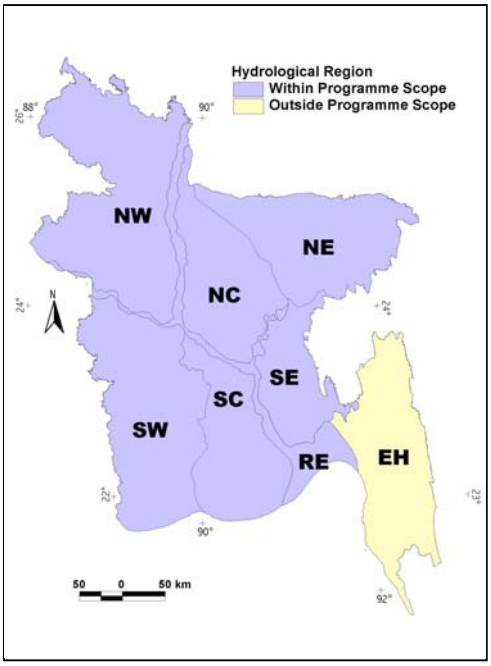
Main Rivers Abstraction Projects Ref: MR 002

Basic Data

NWMP Sub-sector **Main River Development**

Region(s) **National coverage, except for Eastern Hills Region**



Relevance to NWPo

This Programme is covered by NWPo Articles 4.2(j) and (k), whereby GoB will undertake comprehensive development and management of the main rivers for multi-purpose use.

Purpose of Programme

The purpose of the Programme is to augment dry season surface water availability for multi-purpose use through abstraction from the main rivers by means other than barrages (barrages are covered in Programmes MR 003 to MR 005). The programme provides for the follow-on investments from the studies conducted under Programme MR 001, relating to activities on and adjacent to the main rivers themselves.

It is distinct from pumped and other abstraction for Programme AW 003: New Public Surface Water Irrigation Schemes, MR 011: River Dredging for Navigation and MR 006: Regional River Management and Improvement.

The options available are pumping, from fixed stations or floating pumps, and dredging of channels to encourage the natural bifurcation of river flows. River training works may be required as a complementary measure for the latter. Abstracted water would flow into the existing natural river network for use downstream. In some cases measures should be taken to improve the natural distribution system and these are covered in Programmes MR 006 to 009.

Programme Outline

There are four major pump stations on the Ganges and Meghna, but these are all serving adjacent irrigation schemes: Bheramara (GK Project), Pabna, Meghna – Dhonagodha and Chandpur. Only on the Gorai, which offtakes from the Ganges in SW Region, has dredging been undertaken for main river abstraction purposes.

The main opportunities identified so far as possibly being suitable for large-scale pumping abstraction are from the Chandpur Pump Station, in SE Region, and in the western part of the High Barind in NW Region. OGDA study analyses indicate that pumped abstraction for the latter generally would not be economically feasible. In the SE Region, water can be abstracted at Chandpur, lifted 6m and then distributed via the New Dakatia River and four other watercourses between there and the coast. Since shallow tubewell (STW) irrigation is not feasible to the south of this river, the benefits from surface water augmentation may be substantial, due to increased irrigation intensities. FAP5 (SE Regional Study, 1992–3) estimated that an area of 237,000ha could be irrigated from the Chandpur pump station, compared with 92,000ha now being served.

The principal offtakes from the main rivers that could be developed through dredging and associated training works are the Gorai in the SW region, the Old Brahmaputra and Dhaleswari in NC Region and the Arial Khan and Tetulia Channel in SC Region. The Dhaleswari was relocated during the construction of the Bangabandhu Bridge, and its stability is a matter of some concern. Various proposals have been made in the past to develop these channels but, due to cost and other considerations, they were never taken up. Development of the Gorai river is considered under Programme MR 003.

From analyses conducted under NWMPP, pumping from fixed pump stations located adjacent to rivers is likely to be more cost-effective for flows in excess of $10m^3/s$ than from barge-mounted floating pump stations. Nevertheless, erosion is a major risk to fixed pump stations along with migration of dry season flow channels to the opposite bank, which may be several kilometres away. Choice of pumping arrangements remains a site-specific consideration therefore. Opening up channels by dredging alone is likely to lead re-siltation and heavy O&M costs, unless the new channel configuration is in itself stable. Most probably, achieving this stability will require complementary river training works, as in the case of the Gorai. Economic returns to both types of augmentation are unlikely to be high, and any interventions of this nature will have to be considered very carefully.

Financing Arrangements

Capital and recurrent funding would be by GoB, with the possibility for donor support of the former. Opportunities for cost recovery would be minimal.

Objectives and Indicators

Objective	Suffix	Indicators/Means of Verification	Due
• Multi-purpose use of main river water	I1	• Pump stations and associated works completed • Offtakes successfully dredged • River training works work completed	2013
• Increased irrigated areas, environmental health, navigability and other conditions	K	• Number of low lift pumps in operation • Changes in dry season surface water flows and availability	2013
• 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

Implementation would be by BWDB, with other GoB agency and NGO involvement to promote effective use of the additional water made available.

Existing Documentation

DSR Section 6.7, the ESG Report 1984 and the NWRD (National Water Resources Database)

Linkages

Implementation requirements for this programme would emerge from studies undertaken under Programme MR 001. There are also linkages with Programmes MR 003 to 005 and MR 007 to 009, concerning barrage development, MR 006: Regional River Management and Improvement, MR 011: River Dredging for Navigation and AW 003: New Public Surface Water Irrigation Schemes.

Risks and Assumptions

As noted above, this Programme has considerable risks. The most serious concerns are main river erosion and siltation. With the high O&M requirements there is also a major danger of inadequate Revenue Budget funding and maintenance standards. However, it is assumed that improved levels of feasibility analysis along with a systems or process approach to project planning will identify the risks at an early stage allowing mitigation measures to be introduced into the scheme formulation.

Main Rivers Abstraction Projects

Ref : **MR 002**

Cluster :	**Main Rivers**	Region(s) :	**NW, NC, NE, SW, SC, SE, RE**
Focus/Foci :	**Abstraction from Major Rivers**	Location :	**RE region**
Start Year[1] :	**2004** Duration[2] : **10 year(s)**	Agency(s) Responsible :	**BWDB** **(Lead)** None (Supporting)

Short Description :

This Programme provides for investments in augmenting dry season surface water availability for multi-purpose use through abstraction from the main rivers by means other than barrages (barrages are covered in MR 003 to MR 005). The programme is conditional upon the outcome of the studies conducted under Programme MR 001. The principal options that this programme may take up are main river pump stations and dredging and associated works at distributary offtakes (works on the Gorai are considered under MR 003 however).

MIS Links

Cost Calculation :	MR Programme costing.xls	Map :	MR 002 Map.jpg
Disb't Schedule :	MR Programme costing.xls	Description :	MR 002 PgP.doc

Finance

	Costs		Funding (%) Private	GoB	Beneficiaries	Expected by Programme Year
Total Capital[3]	**4,480.00**	MTk	**0%**	**100%**	**0%**	**10**
Ultimate Recurring	**672.00**	MTk/yr	**n/a**	**100%**	**0%**	**11**

Date of Data : **31** (dd) **07** (mm) **01** (yy)

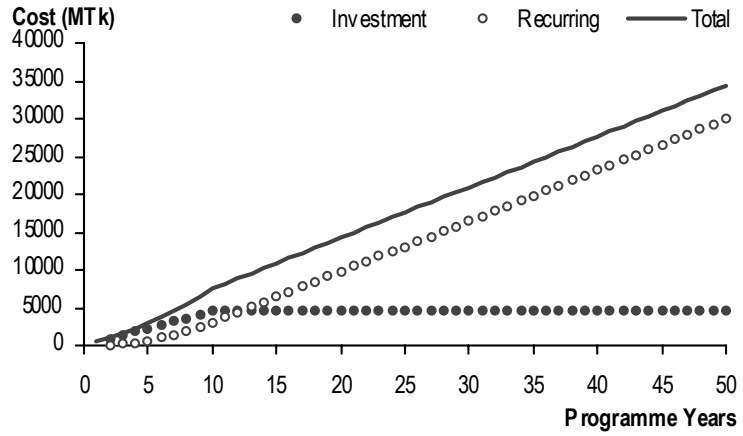
Status : **Identified**

Financial Base Year: **mid-2000**

Planned Expenditure (to date) : **0** MTk

Actual Expenditure[4] (to date) : **0** MTk

Stacked Cumulative Cash Flow Chart



Monitoring

Objective	Indicator	Present Status[5]
• Multi-purpose use of main river water	• Pump stations and associated completed • Offtakes successfully dredged • River training works work completed	NYD
• Increased irrigated areas, environmental health, navigability and other conditions	• Number of low lift pumps in operation • Changes in dry season surface water flows and availability	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 002**
Title	**Main Rivers Abstraction Projects**

Assumptions:

Taka/US$ 51.000 | TA duration 0.0 years | Investment duration 10.0 years | All prices in mid-2000 values

Item	Unit	Quantity	Rate US$	Rate Tk'000	Amount TkM	O&M %	O&M/yr TkM
Technical Assistance							
Expatriate consultants (all-in rate)	p-m	-	20,000		-		
Senior National consultants (all-in rate)	p-m	-		150	-		
Mid-level National consultants (all-in rate)	p-m	-		90	-		
Sub-totals					-		
Other general TA programme costs		*25%*			-		
Specific other TA programme costs					-		
Total TA Costs					**-**		
Other Programme Costs *Provisional on outcome of Programme MR 001*							
1. Main river pump stations					3,300.0	*15.0%*	495.0
2. Dredging and river training works at distributary channel offtakes					1,180.0	*15.0%*	177.0
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					**4,480.0**		**672.0**
Overall Programme Costs					**4,480.0**		**672.0**

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

1 Main river Pump Stations:

Chandpur: Incremental area of	145,000	ha at	Tk	17,240	/ha, or Tk	2,500.0	M
GK Project: Incremental area of	95,235	ha at	Tk	8,400	/ha, or Tk	800.0	M

2 Dredging and training works

Brahmaputra offtakes capital dredg	5.00	Mm3 at	Tk	157.0	/m3, or Tk	785.0	M
Other offtakes elsewhere	2.52	Mm3 at	Tk	157.0	/m3, or Tk	395.0	M