter	No	6	6
Rest House	No	1	1
Kacha House	No	2500	2500
Pacca House	No	884	884
Semi Pacca House	No	1500	1500
Road	Km	11	11

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02. Cost / Benefit:

Item	Estimated	Actual
(2021) Benefit cost of the project		It will be evaluated later by concerned directorate of BWDB & IMED.
(i) Financial	1.19:1.00	
(ii) Economic	1.39:1.00	
(2) Internal rate of return		
(i) Financial	15.21%	
(ii) Economic	18.59%	

(3) Please give reason for shortfall, if any, between the estimated and actual benefit: No Shortfall.

F. MONITORING AND AUDITING.**01. Monitoring:**

Name & Designation of the inspecting official	Date of inspection	Identified Problems	Recommendations
1	2	3	4
(a)Ministry/Agency :			
Mr. Kabir Bin Anwar, Senior Secretary, MoWR	Several Times	No major problems identified.	Project Progress was satisfactory, would finish works within stipulated time schedule
Mr. Md. Rokon Ud-Doula, Additional Secretary, MoWR	Several Times	No major problems identified.	Project Progress was satisfactory
Mr. Mahmudul Islam Additional Secretary, MoWR	05-12-2019 06-12-2019	No major problems identified.	Project Progress was satisfactory
Mr. Mantu Kumar Biswas Joint Chief, MoWR.	05-12-2019 06-12-2019	No major problems identified.	Project Progress was satisfactory
Mr. A H M Anwar Pasha Deputy Secretary, MoWR	05-12-2019 06-12-2019	No major problems identified.	Project Progress was satisfactory
Mr. Fazlur Rashid Director General, BWDB	05-05-2022	No major problems identified.	Project Progress was satisfactory, would complete the project within schedule
Mr. A K M Shamsul Karim Chief Engineer, South Eastern Zone, BWDB.	Several times	No major problems identified.	Instructed to follow approved designs for construction works.
Mr. Mir Mosharraf Hossain Chief Engineer, South Eastern Zone, BWDB.	Several times	No major problems identified.	Instructed to follow approved designs for construction works.
Mr. Akhil Kumar Biswas Chief Engineer, South Eastern Zone, BWDB.	Several times	No major problems identified.	Instructed to follow approved designs for construction works.
Mr. Dr. Shamal Chandra Das, Chief Engineer(Civil), Planning (A.C.) BWDB, Dhaka.	27-08-18	The closure that was 60 m wide during approval of DPP became 220 m wide after approval of DPP. Several Cyclone (Roanu, Komen, Mora etc.)	Recommended to take necessary action to revise the DPP for 1 st Revision and include 390 m reconstruction of Embankment(Sea Dyke) and 240 m Slope Protection Work.
Mr. Md. Abul Kawsar, Superintending Engineer, Design Circle-04, BWDB, Dhaka.			

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Name & Designation of the inspecting official	Date of inspection	Identified Problems	Recommendations
1	2	3	4
Mr. Moshir Rahman Thakur, Assistant Chief(Economics), Planning -1, BWDB,Dhaka.		hit the project area hence several areas become vulnerable.	
Mr. Dr. Jiban Kumar Sarkar, Superintending Engineer, Design Circle-04, BWDB,Dhaka.	Several Times	Implemented work need to be strengthened.	Recommended to take necessary action to revise the DPP for 2nd Revision and include 1560 m strengthening work in slope protection.
Mr. Md. Ahsan Habib, Executive Engineer, Design Circle-04, BWDB,Dhaka.	Several times	No major problems identified.	Instructed to follow approved designs for construction works.
Mr. Md. Sanaul Kader Khan Executive Engineer, Office of the Addl Director General (Planning), BWDB,Dhaka.	27-12-2020	Implemented work need to be strengthened.	Recommended to take necessary action to revise the DPP for 2nd Revision and include 1560 m strengthening work in slope protection.
Mr. Md. Ruhul Amin Superintending Engineer, Cox's Bazar WD Circle, BWDB,Coxs Bazar	Several times	No major problems identified.	Instructed to follow approved designs for construction works.
Mr. Shibendu Khastagir Superintending Engineer, Cox's Bazar WD Circle, BWDB,Coxs Bazar	Several times	No major problems identified.	Instructed to follow approved designs for construction works.
IMED :			
Mr. Khandaker Mohammed Ali Director,IMED	05-12-2019 06-12-2019	No major problems identified.	Project Progress was satisfactory
Others:			
Mr. Md. Abdul Azim Chowdhury Joint Chief (Irrigation), Planning Commission	05-12-2019 06-12-2019	No major problems identified.	Project Progress was satisfactory
Mrs. Sabrina Rowshan Senior Assistant Chief, Procession Division,Planning Commission.	05-12-2019 06-12-2019	No major problems identified.	Project Progress was satisfactory
Mr. Rubayet Alam, Director, Coast-Port and Estuary Division, IWM,Dhaka.	27-12-2020	Implemented work need to be strengthened.	Recommended to take necessary action to revise the DPP for 2nd Revision and include 1560 m strengthening work in slope protection.
Mr. Tanvir Ahmed, Associate Specialist, Water Resources Management Division, CEGIS,Dhaka.	27-12-2020	Implemented work need to be strengthened.	Recommended to take necessary action to revise the DPP for 2nd Revision and include 1560 m strengthening work in slope protection.

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02. Auditing during and after Implementation:

2.1. Internal Audit:

Period of Audit	Date of submission of Audit Report.	Major findings/ objections	Whether objection resolved or not.
1	2	3	4
No internal Audit conducted			

2.2. External Audit:

Audit Period	Date of submission of Audit Report.	Major findings/objections	Whether objection resolved or not.
1	2	3	4
2017-18	28-03-19	Payment of Excess labor charge in Protective Works.	The objection has been resolved
2019-20 and 2020-21	15-12-21	Irregular Payment of Steering Committee Honorarium.	Answer is submitted through the competent authority and resolve is underway.
2021-22	Yet to be conducted		

G. DESCRIPTIVE REPORT

General Observations/Remarks of the Project on:

1.1 Background

Bangladesh has huge coastline exposed to natural disasters like strong tidal motion during spring and neap tides, cyclonic storms with landfall and coastal flooding. In addition, flash floods from hilly regions come across the flat lands near the estuary and coincide with high tides resulting in large scale inundation around the vicinity. Among those, coastal erosion is a dominant disaster that is experienced at wide spectrum.

Polders were constructed to prevent coastal flooding at vast areas and boost crop production. However, in passage of time, topography has taken new shapes and new polders have been constructed. Polder 68, situated at the seaside of Teknaf peninsula, protects Shahporir Dwip area from strong tidal motion. The polder included the following components:

- A) Embankment/Sea-Dyke: 24.95 km
- B) Canal Excavation/Re-excavation: 41.00 km
- C) Sluice/Regulator Construction: 08 Nos

It benefitted 3733 ha land area with a boost in crop cultivation and uplift of living standard. Since construction of polder, it lacked major rehabilitation work leading to weakening of embankments. Several large-scale cyclones attacked in recent years and strong tidal currents hit the sea facing part of embankments periodically. As a result, condition of embankment had aggravated severely.

Breaches had occurred and crest level was lowered. Strong tidal currents resulted in breach of embankment at a length of about 2 km. Climate change impacts are visible in recent years. It was anticipated that stronger waves and tidal currents are attacking the banks in recent years. So, previously built polders need large scale re-sectioning and height-raising work.

In line with the above, as a remedy, reconstruction of most vulnerable section of polder 68 was taken up. Detailed survey and field level investigation had been conducted, series of discussions were made with beneficiaries, public representatives and local government officials, economic and financial

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analyses were chalked out. A review meeting to discuss over-all situation was held on 12/09/2012 where reconstruction of embankment and closing of breach were decided. Pre-appraisal/Pre-Investment study was conducted on 05th September, 2012 by BWDB's Technical Committee in connection with design and prefeasibility study of the proposed interventions. Then a Technical Committee focusing on climate change impacts and countermeasures conducted a field survey on 22-23rd September, 2012 and agreed to the project accordingly.

1.2 Justification/Adequacy:

Before taking up the project, series of field investigation, analysis of satellite images and discussion with local beneficiaries had been conducted. Through preliminary survey, west bank of the peninsula was identified as most vulnerable and exposed to strong tidal currents. Extent and severity of bank erosion was investigated through analysis of satellite images. Such analysis shows that bank erosion occurred severely in last 30 years. Strong tidal currents resulted in bank line retreat of more than 2.5 km at the most active region. The tail shrank tremendous, a vast stretch of land was devoured into the sea. In addition, project area got disconnected from main-land and saline water intruded in the entire locality. Recorded damages include total disruption of connectivity from the mainland, all-out damage of crops and complete exposure of homesteads to the sea waves.

In view of the above, it was felt that bank erosion control was necessary in the project area. A project to restore the connection of Shahporir Dwip with the mainland and also arrest bank erosion was proposed. It was envisaged that the project would reduce environmental degradations and ensure structural countermeasures to withstand cyclone and tidal surge induced natural disasters.

1.3. Objectives:

The main objectives of this project are-

- a. Ensure food security and prevention of bank erosion at the sea-side of Shahaporir Dwip area through construction of embankment and protective works;
- b. Prevent saline water intrusion in the project area;
- c. Promote socio-economic development by protecting valuable lands from natural hazards for crop, salt and fish cultivation;


1.4. Project revision with reasons:

1st Revision:

The DPP of this project named "Re-construction of Embankment with Protective work in polder no. 68 of Shahaparir dwip (Sea-dyke) in Upazila-Teknaf & District-Cox's Bazar" was approved in the ECNEC meeting held on 16th August 2016. The estimated cost of the project was Tk. 10616.01 lakh (GoB). Implementation period of the project was July 2016 to June 2019. The main component of the project was re-construction of 2.645 km (from km. 14.920 to km. 17.565) embankment (seadyke) with protective work of Polder No. 68 including 200 m closure part within it.

The Project was formulated based on approved design prepared from survey data collected during the year 2015. At that time width of the main canal/closure along the alignment of peripheral embankment (Sea Dyke) was about 60 m. After that a considerable number of natural cyclonic storms like KOMEN, ROANU and recently MORA hit the project area, made aggressive landfall of strong tidal surge and caused severe damage. In addition, some other small to medium depressions hit the project area with stronger motion. As a result, a part of the peripheral embankment of the project area was severely damaged and required reconstruction.

In the meantime, consecutive two monsoon periods had passed. During the field visit, it was observed that, width of the existing canal (in between the mainland and Shahporir dwip) had been widened to more than 200 m. Officials from concerned design offices visited the project area physically and recommended shifting of sea



dyke towards countryside and strengthen the previous design. For this reason, total length of the Project proposed sea dyke reconstruction/rehabilitation work of the project was increased. In present situation, sea dyke of polder 68 from km 14.685 to 17.570; total 2.885 km should be reconstructed with protective work and from km 17.570 to km 17.720; total 0.150 km should be repaired/re-constructed to obtain the targeted benefit from the project.

In these above circumstances, total length of the proposed sea dyke rehabilitation work of the project became 3.035 km instead of 2.645 km as per original DPP. As the width of canal/closure portion widened and overall length of the work increased due to natural calamities, project cost had been increased for which approved DPP required revision.

Main Reasons of DPP revision are described below:

1. Change of alignment of sea dyke due to severe damages occurred during several natural disasters as well as strong tidal surges.
2. Inclusion of additional damaged portion of sea dyke to ensure sustainability.
3. Volume of earth work increased due to shifting of alignment of sea dyke.
4. Length of proposed closure had been increased from 60 m to 200 m (due to damages occurred during cyclones).
5. Modification of other design parameters considering the then field condition.

As a result, Revised DPP was formulated with estimated costing of BDT 12184.00 lacs according to the changed items/components of the project and above mentioned reasons.

2nd Revision:

The canal which was 60 m wide in 2015 became 220 m wide in 2017 during implementation stage. The canal was closed successfully according to approved design in 2017. Following the implementation of Closure, severe deposition took place in the frontal area of the closure. However, some other portions faced strong tidal wave action, specially along the chainage km 14.685 to km 16.245 resulting in consequent deepening of the area. At some locations, deposited blocks in the dumping zone sank and pitching blocks got dislocated. The most southern part of the protective work (Near to Km 14.685) got severely damaged. Satellite images showed that particular section as most active region facing tremendous wave action and subsequent bank erosion. In order to sustain the work and re-establish connectivity between mainland and Shah porir dwip, strengthening of the constructed protective work became essential. Hence, second revision of the project was proposed and subsequently approved by ECNEC.

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

Embankment design consists of earthen embankment with protective work at seaside. The protective work has the below mentioned features:

- Top RL of Embankment had been fixed to 7.00 m PWD to comply with highest flood level, tide level, wave run-up and freeboard.
- Design of sea dykes consist of pitching and dumping blocks over filters and geo-mattresses. Filter material would facilitate seepage beneath the pitching blocks.

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- Dumping blocks associated with guide wall would support the pitching block and perform as wave breakers.

Revetment work is widely recognized as effective bank protection measure around the world. So, design considerations would successfully impart good response to aggressive tidal waves. The design of the closure worked well and Shahporir dwip was re-connected successfully. The protected area is being utilized for human settlements, crop, fish and salt cultivation seasonally.

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

◆ Project Identification:

The Project was initially identified by local politicians, local elites, public representatives, honorable Member of Parliament, local administrative wing etc. Those stakeholders earnestly requested the MP to raise the issue of erosion. Accordingly Honorable Member of Parliament sent DO letter to Honorable Minister, Ministry of Water Resources to take up the project.

◆ Project Preparation:

According to the directives of Honorable Minister, Ministry of Water Resources, the then Secretary, Ministry of Water Resources & Director General, BWDB, the project was prepared. A Technical Committee was formed by BWDB involving multidisciplinary members of technical, social, economic & environmental wings. Based on the recommendations of technical report submitted by committee, the project was formulated.

◆ Appraisal:

PEC meeting was held on 28-12-2015 in planning commission. As per decision of PEC meeting the DPP was recast & raised before ECNEC for approval.

◆ **Credit Negotiation:** Not Applicable.

◆ **Credit Agreement:** Not Applicable.

◆ **Credit Effectiveness:** Not Applicable.

◆ **Loan Disbursement:** Not Applicable.

◆ **Loan Conditionality:** Not Applicable.

◆ Project Approval:

The Project was approved by ECNEC on 16-08-2016 and 1st Revised DPP was approved by Honorable Minister of MoWR on 09-10-2018. 2nd Revised DPP was approved by Honorable Planning Minister on 26-08-2021.

◆ **Others (if any):** Nil.

4. Analysis of the Post-Implementation situation and result of the project:

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

Yes.

4.2 Program for use of created-facilities of the project

The stakeholders are directly taking advantages of the created facilities of the project.

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4.3 O & M program of the project.

After complementation of the project major repair/rehabilitation works will be accomplished from regular O&M budget of BWDB.

4.4 Impact of the project -

4.4.1 Direct.

- Sea-facing portion of polder 68, encompassing Shahporir Dwip area is saved from coastal erosion.
- Shahporir dwip is re-connected with main land.
- The project area has been protected from saline water intrusion.

4.4.2. Indirect

- People living in the project area, exposed to cyclone and strong tidal surge are protected from natural threats. Land is safe for stay, crop, fish and salt cultivation.
- Crop, salt and fish cultivation are enhanced dramatically boosting economic situation in the project area.

4.5 Transfer of Technology and Institutional Building through the project

Not Applicable.

4.6 Employment generation through the project.

A considerable number of skilled/unskilled workers were employed during construction period.

4.7 Possibility of Self employment

There are possibilities of self-employment as project area is protected from coastal erosion and other cyclone and tidal surge induced natural disasters.

4.8 Possibility of women-employment opportunity

Yes, there are possibilities of women-employment throughout the benefitted area in crop, salt and fish cultivation with other types of domestic farming.

4.9 Women's participation in development

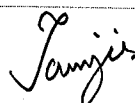
Yes.

4.10 Probable impact on Socio-Economic activity.

The project area was shrinking during pre-project condition. Coastal erosion was grabbing valuable lands from the west coast of Teknaf peninsula. Shah porir dwip lost vast tracts of land historically. After implementation of project, bank erosion is completely arrested. Now socio-economic development is boosting fast due to safety of lands from natural disasters.

4.11 Impact on environment

Coastal erosion used to erode the beach severely. In addition, trees, houses, all other human and natural settlements used to face degradation. Through implementation of project, coastal erosion is stopped, and the area is protected. So, the beach, adjacent natural and human interventions, as well as the forestations are protected, leading to compound effect of environmental conservation.



4.12 Sustainability of the project

The project is sustained. However, it requires periodic maintenance.

4.13 Contribution to poverty alleviation/reduction

The project has direct contribution and impact on poverty alleviation/reduction.

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

Positive remarks regarding the project.

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

Not Applicable

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

Project Management	: N/A.
Project Director	: N/A.
Land Acquisition	: N/A.
Procurement	: N/A.
Consultancy	: N/A.
Contractor	: N/A.
Manpower	: N/A.
Law & Order	: N/A.
Natural calamity	: Also implemented works were damaged several times due to cyclones & tidal effects. So strengthening works were required to carry out after approval of processed RDPPs.
Project financing, allocation and release	: N/A.
Design formulation/approval	: Change in design concept during implementation period.
Project aid disbursement and re-imbursement	: N/A.
Mission of the development partners.	: N/A.
Time & Cost Over-run	: As mentioned in B-01 and B-02.
Project Supervision/Inspection	: N/A.
Delay in Decision	: N/A.
Transport	: N/A.
Training	: N/A.
Approval	: Due to delay of RDPP approval, contracts of final packages were awarded after 2 nd RDPP approval.
Others	: N/A.


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06. Remarks & Recommendations of the Project Director:

The main objectives include (a) arrest shrinking of Teknaf peninsula due to coastal erosion along western bank, (b) ensure food security through enhancing crop production, (c) safety of locality from natural disasters, (d) boosting economic activities through fish and salt cultivation and (e) societal improvement through re-connection of Shah porir Dwip with the mainland. All these targets has been achieved through implementation of the project. Through successful implementation, project area, exposed to cyclonic storms and strong tidal surges, is protected which is a good example of disaster management countermeasure. It is proven reality that the project has imparted physical safety and sense of security among the stakeholders resulting in enhanced investment in socio-economic development. New road connectivity has been established already and economic activities have got a major lift through salt, fish and crop culture leading to employment generation and poverty alleviation.

Recommendation: The project is a good example of Disaster prevention countermeasure with improvement of socio-economic situation. It also converges with the idea of Build Back Better (BBB) concept of Sendai Framework for Disaster Risk Reduction (DRR), 2015. The standard river bank design and coastal erosion protection measures have remarkable value addition in the project area. Considering overall positive outcomes, the project can be recognized sustainable. However, with challenges of repeated strong tidal surges and threats of cyclonic storms with heavy landfalls, there is risk of unexpected damage. So periodic maintenance and observation of local phenomena are necessary. Continuous monitoring of coastal waves, movement of sediment from the frontal area and weather forecasts would supplement the process.

Date


31.10.22

(Dr. Tanjir Saif Ahmed)

Project Director


&

Executive Engineer,
Cox's Bazar O&M Division,
BWDB, Cox's Bazar.

07. Remarks/ Comments of Agency Head.

The main objective of this project was to ensure food security and the prevention of bank erosion at the seaside of the Shahaporir Dwip area through the construction of embankment and protective works. Through successful implementation, the project area, exposed to cyclonic storms and strong tidal surges induced natural disasters, is protected which is a good example of disaster management countermeasure. New road connectivity has been established already which resulted in increased salt, and fish production and crop culture leading to employment generation and poverty alleviation. Overall, this project is serving its intended purpose and can be considered a successful one but requires periodic maintenance.

Date:


27.11.2022

(FAZLUR RASHID)

Director General

Signature and Seal

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

The main objective of the project is to reconstruct polder no 68 at Shahporir Dwip (sea-dyke) through protective works of embankment. After implementation of the project agricultural land has been protected from flood and bank erosion. Stakeholders are being benefitted from the project and socioeconomic condition of the people of project area has been improved. The project will contribute to reducing poverty through flood control, protecting land and infrastructure from cyclonic tidal surge. The safety of human lives and properties of Shahporir dwip have also been enhanced. Major design was reconsidered because of the intense wave action, which caused time and cost over-run. The project re-connected Shahporir dwip with main land also. Proper maintenance and monitoring should be ensured so that the outcome of the project sustain effectively.

Date:

Signature and Seal

