



BANGLADESH WATER DEVELOPMENT BOARD

PROJECT COMPLETION REPORT (PCR)

OF

**“RIVER BANK PROTECTION AT TAMARUDDIN AND BANGLABAZAR OF
POLDER NO- 73/1 (A+B) AT HATIYA UNDER NOAKHALI DISTRICT”
PROJECT**

Division : Noakhali O&M Division, BWDB, Noakhali.

Circle : Feni O & M Circle, BWDB, Feni.

Zone : Eastern Zone, BWDB, Comilla.

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** : River Bank Protection at Tamaruddin and Banglabazar of Polder 73/1(A+B) at Hatiya upazila under Noakhali District
02. **Administrative Ministry/Division** : Ministry of water Resources.
03. **Executing Agency** : Bangladesh water development Board.
04. **Location of the Project** : Upazilla: Hatiya, District: Noakhali.
05. **Objective of the Project** :

To protect important business centers, markets, homesteads, agricultural land, Upazila Health Complex, schools and other government offices including all other immovable public and private properties situated in Tamaruddin areas of Hatiya Upazila from the bank erosion, approximate value of which is Tk. 6059.22 lakh, by implementation of protective work for a length of 2.10 km including end termination at Tamaruddin

By the implementation of the project the following multiple objectives will be achieved:

- To provide protection from cyclonic surges, flood and storms;
- To save the homestead lands business centers, schools, madrashas etc.;
- To uplift the economic condition of the people;
- To create employment opportunities

06. **Estimated Cost** :

(In lakh Taka)

	Original	Latest Revised
(a) Total	6116.93	6059.22
(b) Taka	6116.93	6059.22
(c) Foreign Currency	-	-
(d) Project Aid	-	-
(e) RPA	-	-

07. **Date of Approval** :
- | | PCP | PP |
|--------------------|-----|------------|
| (a) Original | - | 07/12/2010 |
| (b) Latest Revised | - | 26/07/2012 |

08. Implementation Period :

	Date of Commencement	Date of Completion
(a) Original	November 2010	December 2012
(b) Latest Revised	November 2010	December 2013
(c) Actual	November 2010	June 2015

09. Financing Arrangement (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	
						Original	Revised
1	2	3	4	5	6	7	8
Not Applicable							

b) GOB :

(In lakh Taka)

Total amount	Loan	Grant	Cash Foreign Exchange
1	2	3	4
6059.22	-	6059.22	-

9.2 Utilization of Project Aid : (Source wise)

(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
Not Applicable						

9.3 Re-imbursible Project Aid (RPA) :

(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
Not Applicable					

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
November 2010 to December 2012	November 2010 to December 2013	November 2010 to June 2015	115.38%	

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	6116.93	6059.22	5549.26	-	-
TAKA	6116.93	6059.22	5549.26	-	-
PA					

03. Project Personnel :

Sanctioned strength as per PP	Manpower employed during execution	Status of the existing manpower			Manpower Employed	
		Manpower requirement for O&M as per pp	Existing manpower for O & M	Others		
1	2	3	4	5	Male	Female
Officer (s)	9	11	9	-	Existing manpower were engaged for overall management	
Staff(s)	4	14	4	-		
Total :	13	25	13	-		

04. Training of Project Personnel (Foreign/Local) :

Field of Training/Study tour/workshop/Seminar etc.	Provision as per PP		Actual		Remarks
	Number of person	Man - months	Number of person	Man - months	
1	2	3	4	5	6
a. Foreign	Not Applicable				
b. Local	Not Applicable				

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

(In lakh Taka)

Items of work (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 & Lubricant.	LS	6.00	1 item	6.00	1 item	
Printing & Publication.	LS	1.50	1 item	1.50	1 item	
Stationary.	LS	2.00	1 item	2.00	1 item	
Survey and investigation.	LS	4.00	1 item	3.51	1 item	
Repair of Transport & Vehicles.	LS	6.00	1 item	4.25	1 item	
Repair of office equipments	LS	1.00	1 item	1.00	1 item	
Sub-total Revenue (A) :		20.50		18.26		
B) Capital component						
Acquisition of Assets:						
Leveling instrument with stand-1 No.	No.	1.00	1 no.	1.00	1 no.	
Laptop – 1 No.	No.	0.60	1 no.	0.60	1 no.	
Construction of works:						
River Bank protection work by CC Block & Geo bag from km 65.372 to km 65.873 & Km 65.973 to km 66.473 at Tamaruddin-1.00 Km	Km	6017.12	2.10 Km (100%)	5529.40	2.10 Km (98%)	*পাদটীকায় দ্রষ্টব্য
Sub-total Capital (B) :		6018.72		5531.00		
Physical contingency (C) :		5.00		-		
Price contingency (D) :		15.00		-		
Grand Total (A+B+C+D) :		6059.22	100%	5549.26	98%	

*পাদটীকা ৪ হাতিয়া মূল ভূ-খন্ডের বাহিরে সমুদ্রের বুকে বিচ্ছিন্ন একটি দ্বীপ। কাজের অবস্থানগত কারণে প্রতিকূল আবহাওয়া ও পরিবেশের ফলে কাজের উপযুক্ত সময় কম পাওয়া; নির্মাণ সামগ্রী, নির্মাণ শ্রমিক ও ইকুইপমেন্ট পরিবহনে সময় বেশী প্রয়োজন হওয়ায়; রাজনৈতিক অস্থিরতায় প্রায় ৪ (চার) মাস কাজের ব্যাঘাত ঘটান কারণে প্রকল্পের কাজ জুন ২০১৪ (বাস্তব অগ্রগতি ছিল ৯৪%) এ শেষ করা সম্ভব না হওয়ায় অবশিষ্ট ৬% কাজের জন্য প্রকল্পের মেয়াদ জুন ২০১৫ পর্যন্ত বৃদ্ধি করার প্রস্তাব করা হয়। সময় বর্ধিত করনের উক্ত প্রস্তাব প্ল্যানিং কমিশন থেকে ২০/০৪/২০১৫ খ্রিঃ তারিখে অনুমোদনের সম্মতি পত্র জারি করা হয়। এপ্রিল মাসে কাজের অনুমতি পাওয়ায় ঐ সময়ে বিশেষায়িত শ্রমিকগণ দেশের বিভিন্ন স্থানে একই রকম প্রকল্পে নিয়োজিত থাকায় শ্রমিক সংকট দেখা দেয়। তাছাড়া, মে-জুন মাসে হাতিয়া দ্বীপে কাজের অনুকূল পরিবেশ কম পাওয়ায় এবং জিও-ব্যাগ ফিলিং ও ডাম্পিং কাজে বর্তমান সিডিউল ও বাজার দরের চেয়ে ঠিকাদারের উদ্ধৃত দর অনেক কম হওয়ায় উক্ত কাজে ঠিকাদারগণ আর্থিকভাবে ক্ষতিগ্রস্ত হয় বিধায় এই কাজে আগ্রহ কম দেখান। ফলশ্রুতিতে কাজের আশানুরূপ অগ্রগতি অর্জন করা সম্ভব না হওয়ায় প্রায় আশি হাজার জিও-ব্যাগ ডাম্পিং করা সম্ভব হয়নি। অব্যবহৃত জিও-ব্যাগ উক্ত প্রকল্পে বা অন্য কোন প্রকল্পে রক্ষণাবেক্ষণ কাজে অথবা বোর্ডের অনুমতি সাপেক্ষে পাউবো'র অন্য কোন প্রকল্পে ব্যবহার করা যেতে পারে। প্রকল্পের সার্বিক অগ্রগতি ২% কম হলেও প্রকল্পের অনুকূলে বাস্তবায়িত নদী তীর সংরক্ষণ কাজ স্থায়ী হবে এবং প্রকল্পের উদ্দেশ্য ব্যাহত হবে না।

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
Jashim Uddin Bhuiyan Superintending Engr. Feni O&M Circle, (Scale 25750 -1000x8-33750)	Yes	-	Yes	05/07/2011	05/11/2013	-
K M Anwar Hossain Superintending Engr. Feni O&M Circle, (Scale 25750 -1000x8 -33750)	Yes	-	Yes	24/12/2013	26/07/2015	-

07. Procurement of Transport (in Nos.) :

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	No transport vehicles were procured					
Jeep						
Microbus						
Minibus						
Bus						
Pick-up						
Truck						
Motor Cycle						
By-cycle						
Speed Boat						
Launch						
Others with name						

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 crore Taka)		Tender/Bid/Proposal		Date of completion of works/services and supply of goods	
	As per PP	Contracted value	Invitation date	Contract signing/LC opening date	As per contract	Actual
1	2	3	4	5	6	7
Supplying of non-woven needle punched (empty) Geo-textile Bags for river bank protection work at Tamaruddin Bazar from km 65.373 to km 65.873=500m in Polder No.73/1(A+B) at Hatiya, Noakhali. (Package-TU-01).	4.88	4.72	30/03/2011	15/06/2011	21/2/2012	25/06/2014
Supplying of non-woven needle punched (empty) Geo-textile Bags for river bank protection work at Tamaruddin Bazar from km 65.973 to km 66.473=500m in Polder No.73/1(A+B) at Hatiya, Noakhali. (Package-TU-03).	6.11	5.81	30/03/2011	15/06/2011	21/2/2012	25/06/2014
Supplying of non-woven needle punched (empty) Geotextile Bags for river bank protection work at Bangla Bazar from km 34.268 to km 34.768=500m in Polder No.73/1(A+B) at Hatiya, Noakhali. (Package-BB-03).	6.13	2.65	30/03/2011	23/06/2011	21/2/2012	30/06/2012
Supplying of non-woven needle punched (empty) Geotextile Bags for river bank protection work at Bangla Bazar from km 34.768 to km 35.268=500m in Polder No.73/1(A+B) at Hatiya, Noakhali. (Package-BB-05).	6.00	5.74	30/03/2011	14/06/2011	21/2/2012	20/06/2014
River bank protection work at Tamaruddin Bazar from km 65.373 to km 65.873= 500m in Polder No. 73/1(A+B) at Hatiya, Noakhali. (Package-TU-02)	10.01	9.96	04/12/2011	08/02/2012	04/5/2013	25/06/2015
River bank protection work at Tamaruddin Bazar from km 65.973 to km 66.473= 500m in Polder No. 73/1(A+B) at Hatiya, Noakhali. (Package-TU-04)	6.45	6.18	04/12/2011	04/02/2012	04/5/2013	25/06/2015
River bank protection work at Tamaruddin Bazar from km 64.823 to km 65.373= 550m in Polder No. 73/1(A+B) at Hatiya, Noakhali. (Package-TU-06)	7.71	8.67	25/09/2012	27/11/2012	30/11/2013	18/06/2015

Description of procurement (goods/works/consultancy) as per bid document	Tender/Bid/ Proposal Cost (in crore Taka)		Tender/Bid/Proposal		Date of completion of works/services and supply of goods	
	As per PP	Contracted value	Invitation date	Contract signing/LC opening date	As per contract	Actual
1	2	3	4	5	6	7
River bank protection work at Tamaruddin Bazar from km 64.273 to km 64.823= 550m in Polder No. 73/1(A+B) at Hatiya, Noakhali. (Package-TU-05)	7.42	8.68	23/01/2013	10/04/2013	20/12/2013	18/06/2015
River bank protection work at Tamaruddin Bazar from km 65.953 to km 65.973= 20m, 50m radius and termination at Km.66.473 and 3 terminations at khal in Polder No. 73/1(A+B) at Hatiya, Noakhali. (Package-TU-07)	5.44	4.70	23/01/2013	10/04/2013	20/12/2013	18/06/2015
Total =	60.17	57.12				

NB: Contract value of Package No. TU-05 & TU-06 exceed DPP provision but overall contract value under 9 packages lies within DPP provision.

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 :	Not Applicable			
b)Local :	Not Applicable			

09. Construction/Erection/Installation Tools & Equipment :

Description of items	Quantity(as per PP)	Quantity procured with date	Transferred to O & M with date	Disposed off as per rule with date	Balance	Remarks
1	2	3	4	5	6	7
Not Applicable						

C. FINANCIAL AND PHYSICAL PROGRAMME :

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

(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
2010-2011	2078.51	2078.51	-	33.98%	399.96	399.96	-	6.60%
2011-2012	3049.11	3049.11	-	49.85%	750.00	750.00	-	12.38%
2012-2013	989.31	989.31	-	16.17%	3000.00	3000.00	-	49.51%
2013-2014	-	-	-	-	1909.26	1909.26	-	31.51%
2014-2015	-	-	-	-				

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
2010-2011	400.00	400.00	-	6.65%	400.00	399.96	399.96	-	6.65%
2011-2012	750.00	750.00	-	12.57%	750.00	749.30	749.30	-	17.35%
2012-2013	2300.00	2300.00	-	38.22%	2300.00	2300.00	2300.00	-	45.50%
2013-2014	1900.00	1900.00	-	36.56%	1900.00	1900.00	1900.00	-	24.50%
2014-2015	200.00	200.00	-	6.00%	200.00	200.00	200.00	-	4.00%
Total=	5550.00	5550.00	-	100%	5550.00	5549.26	5549.26	-	98.00%

D. ACHIEVEMENT OF OBJECTIVES OF THE PROJECT :

Objectives as per PP	Actual achievement	Reasons for shortfall, if any
a) To provide protection from cyclone surges, flood And storms b) To save the homestead lands, Health complex, government Offices, school and madrasha etc c) Uplift the economic condition of the people; d) To create employment Opportunity	-Tamaruddin Bazar & adjacent area have been protected by construction of 2.10 km Bank Protection work. Results, damaging intensity by cyclone surges, flood and storms were reduced remarkable. -Migration of people are not seen due to protection of river erosion and migrating people returned their house -Increase agricultural productions & business. -Increase land value of the area. -Employment opportunity for men & women was created at the construction phase of the project.	-

E. BENEFIT ANALYSIS

01. Annual Out-put:

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)			It's a river protection work. Important business centers, markets, homesteads, agricultural land, Upazila Health Complex, schools and other government offices including all other immovable public and private properties situated in Tamaruddin areas of Hatiya Upazila as mentioned in the DPP have been saved.
(b)			
(c)			
(d)			

02. Cost / Benefit :

Item	Estimated	Actual
(1) Benefit cost ratio of the project		Post Evaluation or assessment is yet to be done
(i) Financial	1.92 : 1.00	
(ii) Economic	2.22 : 1.00	
(2) Internal Rate of Return		
(i) Financial	34.04%	
(ii) Economic	41.56%	

03. Please give reasons for shortfall, if any, between the estimated and actual benefit: Does not arise.

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:			
Nil	-	-	-
(b) IMED:			
Mr. Md. Sayeduzzaman Deputy Chief, IMED, Planning Commission, Dhaka	13/01/2012	-	-
Mr. Md. Abul Kalam Azad Director, IMED Planning Commission, Dhaka	February 2015	-	-
(c) Others: (Please specify)			
Mr. Md. Abdul Mannan Superintending Engineering Design Circle-4 BWDB, Green Road, Dhaka.	31/12/2011	-	-
Mr. Md. Hurunur Rashid Mia Executive Engineering Design Circle-4 BWDB, Green Road, Dhaka.	31/12/2011	-	-

02. Auditing during and after Implementation:

2.1. Internal Audit:

Period of Audit	Date of submission of Audit Report	Major findings/ objections	Whether objections resolved or not.
1	2	3	4
No Internal Audit was done			

2.2. External Audit:

Audit period	Date of submission of Audit Report	Major findings/ objections		Whether objections Resolved or not.
		Para	Title	
2010 - 2011	12/09/2012	01	অপ্রয়োজনীয় ভাবে জিও ব্যাগ ফ্রয় বাবদ ঠিকাদারকে পরিশোধিত ২,৯৮,০০০০০ টাকার আর্থিক ক্ষতি।	Not Resolved
		02	মেরামত ও রক্ষণাবেক্ষণ খাতের ৮১,৭০,৪৮৩ টাকা উন্নয়ন/নির্মাণ খাতে ব্যয় করায় আর্থিক অনিয়ম।	Not Resolved
2011 - 2012	17/07/2013	01	তমরুদ্দি ও বাংলাবাজার এলাকায় নদী তীর সংরক্ষণ প্রকল্প নির্ধারিত সময়ে বাস্তবায়ন ব্যর্থতায় তীর সংরক্ষণ কাজ এক তৃতীয়াংশ হ্রাস এবং ১৭৪% ব্যয় বৃদ্ধির মাধ্যমে ডিপিপি সংশোধনে ক্ষতি ৩৮২২.৭৫ লক্ষ টাকা।	Not Resolved

Audit period	Date of submission of Audit Report	Major findings/ objections		Whether objections Resolved or not.
		Para	Title	
		02	সংশোধিত ডিপিপিতে বাংলাবাজার এলাকায় নদী তীর সংরক্ষন কাজ বাদ দেওয়া সত্ত্বেও সম্পাদিত চুক্তি বাতিল না করায় ক্ষতি ১২১৩৬৬০৩০ টাকা।	Not Resolved
		03	ডাম্পিং ও প্লেসিং এর জন্য উৎপাদিত ও সরবরাহকৃত সিসিল্লক/জিও ব্যাগ টাক্সফোর্স কর্তৃক গুনগত মান যাচাই ও পরিমান গণনা ব্যতিত ঠিকাদারকে অনিয়মিত ভাবে ১২৪৪৪০২০৬ টাকা বিল পরিশোধ।	Not Resolved
		05	১ম দরপত্র বাতিল করতঃ অনিয়মিত ভাবে মূল প্রাক্কলন উচ্চ মূল্যে সংশোধন করতঃ পুনঃদরপত্রের মাধ্যমে অস্বাভাবিক উচ্চ দরে কার্য চুক্তি সম্পাদনে ক্ষতি ৭৪৪২১৬৮১ টাকা।	Not Resolved
		06	নদী তীর সংরক্ষন কাজ সম্পাদনে ব্যর্থ ঠিকাদারদের কায্যাদেশ বাতিল সহ দরপত্রের শর্তানুযায়ী বিলম্ব মাসুল ও জরিমানা বাবদ ৭৯১৮৪০৬২ টাকা আদায় না করা।	Not Resolved
		07	জিও ব্যাগ সরবরাহে ব্যর্থ পয়সায় হতে কর্মকর্তাদের যোগসাজশে উন্মুক্ত দরপত্রের সর্বনিম্ন দর বাতিল করে পুনঃ দরপত্রের মাধ্যমে একই ঠিকাদারকে উচ্চ মূল্যে কার্যাদেশ প্রদানে ক্ষতি ৩১৫৪২৪২৪ টাকা।	Not Resolved
2012 2013	14/07/2014	01	জিও ব্যাগ সরবরাহকারী প্রতিষ্ঠানের নিকট হতে কাজ সমাপ্ত করতে ব্যর্থতার দরুন ১০% হারে লিকুইডিটি ডায়ামেজ আরোপ ও আদায় না করায় ৩৪১১৩৯০০ টাকা ক্ষতি।	Not Resolved
		03	একই সময়ে একই প্রকল্পের অভিন্ন প্রকৃতির কাজ সম্পাদনের লক্ষ্যে ব্লক প্রস্ততের জন্য দুইজন ঠিকাদারকে ভিন্ন ভিন্ন একক দর প্রদান করায় ১,৪২,২০,১৩৫ টাকা অতিরিক্ত পরিশোধ।	Not Resolved
		06	প্রাক্কলিত মূল্যের অস্বাভাবিক উর্ধ্বহারে দরপত্র গ্রহণ এবং সম্পাদিত কাজের মূল্য পরিশোধ করায় ১,২২,৯২,৩৩৫/- টাকা অধিক ব্যয়।	Not Resolved
2013 - 2014	22/03/2015	01	প্রাক্কলিত মূল্যের অস্বাভাবিক উর্ধ্বহারে দরপত্র গ্রহণ এবং সম্পাদিত কাজের মূল্য পরিশোধ করায় ১,২২,৯২,৩৩৫/- টাকা অধিক ব্যয়।	Not Resolved
		03	সরবরাহকারী প্রতিষ্ঠানে নিকট হতে কম ভ্যাট কর্তন করায় সরকার ১৭৩৯৩৮২৭ টাকা রাজস্ব হতে বঞ্চিত।	Not Resolved
		04	আইটেম ভিত্তিক প্রাক্কলিত মূল্য অপেক্ষা অতিরিক্ত উর্দ্ধ দরে কার্যাদেশ প্রদানে সরকারের ১৪২৯৩২৩৩ টাকা আর্থিক ক্ষতি।	Not Resolved
		05	মেজারমেন্ট অপেক্ষা অতিরিক্ত ব্লক স্থাপন দেখিয়ে সরকারী অর্থ অপচয় টাকা ৭৮৪৮৬৬৫ টাকা।	Not Resolved
		06	একই প্রকল্পের একই দরপত্রে একই স্থানে দুইজন ঠিকাদারকে ব্লক তৈরীর জন্য ভিন্ন ভিন্ন দর প্রদান করায় সরকারের ৯৭২৯৬৫০ টাকা ক্ষতি সাধন।	Not Resolved

Reply Submitted to Audit Directorate of 'Not Resolved' objections. These are under discussion/ negotiation to be 'Resolved' as early as possible.

G. DESCRIPTIVE REPORT

1. General Observations/Remarks of the Project on :

1.1 Background

BWDB has been entrusted with the task of managing the water resources of Bangladesh in terms of studies, planning, implementation, operation and maintenance of water resources development projects. This project aims to support the BWDB to protecting land from erosion, flooding, tide, salinity intrusion and cyclone surge.

The coast of Bangladesh is known as a zone of multiple vulnerabilities as well as opportunities. It is prone to severe natural disasters such as cyclones, storm surges and floods. The Hatiya second largest island (Polder 73) in the Meghna Estuary is more exposed to a marine dominated environment rather than only river environment. The tides, the river discharge and waves are responsible for the erosion, drainage congestion and flooding in Hatiya. Other than this, cyclone and storm surges are a common phenomenon for Hatiya island. Both from hydrodynamic and morphological point of view the regions around Hatiya are very active. A better knowledge about the hydrodynamic conditions and morphological processes in the Estuary is essential for planning and implementation of a development plan.

Polder 73 is in the planning unit of B3 & B1 of Meghna Estuary. Planning Unit B3 includes the north & north-east coast of Hatiya and Planning Unit B1 includes the southern coast of Hatiya. Since 1970, this coast (B3) of Hatiya Island has been eroded over large distances by strong tidal currents. It is bounded by Hatiya channel in the north and Bay of Bengal in the South and Shahbazpur channel in the west. The northern part of polder 73 is called polder 73/1(A+B) while the southern part is called polder 73/2. The main reason for poor performance of the Polder 73/1(A+B) is the erosion problem, the waves, tidal surge and current of Bay of Bengal and rivers around the polders are causing erosion specially in the north, west and east and damaging the existing embankments. Progressive bank erosion results in loss of valuable land as well as permanent damage to the embankment by washing it away. Other specific problems are siltation of internal drainage channel and saline water intrusion through breaches in the embankment. Rehabilitation of Polder 73/1(A+B) is essential to increase agricultural products, improving internal communications system and protecting land from erosion, flooding, tide, salinity intrusion and cyclone surge.

The project is located at Tamaruddin and Banglabazar in Hatiya Upazilla under Noakhali District. Accretion of land in the area of Noakhali main land is the dominate cause of serious bank erosion in the north, the east and the west of Polder 73/1(A+B). Moreover formation of new Chars, widening and movement of chars to downwards in the Shahbazpur and Hatiya Channel shifts the thalweg line close to shoreline of Hatiya Island resulting bank erosion of the afresaid areas. During flood season and ebb tides in

monsoon, high near bank depth integrated velocities with the range of 1.0 – 1.7m/s and 1.2 – 1.6 m/s are prevalent in Hatiya Channel and Shahbazpur Channel respectively. These eroding velocities causes the severe erosion along the bank line specially in the north. The wind waves generated from long fetched strikes the river bank with astounding energy. This is also a dominant cause of bank erosion in the area. The erosion trend for the last 42 years indicate that the northern tip of Polder 73/1(A+B) is the most affected area and about 8538 ha. of land has so far been lost.

Thus erosion mitigation measures at the project area of Hatiya upazilla is highly required. In that context, a Feasibility Study for Polder 73/1(A+B) under Coastal Embankment Rehabilitation Project was conducted by the Directorate of Planning-1, BWDB, Dhaka and Individual Consultants in December, 2006.

The following recommendations had been made by the feasibility study :

- 1) Construction of Bank Revetment consisting of CC blocks (above low water level) and geo-bag(below low water level) has to be implemented in the east(Ch.33.768 to 34.968 Km.) and west (Ch.63.873 to 64.373 Km. and 65.973 to 66.473 Km.)
- 2) River Bank protection work in the north is not recommended as it is found to be not cost effective. Marginal dyke is to be constructed in the north which may be shifted and rebuilt every alternate year.
- 3) Provision has to be made to strengthen the existing Sea dyke along the south-east side of the polder. Existing marginal dyke along the Shahbazpur channel has to be rebuilt as interior dyke.
- 4) New Drainage and surface sluice are to be provided where required and the old sluice have to be rehabilitated.
- 5) Drainage problem of the Polder has to be improved by re-excavation of silted up khals.

In accordance with the above recommendation no. (i) the present project has been proposed though the chainage (Ch.65.373 to 65.873, 65.973 to 66.473, and 33.768 to 35.768 Km) of the protective works has been fixed as per present condition of the area.

1.2 Justification/Adequacy

The two main Justifications are-

- To allow the adoption of a realistic time requirement for implementing of the project in context of location of project area where tide occurred two times in a day. Consequent, working time found less in compared to main land.
- To include the additional volume of revetment work beyond the existing project location due to vulnerable erosion in adjacent & beyond the project.

1.3 Objectives

To protect important business centers, markets, homesteads, agricultural land, Upazila Health Complex, schools and other government offices including all other immovable public and private properties situated in Tamaruddin areas of Hatiya Upazila from the bank erosion.

By the implementation of the project the following multiple objectives will be achieved:

- To provide protection from cyclonic surges, flood and storms;
- To save the homestead lands business centers, schools, madrasahs etc.;
- To uplift the economic condition of the people;
- To create employment opportunities

1.4 Project revision with reasons

The original DPP of the project was approved in the ECNEC meeting held on 07.12.2010 with a cost of Tk. 6116.93 lakh. The main components of the project were to protect 1.00 km length of river bank at Tamaruddin and 2.00 km length of river bank at Banglabazar. The 1st revision of DPP of the project was approved on 26.07.2012 by the ECNEC with a cost of Tk. 6059.22 lakh. The 1st revision had been made due to morphological change in Banglabazar area i.e silted up the river, no bank protection work in this area is required that was recommended by the Technical Committee, and also recommended that additional length of 1.10 km (from km 64.273 to km 65.373) including end terminations will need to be protected at Tamaruddin due to serious erosion causing threat to Tamaruddin Bazar. That is why, 1st revision of DDP has been made by deducting 2.00 km length at Babglabazar with including additional 1.10 km length (total 2.10 km) and four end terminations at Tamaruddin and project duration was fixed from November 2010 to December 2013. The project was not completed in time, because of unavoidable circumstances & geographical location of the site. For these, time extension was made without increase project cost from January 2014 to June 2014 and finally July 2014 to June 2015. Therefore, the project duration was determined November 2010 to June 2015.

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

It seems to implement erosion mitigation measures at said location on vulnerability consideration. Implementation of 2.10 km protective work will save the lives and valuable properties under the project area along with the important business center Tamaruddin Bazar.

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

◆ Project Identification

The project was identified at field level by Noakhali O&M division, BWDB, Noakhali.

♦ **Project Preparation**

The original DPP was prepared on the basis of Feasibility Study for Polder 73/1(A+B) authenticated by Technical Committee constituted by Bangladesh Water Development Board. The original DPP of the project was approved in the ECNEC

♦ Appraisal	N/A
♦ 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 on 07/12/2010 (Original DPP) and on 26/07/2012 (RDPP)
♦ Others (if any)	N/A

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 **Programme for use of created-facilities of the project-** All the Infrastructure that was assumed to be saved seem to be saved by the Implementation of the project
- 4.3 **O & M programme of the project- As per DPP-** operation and maintenance programme will be arranged from revenue budget of BWDB.
- 4.4 **Impact of the project -**
 - 4.4.1 **Direct**

It's a river bank protection work. Important business centers, markets, homesteads, agricultural land, Upazila Health Complex, schools and other government offices including all other immovable public and private properties situated in Tamaruddin areas of Hatiya Upazila as mentioned in the DPP have been saved.
 - 4.4.2 **Indirect**

Increase of agricultural production, business facilities as well as self employment opportunity increased i.e. socio-economic development will be the indirect benefit.
- 4.5 **Transfer of Technology and Institutional Building through the project- N/A**
- 4.6 **Employment generation through the project.**

Employment opportunity for men and women was created at the construction phase of the project.
- 4.7 **Possibility of Self employment**

Many agricultural land and business center was saved. Hence there will be significant possibility of self employment on agriculture sector and business sector.

4.8 Possibility of women-employment opportunity

Most people of the project area are with limited source of employment. As such poverty is the part and parcel of their day to day life. By the implementation of this project employment in business sector will be created due to socio-economic condition, micro-financing activities. Project will also create employment opportunities and these will ultimately contribute to the achievements to poverty alleviation.

The project implemented will help reduce the risk of landless and pauperization in the project area to a great extent. The project will ensure safety of public and private properties and improve economic activities by construction of protective works.

4.9 Women's participation in development

Women and children are most vulnerable to any type of disaster. Post project condition will improve river erosion hazards. Thus, ultimately create safe and healthy environment for women and children. Also, employment opportunity for women will be enhanced at the construction phase of the project. Thus, the project will have positive impact on women and children.

4.10 Probable Impact on Socio-Economic activity

At post project condition due to reduction of erosion and flood hazard investment will be encourage and productivity in all spheres will ultimately be increased. Also, after implementation of the project financial security will be achieved and out of that institutional development like growth centers, educational institutions, health and family planning centers and many more will definitely be established.

4.11 Impact on environment

The project has no adverse effect on environment. The project is to provide safety to human lives, properties and to enhance economic activities as well as natural and environmental balance against devastating river erosion. Thus the overall environmental balance in region is restored.

4.12 Sustainability of the project

The project has been completed as per approved DPP and as per design & specifications. It will be a sustainable project.

4.13 Contribution to poverty alleviation/reduction

Project activities created employment opportunities which would contribute to the achievement in poverty alleviation.

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

Local representative such as Member of Parliament, local elite, local administration, teachers, religious leaders, women's representative & local UP chairman have good idea about the project. They are very much happy with the project.

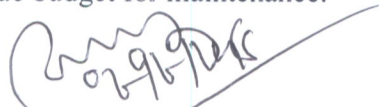
4.15 Contribution of Micro-credit programmes and Comments on overlapping with any NGO activities- N/A

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

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

6. Remarks & Recommendations of the Project Director :

The project has been completed successfully. Tamaruddin Bazar area at Hatiya island in upazila Hatiya, District Noakhali has been protected from river erosion by construction of 2.10 km protective works, also this will safeguard the existing coastal embankment and other infrastructures around the project area. To make it sustainable, every year allocation should be provided from revenue budget for maintenance.



(I. M. Reaul Hasan)
Executive Engineer
Noakhali O&M Division
BWDB, Noakhali.



(Akhil Kumar Biswas)
Superintending Engineer
Feni O&M Circle
BWDB, Feni.

7. Remarks/Comments of Agency Head

This project has ensured protection from cyclonic surges, floods and storms to the project area on Hatiya Island. Safeguard to various public & private properties along with BWDB's infrastructures will definitely boost socio-economic development on the project area.

Date :



Signature and Seal

(MD. ISMAIL HOSSAIN)
Director General
BWDB, Dhaka.

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

Date :

Signature and Seal

91°3'

91°6'

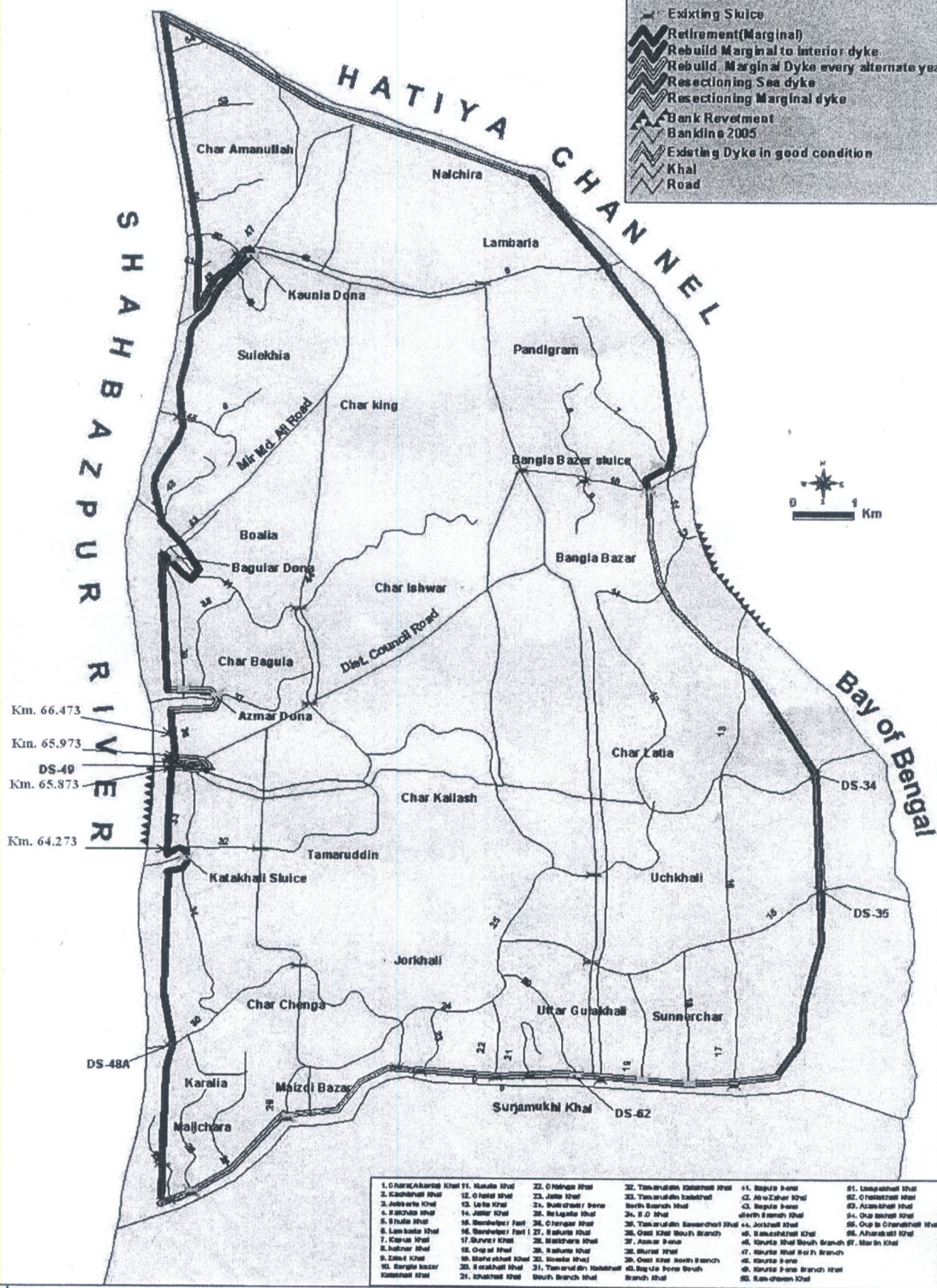
91°9'

Project Interventions

Polder 73/1 A + B

Legend

- Proposed new or replacement Sluice
- Existing Culvert
- Existing Sluice
- Retirement (Marginal)
- Rebuild Marginal to Interior dyke
- Rebuild Marginal Dyke every alternate year
- Resectioning Sea dyke
- Resectioning Marginal dyke
- Bank Revolment
- Bankline 2005
- Existing Dyke in good condition
- Khal
- Road



22°24'

22°21'

22°18'

22°15'

22°24'

22°21'

22°18'

22°15'

