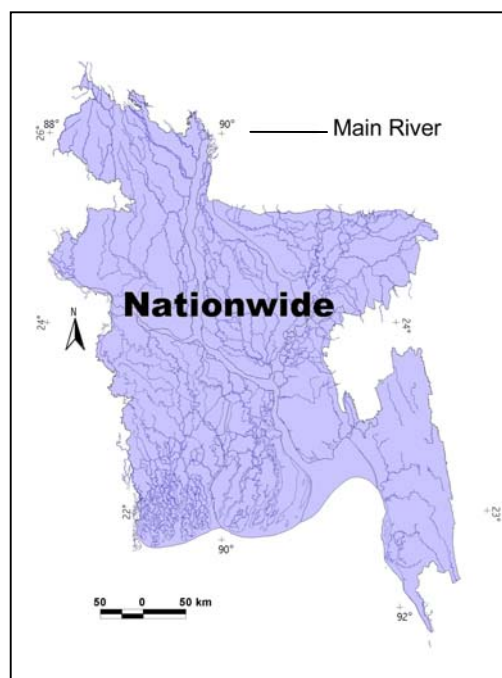


Regional River Management and ImprovementRef: **MR 006****Basic Data**NWMP Sub-sector **Main River Development**Region(s) **National coverage****Relevance to NWPo**

NWPo Article 4.2 stresses the need for sound management of the nation's river systems and Articles 4.2(k) and (l) respectively call for development of the water resources of the major rivers for multi-purpose use and the desilting of watercourses to maintain navigation channels and proper drainage. 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**

One of the main thrusts of Government's policy is development and management of the river systems to bring multi-purpose benefits. This is to be accomplished within a framework of decentralised and devolved management responsive to end-user needs. The strategy for this recognises three levels of system management as follows:

- BWDB retaining responsibility for main and regional rivers
- LGI's assuming responsibility for water resources management within their areas, and
- Communities assuming responsibility for field level systems and local channels.

This programme is targeted at the first level and provides the resources to plan, develop and maintain the regional river systems in an integrated manner, interfacing with Local Government in a manner that brings mutual benefit to their respective programmes.

The strategy further recognises the need for a holistic approach to river management that reflects the wide responsibilities already entrusted to BWDB. Thus a key aim of the programme is to ensure that river management plans are prepared and implemented in a comprehensive and cost-effective manner. Specific issues such as siltation, erosion, drainage, flooding, abstraction, pollution, obstruction and encroachment all need to be considered together, as solutions to one may affect solutions to another. Furthermore, absence of such plans in the past has led to an *ad hoc* approach to dealing with specific problems, which often may have been wasteful of resources.

This programme forms part of a comprehensive suite to improving the many facets of river management. In addition to the programmes for development of the main rivers, these include ID 004: BWDB Regional and Sub-Regional Management, ID 010: BWDB Capacity Building, EE 001 and EE 003 supporting new legislation, TR 007: Rural and Small Town Flood Protection, AW 007: Rationalisation of Existing Inland and Coastal FCD, EA 001: National Pollution Control Plan and EA 005: National Fishpass Programme. Other programmes of direct relevance are those connected with building up Local Government and Community level capacity for system management and those connected with revising and updating Guidelines.

Programme Outline

The programme provides for the necessary investment in regional river system management, and acknowledges that a fully replicable approach will take a number of years to establish. It is envisaged that preparation of river management plans will involve:

- (i) A physical inventory of the whole river and the existing infrastructure and other developments along it;
- (ii) An assessment of the present condition of the river, existing and future trends. This will include physical parameters (river training and erosion, siltation, dry season and monsoon season discharges, pollution loads etc), environmental requirements (bio-diversity, fisheries, water quality standards etc) and socio-economic parameters (such as navigation requirements, future urban expansion, industrial growth, abstraction requirements and the risks of possible pollution and encroachment along the rivers);
- (iii) Extensive consultation with river users and Local Government entities to establish priorities and related development needs and plans;
- (iv) An appreciation of the main hydraulic, environmental and other water-related problems and challenges that will need to be addressed along the river in the future.
- (v) Preparation of a management plan for the river, in sufficient detail to enable specific interventions to be subsequently planned and implemented in an integrated manner, which would be periodically updated.

Initially sample plans will be prepared in each region as part of the learning and capacity building process. Thereafter, planning and management will continue as a long term process.

NWPo encourages use of private sector service providers, and accordingly provision is made for TA support throughout the programme. Allowance is also made for investments in dredging for both navigation and drainage purposes, erosion control measures and other miscellaneous works. All interventions will be subject to conditions laid down in the Government's Guidelines and will have to conform in particular to the requirements of Guidelines for Project Assessment, for Environmental Impact Assessment and Social Impact Assessment.

Financing Arrangements

Financing would be by GoB, possibly with donor support. Cost recovery for river improvement works such as dredging and excavation is likely to be minimal, because of the difficulty of precisely identifying the beneficiaries of this type of "public good" intervention. However, where navigation is concerned BIWTA are already offsetting some of the costs through fees paid by boat operators. Flood control and erosion measures for towns should be progressively become financed through the concerned municipalities, although implementation of such works may be by BWDB, depending on the nature and size of works involved. The onus for paying for pollution control works lies with the polluter, and this issue will be addressed under Programmes EA 001, EA 002 and EE 012.

Objectives and Indicators

Objective	Suffix	Indicators/Mean of Verification	Due
<ul style="list-style-type: none"> Integrated river management plans 	I1	<ul style="list-style-type: none"> Plan documents approved 	2006
<ul style="list-style-type: none"> Sustainable river development and management works 	K	<ul style="list-style-type: none"> Physical progress Effective operation and maintenance Independent surveys of end users 	2011
<ul style="list-style-type: none"> Bangladesh's main and regional rivers comprehensively developed for sustainable multi-purpose use 	D	<ul style="list-style-type: none"> Returns per unit of water River maintenance costs Quality and Quantity of in-stream flows 	2026

Institutional Arrangements

BWDB would be the executing agency, but would be required to fully collaborate with BIWTA, Municipalities, Zila Parishads and their supporting agencies such as LGED. An early feature of the programme will be to delineate BWDB's limits of responsibility and the interface with Local Government. It is assumed that broad guidelines for this would be worked out between BWDB and LG during the piloting stage, but that precise definition will be done on a river by river basis. Similarly, BWDB will need to reach an understanding with BIWTA over the funding and implementation of dredging works.

Existing Documentation

There is substantial technical information on the regional river systems available on the National Water Resources Database. Regional river hydrodynamic models, prepared by SWMC, are held by WARPO. BIWTA and BWDB both hold large amounts of information on river surveys and water level and discharge monitoring. Data on water quality are generally sparse, but some are held by BWDB and DoE. There are also a plethora of individual project reports and regional studies held by BWDB and WARPO. There is however little or no comprehensive documentation of river management plans or management processes, a gap which this programme is intended to fill.

Linkages

As stated, there are many linkages between this and other programmes. The main ones are: Virtually all other programmes in the MR cluster; ID 004: BWDB Regional and Sub-Regional Management; ID 010: BWDB Capacity Building; EE 001 and EE 003 supporting new legislation; TR 007: Rural and Small Town Flood Protection; AW 005, AW 006 and AW 007 dealing with local system management and rationalisation of existing FCD infrastructure; EA 001: National Pollution Control Plan and EA 005: National Fishpass Programme. Other programmes of direct relevance are those connected with building up Local Government and Community level capacity for system management and those connected with revising and updating Guidelines.

Risks and Assumptions

This Programme sets a new course in the approach to planning and managing river systems, and in doing so places a considerable burden of responsibility on BWDB. This responsibility manifests itself in requirements both to broaden BWDB's technical skill base and to collaborate with all stakeholders. The assumption is that with the support of the other capacity building programmes, over time BWDB will be able to re-orient its largely project-based way of working to a systems-based approach. Particular risks lie in persistent ad hoc demands distracting BWDB from the overall goal of comprehensive river plans and adequate financing of O&M. Both will be mitigated with political support.

Regional River Management and Improvement

Ref :

MR 006

Cluster :	Main Rivers	Region(s) :	All
Focus/Foci :	In-stream Interests	Location :	Nationwide, in regional phases.
Start Year ¹ :	2002	Duration ² :	25 year(s)
		Agency(s) Responsible :	BWDB (Lead) LGIs (Supporting)
Short Description :	The aim of the programme is to ensure that river management plans are prepared and implemented in a comprehensive and cost-effective manner. It represents the upper tier of three levels of river system management, the other two being the responsibilities of Local Government and community groups. It provides the resources to plan, develop and maintain the regional river systems in an integrated manner, interfacing with these other institutions and responsive to stakeholder needs. The programme acknowledges that a fully replicable approach will take a number of years to establish and incorporates both technical support and investment capital on a long-term basis. It has many linkages with other programmes.		

MIS Links	Cost Calculation :	MR Programme costing.xls	Map :	MR 006 Map.jpg
	Disb't Schedule :	MR Programme costing.xls	Description :	MR 006 PgP.doc

Finance	Costs	Private	Funding (%) GoB	Beneficiaries	Expected by ProgrammeYear
Total Capital ³	16,200.00 MTk	0%	100%	0%	25
Ultimate Recurring	1,256.60 MTk/yr	n/a	75%	25%	26
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 Status⁵
• Integrated river management plans	• Plan documents approved	NYD
• Sustainable river development and management works	• Physical progress • Effective operation and maintenance • Independent surveys of end users	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 006
Title	Regional River Management and Improvement

Assumptions:

Taka/US\$	51.000	TA duration	0.0	years	All prices in mid-2000 values
		Investment duration	25.0	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. Dredging requirements for navigation							
o Preliminary dredging					83.0	0.0%	-
o Capital dredging					975.0	8.5%	83.3
2. Dredging requirements for improved drainage (GDA)					4,900.0	9.0%	443.2
3. Dredging requirements for improved drainage (other areas)					6,280.0	9.0%	568.0
4. River Training and Erosion control measures					934.0	5.0%	46.7
5. Miscellaneous other river management measures (Dharla, Dudhkumar, Manu, Khowai, Gumuti, Matamuhury etc)					2,307.0	5.0%	115.4
6. Technical assistance support for design and supervision of works 2-5 above					721.0	0.0%	-
7.					-	0.0%	-
8.					-	0.0%	-
Total Other Programme Costs					16,200.0		1,256.6
Overall Programme Costs					16,200.0		1,256.6

Notes

- Dredging requirements for navigation*
Balance of prelim dredging requirements of Prog MR 011 over 2 yrs 41.7% of total Tk83M
Balance of capital dredging requirements of Prog MR 011 over 7 yrs 41.7% of total Tk975M
Balance of maintenance dredging requirements of Prog MR 011 41.7% of total Tk83M
- Dredging requirements for improved drainage (GDA)*
As per OGD final Report, allow for improvements to river systems within polders of GDA, Tk4,900M
- Dredging requirements for improved drainage (other areas)*
Total estimate of BWDB (ref DSR MR 10.13.2) Tk41,740M Allow 20% of this as viable and adjust for GDA
as above, net remaining in other regions equivalent to Tk6,280M
- River Training and Erosion control measures*
Allow for 3.0% of rivers to be protected, equiv. 1,251km at average rate Tk 0.746 M/km incl. 25% contingencies 0.597 TkM/km
- Miscellaneous other river management measures*
(Dharla, Dudhkumar, Manu, Khowai, Gumuti, Matamuhury etc)
Allow 18% of total investments
- Technical assistance support for design and supervision of works 2-5 above*
Allow 5% of total investments