2009-10

BANGLADESH WATER DEVELOPMENT BOARD

PROJECT COMPLETION REPORT
IMED-04/2003 (REVISED).

NAME OF THE PROJECT	:	**PROTECTION OF BRAHMAPUTRA RIVER RIGHT BANK AT BAIRAGIRHAT AND CHILMARI BANDAR IN UPAZILLA CHILMARI UNDER KURIGRAM DISTRICT (PHASE-1).**

NAME OF THE DIVISION	:	KURIGRAM O&M DIVISION, BWDB, KURIGRAM.
NAME OF THE CIRCLE	:	RANGPUR O&M CIRCLE-1, BWDB, RANGPUR.
NAME OF THE ZONE	:	NORTHERN ZONE, BWDB, RANGPUR.

September 2010

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 : PROTECTION OF BRAHMAPUTRA RIVER RIGHT BANK AT BAIRAGIRHAT AND CHILMARI BANDAR IN UPAZILLA CHILMARI UNDER KURIGRAM DISTRICT (PHASE-1).

02. Administrative Ministry/Division : Ministry of Water Resources

03. Executing Agency : Bangladesh Water Development Board.

04. Location of the Project : Chilmari Upazilla of Kurigram District.

05. Objective of the Project (Phase-1) :

Main objectives of the project are

- To protect bank erosion along the right bank of the Brahmaputra River at Bairagirhat and Chilmari Bander area in Kurigram district.
- To save valuable immovable properities (both public and private) including BWDB's existing infrastructures dispersed in the visinity of erosion affected area valued total Tk. 233500.00 lakh.

06. Estimated Cost :

(In lakh Taka)

	Original	Latest Revised
(a) Total	9368.00	9368.00
(b) Taka	9368.00	9368.00
(c) Foreign Currency	-	-
(d) Project Aid	-	-
(e) RPA	-	-

07. Date of Approval :

	PCP	PP
(a) Original	-	31.12.2007
(b) Latest Revised	-	17.09.2009

08. Implementation Period :

	Date of Commencement	Date of Completion
(a) Original	2007-08	2008-09
(b) Latest Revised	2007-08	2009-10
(c) Actual	2007-08	2009-10

09. Financing Arrangement (Source-wise):

9.1 Status of Loan/Grant

a) Foreign Financing : Not Applicable

Source (s)	Currency as per Agreement	Amount in US $ (Million)	Nature (Loan/Grant/ supplier's/ credit)	Date of Agreement	Date of Effective-ness	Date of Closing	
						Original	Revised
1	2	3	4	5	6	7	8

b) GOB:

(In lakh Taka)

Total amount	Loan	Grant	Cash Foreign Exchange
1	2	3	4
9368.00	-	9368.00	-

9.2 Utilization of Project Aid: (Source wise) : Not Applicable

(In million)

Source (s)	Total Amount		Actual Expenditure		Unutilized Amount	
	In US $	In Local Currency	In US $	In Local Currency	In US $	In Local Currency
1	2	3	4	5	6	7

9.3 Re-imbursible Project Aid (RPA) : Not Applicable

(In lakh Taka)

R P A Amount		Amount Spent	Amount Claimed	Amount Re-imbursed	Remarks
As per PP	As per Agreement				
1	2	3	4	5	6

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
From 2007-08 to 2008-09	From 2007-08 to 2009-10	From 2007-08 to 2009-10	50%	

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	9368.00	9368.00	9265.98	-1.09%	
TAKA	9368.00	9368.00	9265.98	-1.09%	
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)	Project is implemented by existing manpower					
Staff(s)						
Total :						

04. Training of Project Personnel (Foreign/Local): Not Applicable

Field of Training /Study tour/workshop/ Seminer 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 — Does not arise

b. Local — Does not arise

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
Revenue Component:						
Survey & Investigation	L.S	2.00	1 item	1.99	1 item	
Petrol & Lubricant	L.S	6.00	1 item	6.00	1 item	
Telex & Fax	L.S	1.00	1 item	0.96	1 item	
Stationery, Seal and Stamp.	L.S	3.00	1 item	3.00	1 item	
Publicity and Advertisement	L.S	3.50	1 item	3.49	1 item	
Copy/Reproduction.	L.S	2.50	1 item	2.46	1 item	
Monitoring during implementation.	L.S	15.00	1 item	14.99	1 item	
Repair & Maintenance of existing vehicles.	L.S	10.00	1 item	9.71	1 item	
Sub-total Rvenue		**43.00**		**42.60**		
Capital Component:						
Computer (Brand Pentium IV) with Printer (Laser)	No	3.00	3 nos	3.00	3 nos	
Photocopier (Canon)	No	1.35	1 no.	1.34	1 no.	
Fax Machine	No	1.00	2 nos	1.00	2 nos	
Bank Revetment (Protected length 3.040 km, Revetment length with end termination 3.206 Km)	Km	9119.65	3.206 Km	9034.44	3.206 Km	
O & M during construction = 1 item.	L.S	200.00	1 item	183.60	1 item	
Sub-total Capital		**9325.00**		**9223.38**		
GRAND TOTAL		**9368.00**		**9265.98**		

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
Zahirul Islam Project Director/ Superintending Engineer Pay Scale 25,750-1000-33750	Yes	-	Yes	26/08/07	28/02/10	
Kazi Abu Baker Siddique Project Director/ Superintending Engineer Pay Scale 25,750-1000-33750	Yes	-	Yes	28/02/10	30/06/10 (Till End)	

07. Procurement of Transport (in Nos.): Not Applicable

Type of transport	Number as per P.P.	Procured with date	Transferred to Transport Pool with date	Transferred to O & M with date	Condemned/ damaged with date	Remarks
1	2	3	4	5	6	7
Car						
Jeep						
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/ L.C opening date	As per contract	Actual
1			4	5	6	7
WORKS						
Bank revetment work (1st. part of u/s end termination at Km.0.00 of protected length; revetment length =32.03 m & apron length=125.29 m (Package No Kuri-18)	2.60	2.60	31/01/08	06.05.2008	20/04/09	20/06/09
Bank revetment work (3rd. part of u/s end termination at Km.0.000 of protected length; revetment length =66.88 m & apron length=90.195 m) (Package No Kuri-20)	2.18	2.17	31/01/08	06.05.2008	20/04/09	20/06/09
Bank revetment work (from Km.0.162 to Km.0.245 of protected length; revetment length =83.00 m & apron length=83.00 m) (Package No Kuri-24)	2.61	2.60	31/01/08	28.04.2008	20/06/09	20/06/09
Bank revetment work (from Km.0.245 to Km.0.328 of protected length; revetment length =83.00 m apron length=83.00 m (Package No Kuri-25)	2.64	2.63	31/01/08	28.04.2008	19/06/09	19/06/09
Bank revetment work (from Km.0.328 to Km.0.411 of protected length; revetment length =83.00 m & apron length=83.00 m (Package No Kuri-26)	2.64	2.58	31/01/08	28.04.2008	19/06/09	19/06/09
Bank revetment work (from Km.0.411 to Km.0.494) of protected length; revetment length =83.00 m & apron length=83.00 m) (Package No Kuri-27)	2.65	2.57	31/01/08	06.05.2008	20/04/09	20/06/09
Bank revetment work (from Km.0.494 to Km.0.577 of protected length; revetment length =83.00 m & apron length=83.00 m (Package No Kuri-28)	2.52	2.48	31/01/08	28.04.2010	24/06/09	24/06/09
Bank revetment work (from Km.0.577 to Km.0.662 of protected length; revetment length =85.00 m & apron length=85.00 m) (Package No Kuri-29)	2.56	2.56	31/01/08	06.05.2008	20/04/09	29/06/09
Bank revetment work (from Km.0.662 to Km.0.751 of protected length; revetment length =89.00 m & apron length=89.00 m) (Package No Kuri-30)	2.36	2.36	31/01/08	06.05.2008	20/04/09	20/04/09

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/ L.C opening date	As per contract	Actual
1			4	5	6	7
WORKS						
Bank revetment work (from Km.0.840 to Km. 0.930 of protected length; revetment length =90.00 m & apron length=90.00 m) (Package No Kuri-32)	2.31	2.31	31/01/08	29.04.2010	20/06/09	20/06/09
Bank revetment work (from Km.0.930 to Km.1.020 of protected length; revetment length =90.00 m & apron length=90.00 m) (Package No Kuri-33)	2.20	2.15	31/01/08	28.04.2208	24/06/09	31/05/09
Bank revetment work (from Km.1.110 to Km.1.200 of protected length; revetment length =90.00 m & apron length=90.00 m) (Package No Kuri-35)	2.42	2.42	31/01/08	06.05.2008	20/04/09	20/04/09
Bank revetment work (from Km. 1.3788 to Km. 1.4682 of protected length; revetment length =89.40 m, & apron length=89.40 m) (Package No Kuri-03)	2.05	2.04	29/07/08	05/01/2009	25/06/09	25/11/09
Bank revetment work (from Km. 1.5576 to Km. 1.647 of protected length; revetment length =89.40 m, & apron length=89.40 m) (Package No Kuri-05)	2.16	2.16	29/07/08	05.01.2009	25/06/09	31/05/10
Bank revetment work (from Km. 1.647 to Km. 1.7364 of protected length; revetment length =89.40 m, & apron length=89.40 m) (Package No Kuri-06)	2.10	2.07	29/07/08	13.01.2009	25/06/09	31/05/10
Bank revetment work (D/S end termination 3rd. part) protected length at Km.2.5000; revetment length =79.08 m & apron length=79.08 m (Package No Kuri-17)	2.35	2.34	29/07/08	14/01/2009	25/06/09	15/05/10
Bank revetment work (from Km.64.050 to Km.64.165 of protected length; revetment length =115.00 m, & apron length=115.00 m) (Package No: Kuri-21/09-10)	3.81	3.60	30/08/09	28/01/2010	31/05/10	30/06/10
Bank revetment work (from Km.64.165 to Km.64.280 of protected length; revetment length =115.00 m, & apron length=115.00 m) (Package No: Kuri-22/09-10)	3.81	3.61	30/08/09	28/01/2010	31/05/10	30/06/10
Bank revetment work (from Km.64.280 to Km.64.390 of protected length; revetment length =110.00 m, & apron length=110.00 m) along with 20.00 m armoring (Package No: Kuri-23/09-10)	4.36	4.36	30/08/09	28/01/2010	31/05/10	30/06/10

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/ L.C opening date	As per contract	Actual
1			4	5	6	7
WORKS						
Manufacturing & Supplying of C.C block at different sites as stock pile at Chilmari on the right bank of Brahmaputra river in connection with "Protection of Brahmaputra River right bank at Bairagirhat and Chilmari Bandar in Upazilla Chilmari under Kurigram District (Phase-1)" (Package No: Kuri-24/09-10).	4.44	4.44	30/08/09	28/01/2010	31/05/10	30/06/10

8.2 Use of Project Consultant (s) (Foreign/Local): Not Applicable

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 : Does not arise

b) Local : Does not arise

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
Purchase of Computer with Printer	3 nos	2 nos (28.02.2009) 1 no (25.03.2010)	2 nos (01.03.2009) 1 no (26.03.2010)	Asper DPP 1 no sent to the office of Joint Chief vide HR no. 30, date 31.03.2009	2 nos	Rest 2 nos are in working at Kurigram O&M Division Office
Purchase of Photocopier	1 no	28.02.2009	01.03.2009	-	1	Working at Kurigram O&M Division Office
Purchase of Fax Machine	2 nos	2 nos (10.02.2009)	11.02.2009	Asper DPP 1 no sent to the PD office vide HR no. 13, date 15.02.2009	1	Rest 1 no is in working at Kurigram O&M Division Office.

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
2007-08	4918.92	4918.92	-	55.00%	665.45	665.45	-	7.10%
2008-09	4449.08	4449.08	-	45.00%	3596.00	3596.00	-	77.90%
2009-2010	-	-	-	-	5106.55	5106.55	-	15.00%

01. (b) Revised ADP allocation and progress :

(In lakh Taka)

Financial Year	Revised Allocation & target				Taka release	Expenditure & physical progress			
	Total	Taka	P.A.	Physical %		Total	Taka	P.A.	Physical %
1	2	3	4	5	6	7	8	9	10
2007-08	1200.00	1200.00	-	12.81%	1200.00	665.45	665.45	-	7.10%
2008-09	3600.00	3600.00	-	88.26%	3600.00	3592.34	3592.34	-	77.90%
2009-10	5100.00	5100.00	-	15.00%	5100.00	5008.19	5008.19	-	15.00%

D. ACHIEVEMENT OF OBJECTIVES OF THE PROJECT:

Objectives as per PP	Actual achievement	Reasons for shortfall, if any
(a) Main objective of the project is to protect bank erosion along the right bank of the Brahmaputra River at Bairagirhat and Chilmari Bander area in Kurigram district.	3.206 km bank line along the right bank of the Brahmaputra River at Chilmari Upazilla in Kurigram District has heen successfully protected from river erosion. By implementating of the project existing Madrasa, Primary school, bazar, public & private buildings, BWDB's F.C embankment have also safeguarded hundreds of homesteds safeguarded from engulfing of the river.	There is no shortfall and the objective of the project has been achieved.

Objectives as per PP	Actual achievement	Reasons for shortfall, if any
(b) To save valuable immovable properities (both public and private) including BWDB's existing infrastructures dispersed in the visinity of erosion-affected area valued total Tk. 233500.00 lakh.	By implementing the project valuable immovable properities (both public and private) including BWDB's existing infrastructures (Embankments & regulator), huge land, including agricultural land, low laying land area have been saved from the erosion of Brahmaputra river which ensured the sustainability of agricultural development that created employment oppurtunity. Besides this during the construction period of the project a huge no of landless and poor people got engaged which improved socio-economic condition of the localities.	There is no shortfall and the objective of the project has been achieved.

E. BENEFIT ANALYSIS

01. Annual Out-put: Non-tangible benifited project.

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

02. Cost / Benefit: Non-tangible benifited project.

Item	Estimated	Actual
(1) Benefit cost ratio of the project (i) Financial: Non-tangible benifited project. (ii) Economic: Non-tangible benifited project. (2) Internal Rate of Return (i) Financial: Non-tangible benifited project. (ii) Economic: Non-tangible benifited project.		

02. Please give reasons for shortfall, if any, between the estimated and actual benefit:

Non-tangible benifited project.

F. MONITORING AND AUDITING

0.1 Monitoring:

Name & designation of the inspecting official	Date of Inspection	Identified Problems	Recommendations
1	2	3	4
(b) Ministry / Agency:			
(c) IMED :			
Daya Nanda Debnath Deputy Director	10.02.2009 13.03.2010	Project period may be extended upto June 2010, to execute bank revetment work along the vulnerable bank line, down stream of the scheduled work.	Action had been taken as per recommendation
(d) Others: (Please specify)			

0.2. 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
2007-08	30.04.2009	No major objection	Resolved
2008-09	Not yet done	-	-
2009-10	Not yet done	-	-

2.2. External Audit:

Audit period	Date of submission of Audit Report	Major findings/ objections	Whether objections resolved-or not.
1	2	3	4
2007-08	19.05.2009	No major objection	Resolved
2008-09	28.02.2010	No major objection	Resolved
2009-10	Not yet done	-	-

G. DESCRIPTIVE REPORT

1. General Observations/Remarks of the Project on:

1.1 Background: The proposed project area is situated at Chilmari and Bairagirhat area under Chilmari Upazila of Kurigram District, which is a part of the northeast region of Bangladesh. The project area comprises the belt of unstable alluvial land along the Brahmaputra-Jamuna rivers where land is constantly being formed and eroded by shifting of river channels. It has an irregular relief of broad and narrow ridges and depressions. The area is occupied by sandy and silty alluvium, rich in whetherable K minerals that are slightly alkaline in reaction.

The Brahmaputra river is a major international river, ranking in the top three in terms of sediment and water discharge. It covers total drainage area of 583000 Km^2, 8.1% (47000 Km^2) of which lies in Babladesh. The river originates in the Chemayung-Dung glacier, approximately at $31^0$30'N and $82^0$0'E., some 145 Km. from Parkha, a trade centre between lake Manassarowar and Mount Kailas. The total length of the river from its source in southwestern Tibbet to the mouth in the Bay of Bengal is about 2850 Km. (including Padma and Meghna up to the mouth). The river enters in Bangladesh east of Bhabanipur (India) and northeast of Kurigram district. Within Bangladesh territory, Brahmaputra-Jamuna is 240 Km. long. The Brahmaputra river is characterized by high intensity of flood flows during monsoon season (June through September). During monsoon the Brahmaputra discharge a large volume of water and at the same time brings in huge amounts of sediments. The river is infect a multi-channel are of many different sizes and of different patterns including braiding, meandering and anatomizing pattern. The formation and removal (migration) of the chars during monsoon controls the erosion of banklines.

Bairagirhat and Chilmari Bandar are on the right bank of the Brahmaputra river in Kurigram district. Bairagirhat is situated at immediately downstream of the confluence of the Dharla and the Brahmaputra rivers. Chilmari Bandar is very important business centre in northern part of the country and situated just upstream of the confluence of the Teesta and the Bramhaputa rivers. Both the place are historically renowned having growth centres, schools, colleges and other govt. & non-govt. installations. Chilmari Bandar plays a very important role in northern area of Bangladesh to transport jute, oil, tobacco etc. Chilmari upazila headquarter is not far away from the river. The other important establishments at Chilmari area are railway station, community clinic, schools, bazars etc. There also exists BWDB embankment along the right bank of the river in between Chilmari and Anantapur and other structures.

Right bank erosion of the Brahmaputra river at Chilmari and Bairagirhat has been a matter of serious concern since last few decades. Brahmaputra River Training Study (BRTS) also identified these locations as vulnerable to erosion. The comparison of bankline of 1999 and 2005 indicates maximum 900m right bank erosion at Bairagirhat (Anantapur) area and 600m erosion at Chilmari area. It means progressive erosion has been taking place in the project area. At Anantapur area the yearly rate of erosion was about 90m during 1999-2002. In increased row as high as 220m

during 2002-2004. At Thanahat the yearly rate of erosion was about 50m. At Chilmari the yearly rate of erosion on the increasing trend since 1999 (80m in 1999-2000 and 110m in 2004-2005). Severe bank erosion took place at Chilmari Bandar during monsoon 2005 as reported by local people. It is revealed from CEGIS study (CEGIS, April 2006) that for the last few decades the Brahmaputra river has been widening both banks migrating outwards at a higher rate. The rate of erosion varies over time. The rate at which the river is widening has declined from 150m/year in 1970a and 1980s to 40m/year during the last 14 years. During the period 1973-2006 erosion in Kurigram district was 18, 160 ha. against the accretion of 220 ha. Analysis of yearly erosion from 2001 to 2006 show that erosion in Kurigram district was 1,929 ha.

The segment of flood protection embankment and other structures are under threat of river bank erosion. Progressive erosion may threaten the existing flood control embankment necessitating its retirement. Under an embankment retirement scenario continued bank erosion will have a significant impact on the terrestrial environment. The present trend of erosion suggests that the problem may detoriate further. If proper mitigation measures can not be taken to arrest the outgoing erosion process then the course of time Chilmari, Bairagirhat and other adjacent areas i.e. Joragacha, Ramna bazar, Putimari-Kajoldanga (Thanahat) and many other places will be washed away.

In view of the above circumstances, Protection of Bairagirhat and Chilmari area from vulnerability of river erosion has been endorsed due importance at apex level. Also the project has been considered as priority project of the former Honorable Prime Minister of GOB. In order to protect these areas, River Research Institute (RRI), Faridpur in 1997 developed a scale model of the western anabranch on the bathymetry and hydrology of 1995.

The model is outdated now due to morphological changes of the highly dynamic Brahmaputra river over the last 10 years. The scale model study recommended for erection of 7 (seven) T-head groyne and 1200m bank revetment works. On the basis of physical modelling study, BWDB formulated a project document (PCP) in January 2002 and processed for approval.

Due to morphological changes, the field conditions were changed during 1995-2002. Accordingly, BWDB reformulated the PCP in October 2002 containing 6.625 Km. bank revetment works at three different locations between two sites in stead of T-head groyne and 1200m bank revetment works as proposed earlier. The PCP included the provision for conducting model study. Planning Commission opined for prior conducting of model study under "Feasibility Study of BWDB new project" and follow up formulation of the project by IWM and accordingly the original DPP has been prepared as per recommendations of the study.

The DPP has been recast as per recommendation of a Technical Committee's Report (October, 2006) duly constituted based on decision of a Pre-Evaluation meeting held on 18-09-2006 in Planning Commission. Said Technical Report recommended for phase-wise implementation of bank revetment works. Accordingly, only emergency priority bank revetment works for a protected

length of 2.50 Km. (revetment length: 2.7883 Km.) starting from Km. 60.80 towards downstream upto Km. 63.30 keeping openings for drainage provisions of Chaslerbeel regulator and Magurarbeel regulator has been include in present project programme as phase-I project works.

1.2 Justification/Adequacy: Bairagirhat and Chilmari Bandar area are on the right bank of the Brahmaputra in Kurigram District. Bairagirhat is situated at immediately downstream of the confluence of Dharla River and Brahmaputra River. Chilmari bandar is a very important business centre in northen part of the country and situated just upstream of the confluence of the Teesta river and the Brahmaputra river. Both the places are historically renowned having growth centres, schools, colleges, and other government and non-government infrastructures. Chilmari bandar plays a very important role in the North Bengal to transport Jute, Oil, Tobacco etc. Both Chilmari Bandar and Bairagirhat are being attacked by erosion over the last few decades. In the recent time the 12 vent Bamni regulator over right embankment has been washed away and flood protection embankment and other regulators are under threat.

To mitigate afforsaid bank erosion in Chilmari and Bairagirhat a river erosion measures is necessary to execute. In this context, IWM was engaged to formulate an effective river erosion protective measures by model study. In this regard, a field survey campaign was conducted by IWM in November-December 2005 to collect bathymetric, bankline, water level and velocity data. The survey covered a reach of 50 km.

From the model study results of assesment of baseline condition and from risk assesment it is revealed that medium to high erosion risk exists along 12.8 km reach of the river from Dharla outfall to Teesta outfall. The outcome of the study team come as a 1km long CC block revetment at Anantapur and 5 km CC block revetment at Thanarhat-Chilmari has been recommended for implemetation in the river bank.

1.3 Objectives:

The overall objective of the project is to provide safety of human lives, properties and infrastructures and to maintain & improve economic activeties, trade and commerce against river erosion. The specific objectives of the project are:

- To sustain the agricultural development by mitigating the risk of riverbank erosion and from embankment breaches;
- To contribute in poverty alleviation by ensuring the future economic benefits;
- To improve social and economic conditions of destitute families living along the embankment;
- To provide substantial employment opportunities and cash income for landless poor and vulnerable people (both men and women) during construction period provide a stable environment for development in areas adjacent to protected riverbanks.

Valuable immovable properties (both public and private) including BWDB's existing infrastructures dispersed in the vicinity of erosion affected area valued total Tk. 233500.00 lakh from vulnerability of river bank erosion by virtue of implementation of all phases of the project.

1.4 Project revision with reasons: The original approved DPP includes 2.7883 km Bank revetment work with End Termination where the protection length was 2.50 km from km 60.800 to km 63.300. Cost of the revetment work was estimated following the outline design used in the study phase.

In the meantime, the river eroded at different places within the above mentioned chainage. Considering the situation and as per field survey, the conserned design circle prepared and approved design for the revetment work. To protect the most vulnerable area, approved design includes 3.04 km (from km 61.350 to km 64.390) protected length which is 0.54 km higher than the approved DPP. During flood 2008, the river bank erosion shifted to the downstream because of change of river course. Hence, the starting point of the revetment work has been shifted from km 60.800 to km 61.350 and the river bank of length 55m between these points will remain safe as erosion has already stopped. So, the design circle-6, BWDB, Dhaka prepared the design with a new alignment as per actual field condition. Now, the total length of the bank revetment work with end termination (166m) now stands at 3.206 km. The end termination has two parts one is upstream end termination and other is downstream end termination. The downstream End Termination changed to End Protection by the design circle-6, BWDB, Dhaka for the adjustment with the future extension of protective work. Due to this change the total length of end termination decreased which will not affect the project objectives.

Although the Total length of the revetment increased by 340 meter than the previous approved DPP but it did not require additional cost as the previous contracts were at lower price than the estimate and the implementation cost of additional 340 meter was accomodated within previous approved DPP cost.

2. Rationale of the project in respect of Concept, Design, Location and Timing:
Bangladesh is a riverine country and bank line erosion of different rivers has been a recurrent effect. River bank erosion in alluvial lands of Bangladesh is a complex and dynamic thrust of nature due to strong onrush of water and major variations in between normal water flow and surges of inflow during monsoon & post-monsoon period in each year. The monsoon discharge of the major rivers is so large that there is recurrence of floods every year. Sometimes it become very severe and causes immense damages impacted by occurrence of devastating river erosion. This has significant social and economic impacts. The loss of land, crop and property has led to landlessness and impoverishment of thousands of dwellers living within banklines.

The large seasonal variation in river flow results in varying sediment transportation capacity and causes river-bank erosion, migration of river-banks and meandering river channels. Recent Satellite Image Studies of the Ganges-Brahmaputra-Middle Meghna rivers show that 106.300ha. of land were lost to erosion, while only 19,300 ha. were accreted over the period 1982-1992. The net area of 87,000 ha. lost to crosion is equivalent to an annual erosion rate of 8,700 ha.
In this context, there have been a growing concern and reassessment of the economic and socio-political benefits of protecting important towns, infrastructure, hats and bazaars as well as agricultural land. The issue has been given due importance in the national planned documents for water sector and prioritized strategic locations of river banks have been stressed for phased implementation of river bank protection programme at the apex level.
Bangladesh has a long history of combating riverbank crosion. People living and housing alongside the river try to protect the banks against erosion from time immemorial. Diverse methods of bank protection have been developed in the past with considerable regional differences. After the disastrous flood in 1988, the Flood Action Plan (FAP) initiated a number of

studies to come up with sustainable and long-term solutions for river training/bank protection in Bangladesh. The activities mostly concentrate on the Brahmaputra/Jamuna river.

The continued bank-line shifiting (maximum 900m over the period 1999-2005) of right bank channel of the Brahmaputra River at Chilmari upazilla in Kurigram district has damaged the flood control embankment and sluices in many places requiring retired embankment and reconstruction of sluices. About 1.00 Km embankment and one 12-vent sluice at and around Bairagirhat were devoured in recent past. Without immediate erosion mitigation measures further retirement of embankment as well as loss of land can not be stopped.

Failure of embankment due to erosion will have deleterious social, economic and environmental impacts. At present 2.60 Km river bank at Anantapur (Bairagirhat) area and 10.20 Km river bank at Tahnahat-Chilmari area are under active erosion. It is anticipated that if the erosion continued existing embankment as well as vast tract of lands will be eroded over the next coming years. Hence substantial losses of properties and imfrastructures will be incurred. Even in the long-run Ulipur upazilla area will be affected. Further breaches of embankment due to river bank erosion and consequent flooding will result significant damages to crops, properties and infrastructures.

In this backdrop, present project thus proposed to be executed on emergency basis. The project has been considered as priority project of the honourable Prime Minster of GOB. The overall objective of the project is to reduce environmental degradations & human hazards due to river erosion with ensuring safety of live & properties around the area. Throughout the erection of proposed bank revetment works, safety of establishments worth value of TK. 233500.00 lakh will be ensured against river erosion.

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

- **Project Identification:** The erosion affected Bairagirhat and Chilmari bandar are situated along the right bank of Brahmaputra river in Chilmari upazilla in Kurigram District. Bairagirhat is about 5 km downstream of Brahmaputra –Dharla confluence and Chilmari is about 7.50 km upstream of Teesta confluence.

  The project area is densely populated with established human settlements. Numerous public and private installations including school, college, post office, Union Parishad Bhavan, family health clinic, Bazar etc are situated in the project area. There is also metalled and non-metalled road communication network and railway line.

  Chilmari upazila headquarter is not far away from the river. In Chilmari ghat there are railway station, community clinic, school, bazaar etc. Ulipur upazila head quarter is about 8 km away from the river bank. Anantapur bazaar and Bharagirhat are two important trade centers under Ulipur upazila that are situated on the right bank of Brahmaputra river.

  There also exists flood control embankment constructed by BWDB along the right bank of Brahmaputra river in between Chilmari ghat and Anantapur bazaar. Right bank erosion of the Brahmaputra river at Chilmari and Bharagirhat has been a matter of serious concern since the last few decades. Valuable lands, established settlements, markets, public and private establishments, orchards and trees, embankment and sluices has eaten up by the river throughout the reach from Teesta outfall to Dharla outfall.

- **Project Preparation:** To mitigate afforsaid bank erosion in Chilmari and Bairagirhat a river erosion measures is necessary to execute. In this context, IWM was engaged to formulate an effective river erosion protective measures by model study. In this regard, a field survey

campaign was conducted by IWM in November-December 2005 to collect bathymetric, bankline, water level and velocity data. The survey covered a reach of 50 km.

After Details study, the consultants findings were formulate as follow:

a) The first phase of revetment construction along the Brahmaputra right bank should be started from km 60.800 towards the downstream. It is preferable to complete 2.50 km construction in the first year.

b) In the second year 1.5 km construction may be considered. The construction should be continuous to the first phase of construction and from upstream and downstream.

c) The remaining work (1km) should be completed in the third year if found necessary.

According to the outcome of the study a Development Project Proposal (DPP) for first phase work (2.50 km river bank protection work) was prepared by BWDB and submitted the same to the Planning Commission through the Ministry of Water Resources for approval of the Government. A Pre-Evaluation meeting was held on 18th. September 2006 in the Planning Commission presided by Division chief of Agriculture, Water Resources and Rural Infrastructure Division for review the said DPP. In the meeting, decision was taken to constitute a high level Technical Committee for review and evaluation of the proposed riverbank protection work incorporated in the DDP. Accordingly, BWDB constituted a Technical Committee vide its Memo No. 71-WDB/(Sectt.)/Pori-1/Misc-32002 dated 03-10-2006 (Annex-1).

After study, site visit and discussion the Technical Committe made their recommendation as follows:

1. Bank revetment works for a length of 2.50 km should be implemented immediately from km. 60.80 towards downstream, keeping the khals open connecting the existing regulators at Chaslerbeel and Magurar beel.
2. Bank revetment for a length of 1.50 km. at Chilmari in phase-2 and 1.00km bank revetment at Chilmari and 1.0 km bank revetment at Anatapur in phase-3 may be implemented.
3. Delayed implementation may require review of design length and location. Depending on river morphology.
4. In project formulation there should be provision for annual maintenance.

Afterward, according to decesion of PEC meeting on 19.10.2006 a Final DPP was prepared for first phase work at Chilmari-Bairagirhat named " PROTECTION OF BRAHMAPUTRA RIVER RIGHT BANK AT BAIRAGIRHAT AND CHILMARI BANDAR IN UPAZILLA CHILMARI UNDER KURIGRAM DISTRICT (PHASE-1). "

The proposed DPP was approved in ECNEC in 31/12/2007. The project got administrative approval in 24.01.2008.

Project Approval: Afterward, according to decesion of PEC meeting on 19.10.2006 a Final DPP was prepared for first phase work at Chilmari-Bairagirhat named " PROTECTION OF BRAHMAPUTRA RIVER RIGHT BANK AT BAIRAGIRHAT AND CHILMARI BANDAR IN UPAZILLA CHILMARI UNDER KURIGRAM DISTRICT (PHASE-1). "

According to the proposed DPP, 2.500 km long river bank protective work was considered along the right bank of Brahmaputra at Chilmari – Bairagirhat of worth tk 9368.00 Lakh with its schedule implemetation period 2007-08 to 2008-09.

The proposed DPP was approved in ECNEC in 31/12/2007. The project got administrative approval in 24.01.2008.

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, the benificiaries of the project have a clear knowledge about the protective work implemented under this project andit's objectives.

4.2 Programme for use of created-facilities of the project Not Applicable

4.3 O & M programme of the project:

According to contract documents of packages the defect liability period will be end after one year of completion of individual packages. As the project has gone into implemetation in 2007-08 and 17 packages out of previous 18 and other 8 packages (of 2008-09 years program) had been finished by june/2009, hence, O&M program for completed works in 2008-09 should be started from 2010-11. O&M of other packages will be started after completion of defect liability period.

4.4 Impact of the project -

4.4.1 Direct:

River bank erosion of Brahmaputra river along right bank at Chilmari upazilla (Putimari-kajoldanga & Rajarvita) has totally been controlled. Due to this phenomenon, sustainable socio-economic development has been achieved by cultivation of different type of crops, fisheries development and also protection of homestead, hat, bazars, roads and most importantly it will safe remaining portion of Chilmari- Ramna area from engulfing into the Brahmaputra river and also increased employment opportunities.

4.4.2 Indirect:

The total revetment area will protect bank erosion. It will safe rootless people from further retreat of their life and belonging from river erosion. It also retrieves biological balance in this locality.

4.5 Transfer of Technology and Institutional Building through the project :

Not Applicable

4.6 Employment generation through the project.

Incrase employment generation by saving the land, hat, bazaar etc from river bank erosion.

4.7 **Possibility of Self employment**

Self employment has been ensured by saving own land.

4.8 **Possibility of women-employment opportunity-**Yes

4.9 **Women's participation in development-** Yes

4.10 **Probable Impact on Socio-Economic activity.**

Socio-Economic development has been increased.

4.11 **Impact on environment**

Implementation of the project has created positive impact on the environment.

4.12 **Sustainability of the project**

The project was implemented according to the approved design-by-design circle-6, BWDB, Dhaka and quality and implementation were monitored by the competent project official, representatives of Hon'le local MP. Deputy Commisioner, Kurigram District and concern local UP chairman. It is required close monitoring of the revetment work round the year including bathymetric survey to observe the change of the river morphology of that area. Sufficient budget allocation will be required asper recommendation in the feasibility study report for the execution of proper O&M of the revetment work timely for sustainibility of the project.

4.13 **Contribution to poverty alleviation/reduction**

The project has positive impact on poverty alleviation/reduction.

4.14 **Opinion of the public representatives, local elite, local administration, teachers, religious leaders, women's representatives etc.** - Opinions are positive.

4.15 **Contribution of Micro-credit programmes and Comments on overlapping with any NGO activities.** - Not Applicable.

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

5.1 **Project Management** : Help to resolve problems.
5.2 **Project Director** : Help to resolve problems
5.3 **Land Acquisition** : Not Applicable
5.4 **Procurement**
5.5 **Consultancy** : Not Applicable
5.6 **Contractor** : Help to resolve problems.
5.7 **Manpower** : problems not arise
5.8 **Law & Order** : law & Order situation did not arise.
5.11 **Design formulation/approval** : problems not arise
5.12 **Project aid disbursement and re-imbursment** : Not Applicable
5.13 **Mission of the development partners** : Not Applicable
5.14 **Time & Cost Over-run** : Only time over run 50%
5.15 **Project Supervision/Inspection** : problems not arise

5.9 **Natural clamity:** The project area is situated along the bank of the mighty Brahmaputra and the area is comparatively low than the average flood level. For this reason maximum time of flood season the project area got submerged under flood water which hamper the construction and execution of the project. The unpredicted change in the river morphology during flood period and receding flood period create scourholes near the appron of the revetment. Formation and propagation of deep scour holes were monitored by bathemetric survey and other different means of survey and proper action was taken by the prompt guidence and approval from the Project Director and concerned design office.

5.10 **Project financing, allocation and release:** As the project was approved after 6 (six) months of its 1st fiscal year (2007-08), financial progress in that year was less than ADP allocation. But in 2nd fiscal year (2008-09), only 1700.00 lakh Tk in ADP & finally 3600.00 lakh Tk in the RADP was allocated in lieu of Tk. 5700.00 lakh against a massive work progress of the project. In the year of completion of project (2009-10) ADP allocation was only Tk. 2500.00 lakh though it became 5100.00 in RADP. So insufficient ADP allocation and delay in fund release made the target difficult to achieve.

5.16 **Delay in Decision:** problems not arise.

5.17 **Transport:** The construction area on the bank of the river is not connected with any types of metal road. So the transportation of construction materials & equipments to the site and monitoring and inspection of implementation was troublesome. Contractors managed private land to use as the way to reach the site.

5.18 **Training-** Not Applicable
5.19 **Approval-** problems not arise
5.20 **Others.-** problems not arise

6 Remarks & Recommendations of the Project Director :

The project was proposed to protect bank erosion along the right bank of the Brahmaputra River at Bairagirhat and Chilmari Bander area in Kurigram district to save valuable immovable properities (both public and private) including BWDB's existing infrastructures dispersed in the visinity of erosion affected area valued total Tk. 233500.00 lakh. After feasibility study and also recommendation from a high level technical committee, bank revetment work of the project was devided into three phases were selected to protect erosion in that area. Among theses three phases, the first phase was considered in the most vulnerable portion of the project. In the original approved DPP of 1st phase, 2.7883 km Bank revetment work with End Termination (protection length was 2.50 km from km 60.800 to km 63.300) was included at Thanarhat area of chilmari Upazilla.

During 1st year of project implementation, the river eroded at different places within the above mentioned chainage and the river bank erosion shifted to the downstream because of change of river course. Besides this, as the contract prices of the package work were less than estimate, DPP was re-casted without cost over run (50% time over run) including additional 340m revetment work along the vulnerale downstream. That's why downstream End Termination was changed to End Protection for the adjustment with the future extension of protective work.

The impact of the project was easily observed even in the execution period. Mobilization of people in connection with agriculture, plantation, new building & homesteads construction, fish culture was significantly increased. After completion of the project 3.206 km bank line along the right bank of the Brahmaputra River at Chilmari Upazilla in Kurigram District has heen successfully protected from river erosion. By implementing of the project, existing Madrasa, Primary school, bazar, public & private buildings, BWDB's F.C embankment, hundreds of homesteds have also been safeguarded from engulfing of the river. Also valuable immovable properities (both public and private) including BWDB's existing infrastructures (Embankments & regulator), huge land, including agricultural land, low laying land area have been saved from the erosion of Brahmaputra river which ensured the sustainability of agricultural development that created employment oppurtunity. Besides this during the construction period of the project a huge number of landless and poor people got engaged which improved socio-economic condition.

In these regards, undersigned is recommended to declare successfully completion of the project.

Ashafuddula
03/02/20

(Rezaul Mustafa Ashafuddula)
Executive Engineer
Kurigram O & M Division
BWDB, Kurigram.

(KAZI ABU BAKER SIDDIQUE)
Superintending Engineer
Rangpur O & M Circle-1
BWDB, Rangpur.
20/02/20

Date : .....

Signature and seal of the Project Director/ Manager

7. Remarks/Comments of Agency Head

Date : .....

Signature and Seal

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

Signature and Seal

Date :