

North East and South East Regional Surface Water Distribution Networks

Ref: MR 008

Basic Data

NWMP Sub-sector **Main River Development**

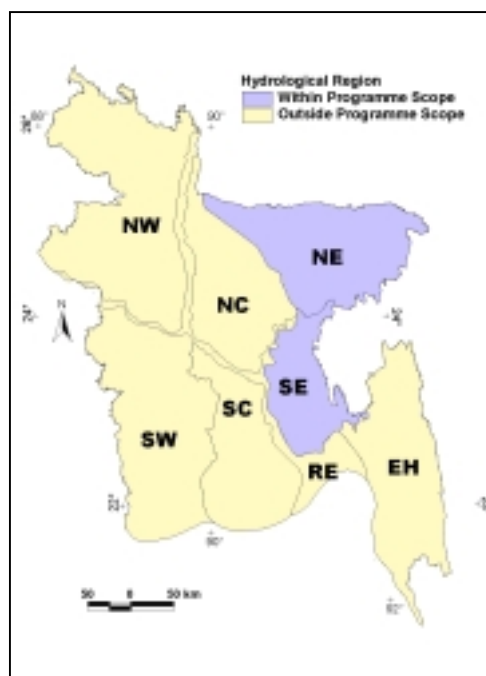
Region(s) **NE and SE Regions**

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. This will be looked into under a trans-regional study of the Northeast and Southeast Regions under Programme MR 001



The purpose of this Programme would be to distribute water from a Meghna barrage, if this is selected as a preferred option under Programme MR 001 above. The feasibility of the barrage would be studied further in Programme MR 004, which also makes provision for the investment costs of a barrage and diversion works. This feasibility study would also confirm the scope of the distribution network required under this programme MR 008.

The barrage may be built near the existing Bhairab railway bridge (the Bhairab road bridge is now being built there). It would conserve water in NE Region and improve navigation. Groundwater exploitation is constrained by thick clay layers and well drilling difficulties in much of the region, and surface water is the main resource. A Meghna barrage could also provide arsenic-free water to the SE Region, either via an aqueduct for water supply to this heavily arsenic-contaminated zone or via a large canal for irrigation of the saline zone and newly reclaimed coastal areas. The impact of increased water levels and higher wave heights on the haors in NE Region would need to be checked.

Programme Outline

There are no existing studies of a distribution system from a Meghna barrage. Provision has been made for the capital investment in both regional and local river system development, taking account of the works identified for the GDA (see Programme MR 007).

Financing Arrangements

Financing of all the above works would be by GoB, and could be suitable for donor support. Cost recovery for the regional systems is not thought to be practicable in view of the multi-purpose use of the water provided over such a large and diverse area. Funding of local networks maintenance would be considered under programmes EE 013 and AW 005.

Objectives and Indicators

Objective	Suffix	Indicators/Mean of Verification	Due
• Regional river link channels	I1	• Physical progress of capital works	2020
• Local link channels	I2	• Physical progress of capital works	2020
• Increased dry season water availability in the Northeast and Southeast 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 regional river systems and Local Government for the local systems. Community groups and individual pump operators would be involved in the final delivery of water. NGOs would assist in the limited land acquisition and resettlement required.

Existing Documentation

NWMP DSR §6.8, the NWRD (National Water Resources Database) and NMIDP and SSWRDSP reports with regard to local water distribution.

Linkages

The Programme is directly linked with MR 004: Meghna Barrage and Ancillary Works, and would go ahead only if a Meghna barrage were constructed. There is linkage with MR 006: Regional River Management and Improvement, AW 006, which involves khal re-excavation, and AW 005. The experience gained with the implementation of MR 007: Regional Surface Water Distribution Networks in the Ganges Dependent Area, would be directly relevant. Programme ID 010: BWDB Capacity Building, will enhance the Board's ability to plan and implement large-scale development such as this.

Risks and Assumptions

The programme assumes that a fully viable integrated development solution will be developed out of the MR 001 studies and confirmed in MR 004 Feasibility Study. The main environmental risk is the interruption to fish migration that the regulating structures may cause. Whilst in some cases migration has already been interrupted by the diminution of dry season flows, this will nevertheless be a key issue to address properly in the design of the systems. Effective utilisation of water provided for consumptive use will depend upon both there being a demand for the water provided and that individuals and communities co-operate in rehabilitating and maintaining field channels and small khals. Whilst there is evidence to support that there will be demand, albeit with a modest growth rate, achieving sustainable maintenance has so far been illusive. Programme AW 006 is directed at resolving this.

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Cluster :	Main Rivers	Region(s) :	NE, SE
Focus/Foci :	Surface Distribution Networks	Location :	NE & SE regions
Start Year ¹ :	2016	Duration ² :	5 year(s)
		Agency(s) Responsible :	BWDB (Lead) LGED (Supporting)
Short Description :	Provision is made in this programme for the capital investment in both regional and local river system development, based on augmentation of the surface water from a barrage on the Meghna, if this is selected as a preferred option under Programme MR 001. The feasibility of the barrage would be studied further in Programme MR 004, which would also determine the scope of the distribution network required.		

MIS Links	Cost Calculation :	MR Programme costing.xls	Map :	MR 008 Map.jpg
	Disb't Schedule :	MR Programme costing.xls	Description :	MR 008 PgP.doc

Finance					
	Costs	Private	Funding (%) GoB	Beneficiaries	Expected by ProgrammeYear
Total Capital ³	2,576.00 MTk	0%	98%	2%	5
Ultimate Recurring	77.30 MTk/yr	n/a	75%	25%	6
Date of Data :	31 07 01 (dd) (mm) (yy)	Stacked Cumulative Cash Flow Chart			
Status :	Identified				
Financial Base Year:	mid-2000				
Planned Expenditure (to date) :	0 MTk				
Actual Expenditure ⁴ (to date) :	0 MTk				

Monitoring

Objective	Indicator	Present Status ⁵
• Regional river link channels	• Physical progress of capital works	NYD
• Local link channels	• Physical progress of capital works	NYD
• Increased dry season water availability in the Northeast and Southeast 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 008
Title	North East and South East Regional Surface Water Distribution Networks

Assumptions:

Taka/US\$	51.000	TA duration	0.0	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							
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					-	0.0%	-
Total TA Costs					-		-
Other Programme Costs							
1. Provision for distribution systems					2,576.0	3.0%	77.3
2.					-	0.0%	-
3.					-	0.0%	-
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					2,576.0		77.3
Overall Programme Costs							
					2,576.0		77.3

Regional Surface Water Distribution System Costs *excluding cost of barrage, headworks and field networks*

	NCA km2	SW Irrig km2	Investment Costs (TkM)			Cost/ha Tk/ha	Less AW 005 costs	Net Invest TkM
			Regional	Local	Total			
GDA (AW 007)	14,087	7,349	7,696	2,590	10,286	13,996	(1,375)	8,911
NE & SE	n/a	2,004	2,099	706	2,805	13,995	(229)	2,576

Pro rata Meghna diversion to Ganges diversion (see AW 004) less 250m3/s for salinity control in GDA

Note 520,000 ha developed under AW 005 nationally
 Assume 13% of this is within NE/SE, remainder to be covered under this programme

Northeast Region 35.0%

Southeast Region 65.0%

Ref OGDAs Studies, Draft Final Report, July 2001