

Meghna Barrage and Ancillary WorksRef: **MR 004****Basic Data**NWMP Sub-sector **Main River Development**Region(s) **NE, NC, SE and RE
Regions****Relevance to NWPo**

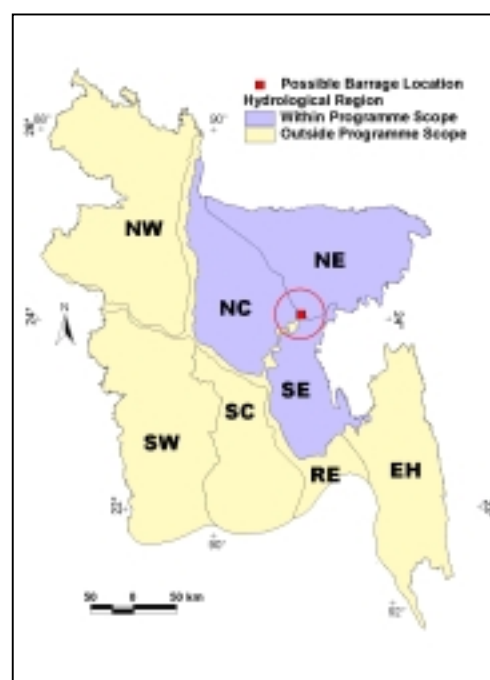
NWPo Articles 4.2(j) and (k) provide for development of the main rivers for multi-purpose use and Article 4.7 requires the promotion of conjunctive use of groundwater and surface water and encourages the continued expansion of minor irrigation. Articles 4.9 and 4.12 stress the need for water for fisheries and wildlife and for adequate upland flow in water channels to limit salinity intrusion and preserve estuary ecosystems.

Purpose of Programme

Development of surface water resources in NE and SE Regions may be considered as an important element of future plans, particularly given the limited groundwater irrigation potential and the prevalence of arsenic in the shallow groundwater of both regions and the water availability deficits identified in SE region. One of the studies to be taken up under Programme MR 001 will look into the potential for an integrated development of the Meghna River for the purposes of improved water management of these two regions.

The IECO Master Plan (1964) identified development of a barrage on the Meghna as a possible project. However, no detailed studies have since been taken up. A Meghna Barrage could be located near the existing Bhairab railway bridge (the Bhairab road bridge is now being built there), where the river has been relatively stable for many years. It could conserve water in NE Region and improve navigation. Groundwater exploitation is constrained in much of the region, and surface water is the main resource. A barrage pond level of around 3–4m would control drainage out of the beels, promote fisheries and bring navigation benefits that could extend back to the Indian border at the Surma – Kushiya divide. Particularly if augmented from the Brahmaputra or upstream on the Meghna, it could provide fresh water to the heavily arsenic-contaminated SE Region, supply irrigation water to the saline zone and newly reclaimed coastal areas. The impact of increased water levels and higher wave heights on the haors would need to be carefully checked however.

The purpose of this programme is to provide for a feasibility study and for investment in river control works as part of an integrated development programme for the NE and SE regions, assumed to be based on construction of a barrage at Bhairab on the Meghna river.



Programme Outline

Provision is made under this programme for feasibility and detailed planning studies, leading to contract documentation, of the integrated development programme of the NE and SE regions on the basis of a development strategy established under Programme MR 001. Cost provisions are also made for construction of a barrage, headworks and ancillary works on the Meghna river. The studies are expected to take 4 years and construction of the works 5 years.

Other elements of the overall development programme for these two regions would be taken up under MR 006: Regional River Management Improvement (which includes works on the coastal polders), MR 008: NE and SE Regional Surface Water Distribution Networks, AW 005: Improved Water Management at Local Government level, AW 006: Improved Water Management at Community level and ID 001 and ID 004 dealing with Local government and BWDB management.

Financing Arrangements

Financing would be by GoB, possibly with donor assistance. Cost recovery would probably be negligible, because of the practical difficulty of clearly identifying the beneficiaries in this type of large-scale intervention in which water is distributed to large numbers of people through khals and other existing natural channels.

Objectives and Indicators

Objective	Suffix	Indicators/Mean of Verification	Due
• Meghna barrage and offtake in place	I1	• Physical progress of capital works	2020
• Increased dry season water availability in the NE and SE regions	K	• Dry season discharges	2020
• Bangladesh's main and regional rivers comprehensively developed for sustainable multi-purpose use	D	• Returns per unit of water • River maintenance costs • Quality and Quantity of in-stream flows	2025

Institutional Arrangements

BWDB would be responsible for the barrage programme as well as major water distribution downstream. NGOs would assist in the limited land acquisition and resettlement required.

Existing Documentation

The only documentation found on the barrage is the IECO Master Plan and NWMP DSR 6.8. FAP5 and FAP6 Regional Studies provide information on the two regions as separate entities. The Kalni-Kushyara Project has investigated drainage improvements in the NE region. The NWRD (National Water Resources Database) has much useful information.

Linkages

As stated above, this programme follows on from the studies to be made under Programme MR 001. Other aspects of this development are covered by MR 006: Regional River Management Improvement (which includes works on the coastal polders), MR 008: NE and SE Regional Surface Water Distribution Networks, AW 005: Improved Water Management at Local Government level, AW 006: Improved Water Management at Community level and ID 001 and ID 004 dealing with Local government and BWDB management.

Risks and Assumptions

The programme assumes that a fully viable integrated development solution will be developed out of the MR 001 studies. Construction of barrages is well understood and the main risk lies in avoiding the siltation problems. Extensive modelling tests and proper operational practices should minimise this risk. In contrast to a dam, a barrage will displace few people, but there will be some environmental concerns, notably relating to both positive and negative impacts of backwater effects on the haor basin. These will have to be looked into carefully during the study phase. Since there will be no cost recovery, the sustainability of the structure will be dependent upon long-term commitment to maintenance funding from central Government.

Meghna Barrage and Ancillary Works

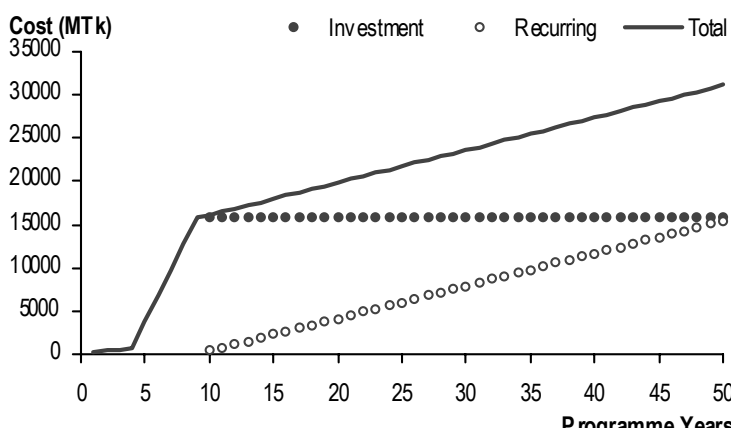
Ref :

MR 004

Cluster :	Main Rivers	Region(s) :	NE, NC, SE	
Focus/Foci :	Major River Barrages	Location :	RE region	
Start Year ¹ :	2012	Duration ² :	9 year(s)	Agency(s) : BWDB (Lead)
		Responsible :	None	(Supporting)
Short Description :	This programme provides for a feasibility study and for investment in river control works as part of an integrated development programme for the NE and SE regions, assumed to be based on construction of a barrage at Bhairab on the Meghna river. The programme is conditional upon the development strategy for these regions to be established under Programme MR 001. Cost provisions are also made for construction of a barrage, headworks and ancillary works on the Meghna river. Other aspects of the overall development are covered in other programmes under MR, AW, EA and ID.			

MIS Links	Cost Calculation :	MR Programme costing.xls	Map :	MR 004 Map.jpg
	Disb't Schedule :	MR Programme costing.xls	Description :	MR 004 PgP.doc

Finance									
	Costs	Private	Funding (%) GoB	Beneficiaries	Expected by ProgrammeYear				
	Total Capital ³	15,728.00 MTk	0%	100%	0%	9			
	Ultimate Recurring	375.90 MTk/yr	n/a	100%	0%	10			
	Date of Data :	31 07 01	Stacked Cumulative Cash Flow Chart						
	(dd)	(mm)	(yy)	Cost (MTk)			● Investment	○ Recurring	— Total
Status :	Identified								
Financial Base Year:	mid-2000								
Planned Expenditure (to date) :	0 MTk								
Actual Expenditure ⁴ (to date) :	0 MTk								



Programme Years	Investment (MTk)	Recurring (MTk)	Total (MTk)
0	0	0	0
5	15000	0	15000
10	15000	0	15000
15	15000	2500	17500
20	15000	5000	20000
25	15000	7500	22500
30	15000	10000	25000
35	15000	12500	27500
40	15000	15000	30000
45	15000	17500	32500
50	15000	20000	35000

Monitoring

Objective	Indicator	Present Status ⁵
• Meghna barrage and offtake in place	• Physical progress of capital works	NYD
• Increased dry season water availability in the NE and SE regions	• Dry season discharges	NYD

Notes : 1. Indicative 2. Until commissioning 3. Inclusive of planning, design supervision 4. For future monitoring purposes and NWMP updates
5. Present Status keys: NYD- Not yet due, IP- In progress, D- Done

National Water Management Plan

Programme Costing Sheet

Programme Ref	MR 004
Title	Meghna Barrage and Ancillary Works

Assumptions:

Taka/US\$	51.000	TA duration	4.0	years	All prices in mid-2000 values
		Investment duration	5.0	years	

Item	Unit	Quantity	Rate		Amount TkM	O&M %	O&M/yr TkM
			US\$	Tk'000			
Technical Assistance							
Feasibility and planning studies at 5.0% of investment costs							
Expatriate consultants (all-in rate)	p-m	-	20,000		-		
Senior National consultants (all-in rate)	p-m	-		150	-	0.0%	-
Mid-level National consultants (all-in rate)	p-m	-		90	-	0.0%	-
Sub-totals					-		-
Other general TA programme costs		25%			-		-
Specific other TA programme costs		5.0%			750.0	0.0%	-
Total TA Costs					750.0		-
Other Programme Costs							
1. Barrage& training works					13,862.0	2.5%	346.6
2. Headworks Structure					827.0	2.5%	20.7
3. Ancillary works					289.0	3.0%	8.7
4.					-	0.0%	-
5.					-	0.0%	-
6.					-	0.0%	-
7.					-	0.0%	-
8.					-	0.0%	-
9.					-	0.0%	-
10.					-	0.0%	-
Total Other Programme Costs					14,978.0		375.9
Overall Programme Costs							
					15,728.0		375.9

Notes These are provisional amounts. The actual required investments to be determined under studies in Programme MR 001

	Ganges	Meghna		Comparison of sites				
	TkM	TkM	Ratio			Ganges	Meghna	Ratio
Barrage& training works	39,275	13,862	35%	Length	m	1,870	1,000	53%
Headworks Structure	6,683	827	12%	Diversion	m3/s	800	150	19%
Ancillary works	903	289	32%	Difficulty	%	100%	66%	66%
	46,861	14,978						