



Government of the People's Republic of Bangladesh
Ministry of Water Resources

National Water Management Plan

Volume 4

Regional Plans

December 2001

WARPO
পানি সম্পদ পরিকল্পনা সংস্থা

Water Resources Planning Organization

Government of the People's Republic of Bangladesh

Ministry of Water Resources

National Water Management Plan

Volume 4
Regional Plans

December 2001

Approved by
National Water Resources Council on March 31, 2004

Water Resources Planning Organization

National Water Management Plan

Volumes

1 Summary

2 Main Report

Part A: The Context

Part B: The National Water Management Plan

Part C: Implementation Arrangements

3 Investment Portfolio

4 Regional Plans

5 Supporting Information

Annex A: The National Water Policy

Annex B: Development Strategy for the NWMP

Annex C: Environmental Assessment

Annex D: Supporting Information

Contents

1	Introduction	1
2	North West Region	NW-1
2.1	Regional Overview	NW-1
2.2	Programmes for the North West Region	NW-2
3	North Central Region	NC-1
3.1	Regional Overview	NC-1
3.2	Programme for North Central Region	NC-1
4	North East Region	NE-1
4.1	Regional Overview	NE-1
4.2	Programmes for North East Region	NE-2
5	South West Region	SW-1
5.1	Regional Overview	SW-1
5.2	Programmes for South West Region	SW-2
6	South Central Region	SC-1
6.1	Regional Overview	SC-1
6.2	Programmes for South Central Region	SC-1
7	South East Region	SE-1
7.1	Regional Overview	SE-1
7.2	Programmes for South East Region	SE-1
8	Rivers and Estuaries	RE-1
8.1	Regional Overview	RE-1
8.2	Programmes for the Rivers and Estuaries	RE-1
9	Eastern Hills Region	EH-1
9.1	Regional Overview	EH-1
9.2	Programmes for the Eastern Hills	EH-1
10	Programmes of National Significance	Nat-1

Figures

Figure 1.1: The Regions of Bangladesh

2

Tables

Table 2.1: Cost Estimates for the North West Regional Programmes	NW-3
Table 3.1: Cost Estimates for the North Central Regional Programmes	NC-2
Table 4.1: Cost Estimates for the North East Regional Programmes	NE-2
Table 5.1: Cost Estimates for the South West Regional Programmes	SW-3
Table 6.1: Cost Estimates for the South Central Regional Programmes	SC-2
Table 7.1: Cost Estimates for the South East Regional Programmes	SE-2
Table 8.1: Cost Estimates for the Rivers and Estuary Programmes	RE-2
Table 9.1: Cost Estimates for the Eastern Hills Programmes	EH-2
Table 10.1: Cost Estimates for the National Programmes	Nat-1

1 Introduction

The Terms of Reference for the NWMPP notes, in NWPo§2.11 that Bangladesh shows considerable regional variability in geomorphological, hydrologic, economic and environmental conditions, which may require tailoring a subset of water resources management goals and objectives to each region. To this end the consultants were required to compile Regional Water Management Programmes.

This Volume therefore presents subsets of the overall NWMP as they agglomerate at the regional level. There is one section for each of the regions, plus one covering the programmes that have national significance. Each section comprises a brief regional overview, a statement of how the NWMP responds to the regional challenges, cost estimated for the regional programmes, or regional portions of shared programmes and the relevant Programme Summary Sheets from the MIS Programmes database.

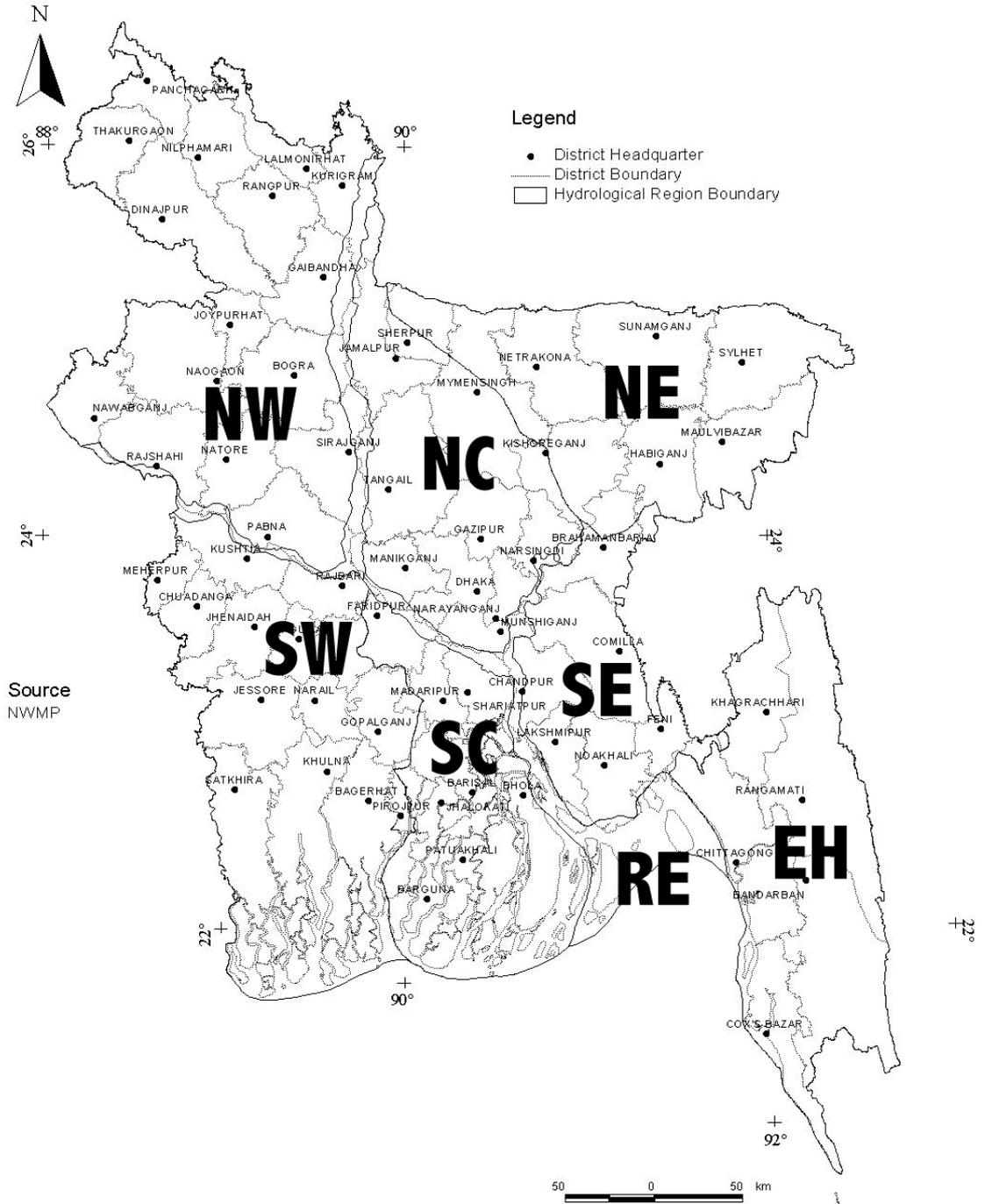
First however, it is necessary to provide brief mention of the regional delineations adopted for planning purposes. They are in line with the approach adopted for the National Water Plans 1 and 2 prepared in the period 1984-91, and the Flood Action Plan of the early 1990's which divided the country into eight hydrological regions as follows:

- North West
- North Central
- North East
- South West
- South Central
- South East
- Rivers and Estuaries
- Eastern Hills

Figure 1.1 shows the geographical boundaries of the Regions.

It should be noted however, that apart from certain regional issues such as flash flooding in the North East or cyclone risk in the coastal regions, most water sector challenges such as arsenic mitigation; water supply and sanitation are common to most or all of the regions. Solutions are therefore generic rather than specific, and in such cases the regional initiatives are nothing more that regional disaggregations of national or sectoral programmes.

Figure 1.1: The Hydrological Regions of Bangladesh



2 North West Region

2.1 *Regional Overview*

NW Region encompasses the Rajshahi Administrative Division of 16 Districts and is bounded by the Brahmaputra and Ganges rivers. Its total NCA (net cultivable area) is 2.35Mha. Average annual rainfall is about 1,700mm, but its south western part, in the Barind Zone, is one of the driest in Bangladesh, with average rainfall below 1,400mm. The High Barind is the only elevated land. Shallow groundwater is relatively abundant elsewhere.

The region is highly developed agriculturally, with the largest irrigated area of all regions, supplied mainly by STWs. There is less industry than in the country as a whole, although the opening of the Jamuna Multi-purpose Bridge in 1998 and the resultant improvement in transport links with other parts of Bangladesh is expected to accelerate industrialisation. Apart from Rajshahi (current population 0.8M), one of Bangladesh's major cities, Rangpur (0.48M), Bogra (0.42M), Dinajpur (0.37M), Pabna (0.42M) and Sirajganj (0.32M) are the main urban centres.

Severe flooding occurs in the southern part of the region, often for long periods in the monsoon when flood levels in the Ganges and the Brahmaputra are higher than internal river levels. This causes the internal drainage flows to pond up in the lower reaches of the Atrai, Hurashagar and Bangali rivers. Even in relatively dry years, large areas can be flooded for long periods. Some of the country's largest flood control, drainage and irrigation schemes are situated in the Region, notably the Teesta Barrage, the Pabna Irrigation Project, the Brahmaputra Right Embankment (BRE), the Chalan Beel FCD Schemes and the Barind Multipurpose Development Authority's project, which includes a deep tubewell irrigation component.

Apart from meeting the rapidly growing demand for urban water supply, urban and rural sanitation and other water-related services and the problems of environmental degradation and pollution, which are common to most regions, specific water-related issues and problems in NW Region include:

- Erosion along the right bank of the Brahmaputra, which threatens to break through to the Bangali River and is the cause of much hardship to those living in the area. A major project to prevent this happening, the River Bank Protection Project, has recently been completed. A long-term master plan for extending bank protection was formulated under FAP.
- Flooding and drainage problems in areas such as the Lower Atrai and Chalan Beel, and remedial measures for the numerous existing FCD(I) schemes in such areas.
- Drought in the western fringes, especially the High Barind. The existing BMDA DTW irrigation development is one successful attempt at addressing this issue.

- The need for flood proofing of the dwellings of the numerous people living in the Brahmaputra and Ganges river charlands, which are heavily flooded in most years (this is also covered in the RE Region).
- The possible eventual need for a Brahmaputra barrage (its eastern end would be in NC Region).

Seasonal water table decline due to STW irrigation pumping is widespread but is being tackled under the on-going GoB Tara pump installation programme. Except in a few areas such as near the Brahmaputra, arsenic is not a major problem.

2.2 *Programmes for the North West Region*

Twenty nine programmes will benefit the North West of which five are exclusive to the region. The exclusive programmes are targeted at Rajshahi's pressing need for water supply, sanitation, sewerage, stormwater drainage as well as new public deep tubewell irrigation.

Shared programmes will address opportunities for major river abstraction; improved surface water distribution; erosion control and protection; river dredging for navigation; rural and urban arsenic mitigation and various flood proofing initiatives.

Institutions and agencies involved in the North West Programmes will include:

- | | | | |
|---------|---------|---------|--------|
| • BWDB | • LGED | • LGI's | • RHD |
| • WARPO | • NGO's | • BR | • BMDA |
| • IWTA | • RCC | • DMB | |

Cost estimates for the North West Regional programmes are provided in Table 2.1 overleaf.

Table 2.1: Cost Estimates for the North West Regional Programmes

MIS Ref	Title	COSTS (Tk M mid 2000)				
		ST	MT	LT	Residual	TOTAL
Exclusive to Region						
MC 005	Rajshahi Bulk Water Supply and Distribution Systems	250.0	1,500.0	2,937.0	400.0	5,087.0
MC 009	Rajshahi Sanitation and Sewerage Systems	125.0	850.0	2,749.0	150.0	3,874.0
MC 016	Rajshahi Flood Protection	75.0	225.0	100.0	-	400.0
MC 017	Rajshahi Stormwater Drainage	750.0	2,539.6	1,559.4	375.0	5,224.0
AW 004	New Public Deep Tubewell Irrigation Schemes	440.0	1,100.0	660.0	-	2,200.0
Shared with other Regions						
ID 003	FCD and FCD/I Management Rationalisation	165.0	225.0	-	-	390.0
MR 006	Regional River Management and Improvement	273.6	536.4	1,348.4	174.4	2,332.8
MR 007	Ganges Dependent Area Regional Surface Water Distribution Networks	-	151.5	1,060.4	-	1,211.9
MR 009	North Central and North West Regional Surface Water Distribution Networks	-	-	2,143.7	4,287.3	6,431.0
TR 001	Urban Arsenic Mitigation	15.2	-	-	-	15.2
TR 002	Rural Arsenic Mitigation	22.9	18.1	-	-	41.0
TR 003	Large and Small Town Water Supply and Distribution Systems	770.3	4,159.7	8,028.2	616.2	13,574.4
TR 004	Rural Water Supply and Distribution Systems	2,540.4	8,022.3	8,619.7	668.5	19,850.9
TR 005	Large and Small Town Sanitation and Sewerage Systems	770.3	1,910.4	7,762.9	308.1	10,751.7
TR 006	Rural Sanitation	1,470.8	3,944.3	2,773.6	267.4	8,456.0
TR 007	Large and Small Town Flood Protection	742.6	1,633.7	1,800.7	278.5	4,455.5
TR 008	Large and Small Town Stormwater Drainage	1,848.7	5,546.2	10,476.2	1,848.7	19,719.9
DM 004	National, Regional and Key Feeder Roads - Flood Proofing	413.5	516.9	1,550.7	103.4	2,584.4
DM 005	Railway Flood Proofing	50.5	63.1	189.3	12.6	315.6
DM 006	Supplementary Irrigation and Drought Proofing of Rural Water Supplies	200.5	195.6	33.0	-	429.1
AW 001	Promotion of Expanded Minor Irrigation and Improved On-farm Water Management	37.1	44.5	46.1	-	127.7
AW 002	Improved Performance of Existing Public Surface Water Irrigation Schemes	40.6	202.8	567.7	-	811.0
AW 003	New Public Surface Water Irrigation Schemes	-	100.0	200.1	-	300.1
AW 005	Improved Water Management at Local Government Level	63.4	123.1	567.0	37.8	791.3
AW 006	Improved Water Management at Community Level	2.9	24.9	90.7	6.0	124.6
AW 007	Rationalisation of Existing FCD Infrastructure	-	274.5	4,102.5	2,064.5	6,441.5
EA 005	National Fish Pass Programme	120.0	300.0	480.0	-	900.0
EA 006	Unspecified Regional Programmes	-	17.7	57.3	-	75.0
EA 008	Environmentally Critical Areas and Integrated Wetland Management	19.5	40.7	122.0	-	182.2
TOTAL		11,207.7	34,265.8	60,025.5	11,598.6	117,097.6

Programmes Exclusive to the Region

Rajshahi Bulk Water Supply and Distribution Systems

Ref : **MC 005**

Cluster :	Major Cities	Region(s) :	NW
Focus/Foci :	Water Supplies	Location :	Rajshahi City
Start Year ¹ :	2003	Duration ² :	23 year(s)
		Agency(s) Responsible :	RCC (Lead) None (Supporting)
Short Description :	Water allocation for domestic and municipal use is the first priority under the NWPo. This programme, which responds to both the NWPo and the National Policy for Safe Water Supply and Sanitation (NPSWSS), aims to address the need for "...safe and affordable drinking water supplies through various means..." for all inhabitants, especially the urban poor (NWPo §4.6.a). The population of Rajshahi is expected to triple over the next 25 years, from 0.7 million in 2000 to 2.3 million in 2025. At present, only 40% of the population is served by the main public water supply system, the rest being dependant on unreliable and increasingly polluted local sources. This programme deals with the massive task of rehabilitation, improvement and extension of the city's water supply systems in order to raise and sustain coverage levels at 100% by 2010. It will be accomplished through the development of new wellfields, improvement and expansion of the existing DTW-fed system, and the introduction of safe hand-pumps fed by small DTW systems in peri-urban and poor communities.		

MIS Links	Cost Calculation :	MC Programme costing.xls	Map :	MC 005 Map.jpg
	Disb't Schedule :	MC Programme costing.xls	Description :	MC 005 PgP.doc

Finance				Funding (%)	Expected by
	Costs	Private	GoB	Beneficiaries	ProgrammeYear
Total Capital ³	5,087.00 MTk	30%	65%	5%	23
Ultimate Recurring	754.60 MTk/yr	n/a	50%	50%	26
Date of Data :	31	07	01	Stacked Cumulative Cash Flow Chart	
	(dd)	(mm)	(yy)		
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
• Uncollected water fees reduced to 10% of due	• DPHE records	NYD
• Sustainable operation and maintenance of city water supply systems	• Frequency of service breaks • Response times	NYD
• Reduced incidence of water borne or water related disease	• Public health records • Water quality	NYD
• 100% of Rajshahi's population have access to formal water supplies	• Survey Reports	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

Rajshahi Sanitation and Sewerage Systems

Ref : **MC 009**

Cluster :	Major Cities	Region(s) :	NW
Focus/Foci :	Sanitation	Location :	Rajshahi City
Start Year ¹ :	2003	Duration ² :	23 year(s)
		Agency(s) Responsible :	RCC (Lead) None (Supporting)
Short Description :	The NWPo "mandates relevant public water and sewerage institutions to provide necessary drainage and sanitation, including treatment of domestic wastewater and sewage and replacement of open drains and construction of sewers, in the interest of public health." (\$4.6c). The population of Rajshahi is expected to triple over the next 25 years, from 0.7 million in 2000 to 2.3 million in 2025. At present, about 70% of the population is adequately served by sanitation facilities, mainly by pit latrines with/without septic tanks. There is no conventional waterborne sewerage system. In the slums and other disadvantaged areas, people are dependant on 'hanging latrines' and open defecation which exacerbates pollution and public health problems and increases the likelihood of epidemic outbreaks of waterborne and water-related diseases. This programme aims to raise and sustain appropriate service coverage to 100% by 2010.		

MIS Links	Cost Calculation :	MC Programme costing.xls	Map :	MC 009 Map.jpg
	Disb't Schedule :	MC Programme costing.xls	Description :	MC 009 PgP.doc

Finance				Funding (%)	Expected by	
		Costs	Private	GoB	Beneficiaries	ProgrammeYear
Total Capital ³	3,874.00	MTk	20%	75%	5%	23
Ultimate Recurring	415.60	MTk/yr	n/a	50%	50%	26
Date of Data :	31	07	01	Stacked Cumulative Cash Flow Chart		
	(dd)	(mm)	(yy)			
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
• Sustainable operation and maintenance of town sanitation systems	• Frequency of service break downs • Response times	NYD
• Reduced environmental pollution	• Faecal coliform counts	NYD
• Improved public health	• Public health statistics	NYD
• 100% of Rajshahi's population have access to sanitation facilities	• Survey reports	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

Rajshahi Flood Protection

Ref : **MC 016**

Cluster :	Major Cities	Region(s) :	NW
Focus/Foci :	Flood Protection	Location :	Rajshahi City
Start Year ¹ :	2003	Duration ² :	9 year(s)
		Agency(s) Responsible :	BWDB (Lead) RCC (Supporting)
Short Description :	NWPo states that "Regions of economic importance such as metropolitan areas,...will be fully protected against floods as a matter of first priority" (NWPo §4.2.p.i). Rajshahi already has a flood embankment system; but this needs protection against erosion damage. This programme will deliver suitable remedial measures necessary to ensure the flood embankment groynes remain effective as flood protection for the city of Rajshahi.		

MIS Links	Cost Calculation :	MC Programme costing.xls	Map :	MC 016 Map.jpg
	Disb't Schedule :	MC Programme costing.xls	Description :	MC 016 PgP.doc

Finance				Funding (%)		Expected by
	Costs	Private	GoB	Beneficiaries	Programme	Year
Total Capital ³	400.00 MTk	0%	100%	0%		9
Ultimate Recurring	20.00 MTk/yr	n/a	85%	15%		10
Date of Data :	31	07	01	Stacked Cumulative Cash Flow Chart		
	(dd)	(mm)	(yy)			
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
• Rajshahi flood protection embankment erosion protection project prepared and agreed	• Signed programme/project documents	NYD
• Rajshahi flood embankments protected from erosion	• Programme/project completion report	NYD
Rajshahi protected from 1 in 100 year flood	• Physical evidence and hydrological data	

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

Rajshahi Stormwater Drainage

Ref : **MC 017**

Cluster :	Major Cities	Region(s) :	NW
Focus/Foci :	Stormwater Drainage	Location :	Rajshahi City
Start Year ¹ :	2004	Duration ² :	22 year(s)
		Agency(s) Responsible :	RCC (Lead) BWDB (Supporting)
Short Description :	NWPo states that "Regions of economic importance such as metropolitan areas,...will be fully protected against floods as a matter of first priority" (§4.2.p.i). The progressive expansion and urbanization of Rajshahi City increases the need for storm drainage as the increase in paved surfaces hastens runoff rates and reduces infiltration thereby causing urban flooding. This programme will mitigate Rajshahis' stormwater drainage problem by ensuring a properly planned, comprehensive drainage system ranging from collection of water at local street level to disposal of accumulated drainage water at pump stations.		

MIS Links	Cost Calculation :	MC Programme costing.xls	Map :	MC 017 Map.jpg
	Disb't Schedule :	MC Programme costing.xls	Description :	MC 017 PgP.doc

Finance				Funding (%)	Expected by
	Costs	Private	GoB	Beneficiaries	ProgrammeYear
Total Capital ³	5,224.00 MTk	0%	100%	0%	22
Ultimate Recurring	522.40 MTk/yr	n/a	85%	15%	26
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				

Monitoring

Objective	Indicator	Present Status ⁵
• Rajshahi stormwater drainage programme prepared and agreed	• Signed programme/project documents	NYD
• Rajshahi stormwater drainage programme implemented	• Programme/project completion reports	NYD
• Rajshahi served by stormwater drainage facilities	• Survey reports	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

New Public Deep Tubewell Irrigation Schemes

Ref : **AW 004**

Cluster :	Agriculture and Water Management	Region(s) :	NW
Focus/Foci :	Irrigation	Location :	NW region
Start Year ¹ :	2003	Duration ² :	10 year(s)
		Agency(s) Responsible :	BMDA (Lead) None (Supporting)
Short Description :	It is the policy of the Government that "support of private development of groundwater irrigation for promoting agricultural growth will continue" (NWPo §4.7). GoB policy is that TW irrigation should be a private rather than a public sector activity. However, subsidised DTW irrigation development in socially-deprived areas where irrigation is otherwise unaffordable may be justified on social and economic grounds; where drilling is difficult or costly and where surface water is limited. This programme will deal with the installation of an estimated 2000 new deep tube wells to meet these needs.		

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

Finance				Funding (%)	Expected by	
		Costs	Private	GoB	Beneficiaries	ProgrammeYear
Total Capital ³	2,200.00	MTk	0%	85%	15%	10
Ultimate Recurring	367.40	MTk/yr	n/a	0%	100%	11
Date of Data :	31	07	01	Stacked Cumulative Cash Flow Chart		
	(dd)	(mm)	(yy)	Cost (MTk)	● Investment	○ Recurring
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
• Plans prepared	• Project documents	NYD
• Projects in progress	• Funding in place • Signed contracts/work orders	NYD
• Increased area under public deep tubewell irrigation	• Construction records • On site verification	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

Programmes Shared with Other Region(s)

FCD and FCD/I Management Rationalisation

Ref : **ID 003**

Cluster :	Institutional Development	Region(s) :	All
Focus/Foci :	Bangladesh Water Development Board	Location :	Nationwide
Start Year ¹ :	2002	Duration ² :	6 year(s)
		Agency(s) Responsible :	BWDB (Lead) None (Supporting)
Short Description :	This programme is intended to facilitate the transfer of FCD/I scheme management as per policy. Three steps will be involved. In the short term BWDB will receive capacity building with respect to environmental and social issues, while in consultation with the stakeholders a range of transfer options will be identified and prepared. Finally these options will be pilot tested at selected locations during the short and medium term.		

MIS Links	Cost Calculation :	ID Programme costing.xls	Map :	ID 003 Map.jpg
	Disb't Schedule :	ID Programme costing.xls	Description :	ID 003 PgP.doc

Finance						
	Costs	Private	Funding (%)	Beneficiaries	Expected by	
			GoB		ProgrammeYear	
Total Capital ³	1,300.00 MTk	0%	85%	15%	6	
Ultimate Recurring	25.20 MTk/yr	n/a	50%	50%	7	
Date of Data :	31	07	01	Stacked Cumulative Cash Flow Chart		
	(dd)	(mm)	(yy)	Cost (MTk)	● Investment	○ Recurring
Status :	Identified					
Financial Base Year:	mid-2000					
Planned Expenditure (to date) :	MTk					
Actual Expenditure ⁴ (to date) :	MTk					

Monitoring

Objective	Indicator	Present Status ⁵
• Reduction in the number of schemes directly managed by BWDB	• Nationwide FCD(/I) statistics	NYD
• Increase in funds for O&M after turnover of scheme	• Scheme accounts	NYD
• 75% of decentralised FCD/I schemes considered sustainable within 10 years of transfer	• National FCD/I scheme statistics	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

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				Funding (%)	Expected by
	Costs	Private	GoB	Beneficiaries	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 Status ⁵
• 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

Ganges Dependent Area Regional Surface Water Distribution Networks

Ref : **MR 007**

Cluster :	Main Rivers	Region(s) :	NW, SW, SC
Focus/Foci :	Surface Distribution Networks	Location :	Ganges Dependent Area
Start Year ¹ :	2009	Duration ² :	8 year(s)
		Agency(s) Responsible :	BWDB (Lead) LGED (Supporting)
Short Description :	This programme provides for the capital investments necessary to develop both regional and local river distributary systems as part of the overall GDA development. This provision takes into account that part of these works will be developed under Programme AW 005. Three main link channels have been identified to serve both the Ganges left and right banks. The links would be sized to accommodate supplementary flows for salinity control, as well as for development of LLP irrigation and other consumptive needs.		

MIS Links	Cost Calculation :	MR Programme costing.xls	Map :	MR 007 Map.jpg
	Disb't Schedule :	MR Programme costing.xls	Description :	MR 007 PgP.doc

Finance				Funding (%)	Expected by	
		Costs	Private	GoB	Beneficiaries	ProgrammeYear
Total Capital ³	8,911.00	MTk	0%	98%	2%	8
Ultimate Recurring	267.30	MTk/yr	n/a	75%	25%	9
Date of Data :	31	07	01	Stacked Cumulative Cash Flow Chart		
	(dd)	(mm)	(yy)	Cost (MTk)	● Investment	○ Recurring
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
• 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 GDA	• 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

North Central and North West Regional Surface Water Distribution Networks Ref : **MR 009**

Cluster :	Main Rivers	Region(s) :	NW, NC
Focus/Foci :	Surface Distribution Networks	Location :	NW & NC Regions
Start Year ¹ :	2021	Duration ² :	12 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 Brahmaputra, 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 005, which would also determine the scope of the distribution network required.		

MIS Links	Cost Calculation :	MR Programme costing.xls	Map :	MR 009 Map.jpg
	Disb't Schedule :	MR Programme costing.xls	Description :	MR 009 PgP.doc

Finance			Funding (%)		Expected by
	Costs	Private	GoB	Beneficiaries	ProgrammeYear
Total Capital ³	12,862.00 MTk	0%	98%	2%	12
Ultimate Recurring	385.90 MTk/yr	n/a	75%	25%	13
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				

Monitoring		
Objective	Indicator	Present Status⁵
• 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 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

Urban Arsenic Mitigation

Ref : **TR 001**

Cluster :	Towns and Rural Areas	Region(s) :	NW, NC, NE, SW, SC, SE, EH
Focus/Foci :	Arsenic Mitigation	Location :	NW, NC, NE, SW, SC, SE, & EH regions
Start Year ¹ :	2001	Duration ² :	4 year(s)
		Agency(s) Responsible :	Paurashavas (Lead) CBOs (Supporting)
Short Description :	Arsenic contamination of groundwater water supplies has become a serious health hazard in Bangladesh affecting some 30 million people. This is recognised by NWPo §4.06a of the NWPo which requires the Government to “facilitate availability of safe...drinking water through various means”. This programme will provide short term arsenic mitigation measures for water supplies (such as arsenic filters and household removal facilities in all urban areas except those comprising the Statistical Metropolitan Areas (See the Major City cluster). More permanent measures will be introduced in the medium and long terms (see Programme TR 003).		

MIS Links	Cost Calculation :	TR Programme costing.xls	Map :	TR 001 Map.jpg
	Disb't Schedule :	TR Programme costing.xls	Description :	TR 001 PgP.doc

Finance					
	Costs	Private	Funding (%)	Expected by	
			GoB	Beneficiaries	ProgrammeYear
Total Capital ³	439.00 MTk	0%	85%	15%	4
Ultimate Recurring	216.90 MTk/yr	n/a	0%	100%	5
Date of Data :	31	07	01	Stacked Cumulative Cash Flow Chart	
	(dd)	(mm)	(yy)		
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
• Procurement and installation programmes prepared	• Signed programme/project documents	NYD
• Procurement and installation programmes complete	• Programme/Project completion reports	NYD
	• Household surveys	
• Arsenic free potable water available to 100% of large and small town populations	• Water quality	NYD
	• Community health records	

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

Rural Arsenic Mitigation

Ref : **TR 002**

Cluster :	Towns and Rural Areas	Region(s) :	NW, NC, NE, SW, SC, SE, EH
Focus/Foci :	Arsenic Mitigation	Location :	NW, NC, NE, SW, SC, SE, & EH regions
Start Year ¹ :	2001	Duration ² :	9 year(s)
		Agency(s) :	DPHE (Lead)
		Responsible :	CBOs (Supporting)
Short Description :	Arsenic contamination of groundwater water supplies has become a serious health hazard in Bangladesh affecting some 76 million people. This is recognised by NWPo §4.06a of the NWPo which requires the Government to “facilitate availability of safe...drinking water through various means”. This programme will provide short term and medium term arsenic mitigation measures for water supplies (such as arsenic filters and household removal facilities in all rural. More permanent measures will be introduced in the long term (See Programme TR 004) .		

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

Finance					
	Costs	Private	Funding (%)	Expected by	
			GoB	Beneficiaries	ProgrammeYear
Total Capital ³	1,185.00 MTk	0%	85%	15%	9
Ultimate Recurring	585.40 MTk/yr	n/a	0%	100%	10
Date of Data :	31 07 01	Stacked Cumulative Cash Flow Chart			
	(dd) (mm) (yy)				
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
• Procurement and installation programmes prepared	• Signed programme/project documents	NYD
• Procurement and installation programmes complete	• Programme/Project completion reports	NYD
	• Household/community surveys	
• Arsenic free potable water available to 100% of rural population	• Water quality	NYD
	• Community health records	

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

Large and Small Town Water Supply and Distribution Systems

Ref :

TR 003

Cluster :	Towns and Rural Areas	Region(s) :	All
Focus/Foci :	Water Supplies	Location :	Nationwide
Start Year ¹ :	2002	Duration ² :	25 year(s)
		Agency(s) Responsible :	DPHE (Lead) CBOs, Private Sector (Supporting)
Short Description :	The preamble to NWPo §4.6 of the NWPo highlights the water supply problems facing Bangladesh's urban areas (large and small). Water tables are receding due to heavy groundwater abstraction. Furthermore, saline intrusion in coastal aquifers and contamination elsewhere further compromises the drinking water supplies for urban inhabitants. In accordance with the Government's policy to "Facilitate availability of safe and affordable drinking water supplies." (NWPo §4.6.a), this programme is intended to provide resources for the implementation of piped water supply schemes fed from DTW or surface water sources in order to serve 100% of the population (of each town) with piped drinking water supplies by year 2010.		

MIS Links	Cost Calculation :	TR Programme costing.xls	Map :	TR 003 Map.jpg
	Disb't Schedule :	TR Programme costing.xls	Description :	TR 003 PgP.doc

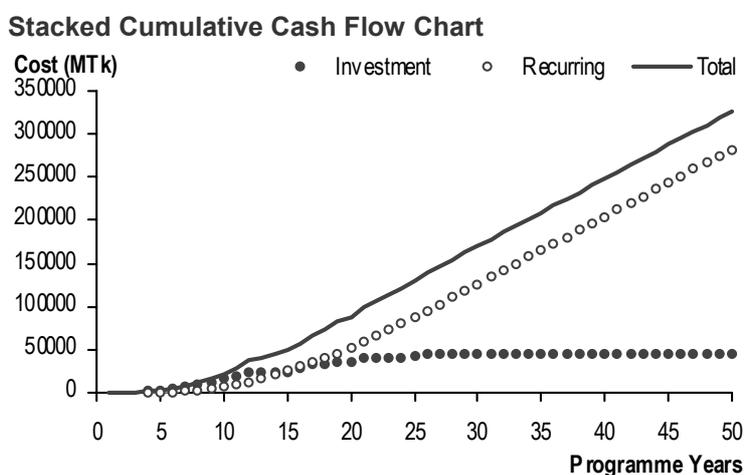
Finance					
	Costs	Private	Funding (%) GoB	Beneficiaries	Expected by Programme Year
Total Capital ³	44,055.00 MTk	0%	100%	0%	25
Ultimate Recurring	7,820.80 MTk/yr	n/a	0%	100%	26

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

Status : **Identified**
Financial Base Year: **mid-2000**

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

Actual Expenditure⁴ (to date) : **0** MTk



Monitoring

Objective	Indicator	Present Status ⁵
• Town water supply programmes prepared	• Signed programme/project documents	NYD
• Sustainable operation and maintenance of town water supply systems	• Frequency of pipe breaks • Response times	NYD
• Town water supply programme completed	• Programme/project completion reports • Household, district surveys	NYD
• 100% of large and small town population have access to formal water supplies	• Survey reports	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

Rural Water Supply and Distribution Systems

Ref :

TR 004

Cluster :	Towns and Rural Areas	Region(s) :	All
Focus/Foci :	Water Supplies	Location :	Rural Areas Nationwide
Start Year ¹ :	2001	Duration ² :	25 year(s)
		Agency(s) Responsible :	DPHE (Lead) LGIs, DPHE, CBOs (Supporting)
Short Description :	<p>The preamble to NWPo §4.6 of the NWPo recognises that "The rural areas of Bangladesh suffer from a lack of quality drinking water". This situation is worsening due to heavy withdrawals of groundwater (the principle source for most of the rural areas) for irrigation a trend which is exacerbated by agro-chemical and saline pollution of groundwater. Although the rural population is expected to increase relatively slowly over the next 25 years, from 102 million in 2000 to 108 million in 2025, it is nonetheless the GoB's intention to "facilitate the availability of safe and affordable drinking water supplies through various means" (NWPo §4.6.a). It is estimated that 92% of the rural population normally have access to potable water, mainly through shallow HTWs. The thrust of this programme is therefore to improve the quality of water supply services (reliability and access) in areas already served as well as extending the coverage to 100% by 2005.</p>		

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

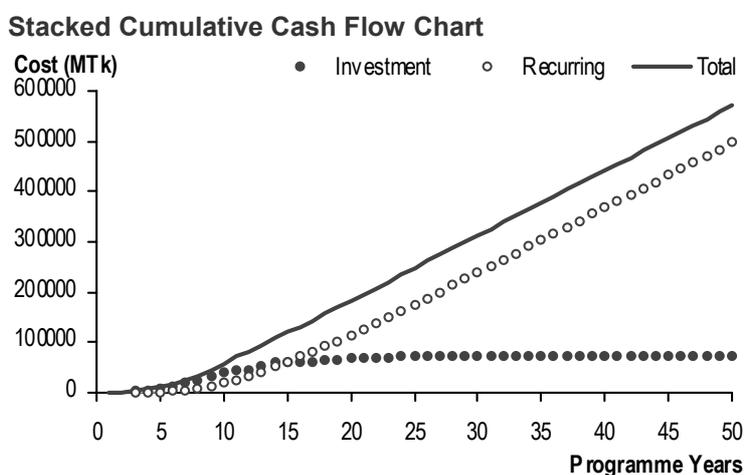
Finance					
	Costs	Private	Funding (%)	Expected by	
			GoB	Beneficiaries	ProgrammeYear
Total Capital ³	74,234.00 MTk	80%	20%	0%	25
Ultimate Recurring	12,884.30 MTk/yr	n/a	0%	100%	25

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

Status : **Identified**
Financial Base Year: **mid-2000**

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

Actual Expenditure⁴ (to date) : **0** MTk



Monitoring

Objective	Indicator	Present Status ⁵
• Rural water supply programmes prepared	• Signed programme/project documents	NYD
• Sustainable operation and maintenance of rural water supply systems	• Frequency of pipe breaks • Response times	NYD
• Rural water supply programmes completed	• Programme/project completion reports • Household, community surveys	NYD
• 100% of rural population has access to formal water supplies	• Survey reports	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

Large and Small Town Sanitation and Sewerage Systems

Ref : **TR 005**

Cluster :	Towns and Rural Areas	Region(s) :	All
Focus/Foci :	Sanitation	Location :	Nationwide
Start Year ¹ :	2002	Duration ² :	25 year(s)
		Agency(s) Responsible :	Paurashavas (Lead) LGIs, LGED, DPHE, CBOs (Supporting)
Short Description :	§4.6.c of the NWPo "mandates relevant public water and sewerage institutions to provide necessary drainage and sanitation, including treatment of domestic wastewater and sewage and replacement of open drains and construction of sewers, in the interest of public health." The population of large (>50,000) and small towns is expected to more than double over the next 25 years, from 14 million in 2000 to 36 million in 2025. At present, between 55% (small towns) and 65% (large towns) of the population is adequately served by sanitation facilities, mainly by pit latrines with/without septic tanks. In the poor areas and fringe communities, people are dependant on 'hanging latrines' and open defecation which exacerbates pollution and public health problems and increases the likelihood of epidemic outbreaks of waterborne and water-related diseases. This programme aims to provide appropriate sanitation facilities and raise and sustain service coverage at 100% by 2010.		

MIS Links	Cost Calculation :	TR Programme costing.xls	Map :	TR 005 Map.jpg
	Disb't Schedule :	TR Programme costing.xls	Description :	TR 005 PgP.doc

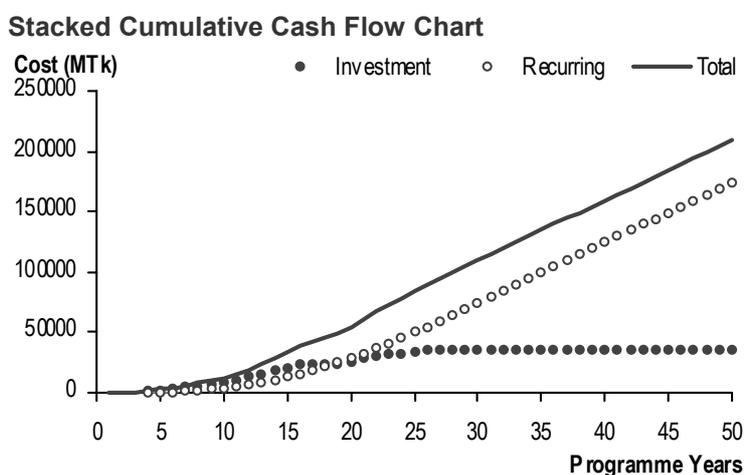
Finance					
	Costs	Private	Funding (%) GoB	Beneficiaries	Expected by Programme Year
Total Capital ³	34,894.00 MTk	0%	100%	0%	25
Ultimate Recurring	4,543.10 MTk/yr	n/a	0%	100%	26

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

Status : **Identified**
Financial Base Year: **mid-2000**

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

Actual Expenditure⁴ (to date) : **0** MTk



Monitoring

Objective	Indicator	Present Status ⁵
• Sustainable operation and maintenance of town sanitation systems	• Frequency of service break downs • Response times	NYD
• Reduced environmental pollution	• Faecal coliform counts	NYD
• Improved public health	• Public health statistics	NYD
• 100% of large and small town populations have access to sanitation facilities	• Survey reports	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

Rural Sanitation

Ref : **TR 006**

Cluster :	Towns and Rural Areas	Region(s) :	All
Focus/Foci :	Sanitation	Location :	Rural Areas Nationwide
Start Year ¹ :	2001	Duration ² :	25 year(s)
		Agency(s) Responsible :	DPHE (Lead) CBOs, Private sector, LGIs (Supporting)
Short Description :	§4.6.c of the NWPo "mandates relevant public water and sewerage institutions to provide necessary drainage and sanitation, including treatment of domestic wastewater and sewage and replacement of open drains and construction of sewers, in the interest of public health." The population of rural areas is expected to increase slightly over the next 25 years, from 102 million in 2000 to 108 million in 2025. At present, only 40% of the population has access to pit latrine facilities, the other 60% relying on 'hanging latrines' and open defecation which exacerbates pollution and public health problems and increases the likelihood of epidemic outbreaks of waterborne and water-related diseases. This programme aims to provide appropriate sanitation facilities for the whole rural population and raise and sustain service coverage at 100% by 2010.		

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

Finance					
	Costs	Private	Funding (%) GoB	Beneficiaries	Expected by Programme Year
Total Capital ³	31,622.00 MTk	80%	20%	0%	25
Ultimate Recurring	5,901.00 MTk/yr	n/a	0%	100%	26

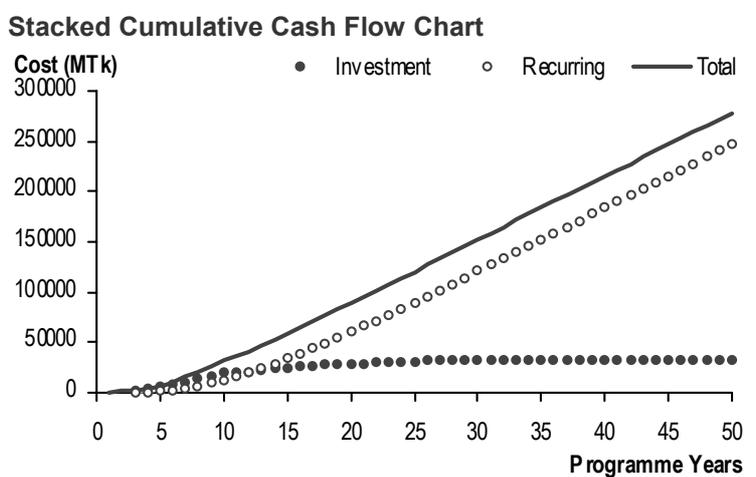
Date of Data : **31 07 01**
(dd) (mm) (yy)

Status : **Identified**

Financial Base Year: **mid-2000**

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

Actual Expenditure⁴ (to date) : **0** MTk



Monitoring

Objective	Indicator	Present Status ⁵
• Sustainable operation and maintenance of rural sanitation systems	• Frequency of service break downs • Response times	NYD
• Reduced environmental pollution	• Faecal coliform counts	NYD
• Improved public health	• Public health statistics	NYD
• 100% of rural populations have access to sanitation facilities	• Survey reports	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

Large and Small Town Flood Protection

Ref :

TR 007

Cluster :	Towns and Rural Areas	Region(s) :	All
Focus/Foci :	Flood Protection	Location :	Large and Small towns throughout the country
Start Year ¹ :	2003	Duration ² :	25 year(s)
		Agency(s) Responsible :	BWDB (Lead) None (Supporting)
Short Description :	§4.2.9.i of the NWPo states that "...critical areas such as district and Upazila towns, important commercial centres, and places of historical importance will be gradually provided reasonable degree of protection against flood". The low areas of many of the towns in Bangladesh are vulnerable to flooding during monsoon. Significant damage was caused during the 1988 and 1998 floods due either to absence of embankments, embankment failure or the inability of protected areas to drain during times of heavy rainfall because of high water levels outside. This programme will undertake measures such as: raising of existing embankment crest levels; repair of damaged embankments; and, provision of erosion protection works where necessary. New flood protection works will also be involved consisting mainly of constructing embankments on riverbanks with integral drainage sluices.		

MIS Links	Cost Calculation :	TR Programme costing.xls	Map :	TR 007 Map.jpg
	Disb't Schedule :	TR Programme costing.xls	Description :	TR 007 PgP.doc

Finance				Funding (%)		Expected by
	Costs	Private	GoB	Beneficiaries	Programme	Year
Total Capital ³	14,460.00 MTk	0%	100%	0%		25
Ultimate Recurring	1,301.40 MTk/yr	n/a	50%	50%		26
Date of Data :	31 07 01	Stacked Cumulative Cash Flow Chart				
	(dd) (mm) (yy)					
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
• Flood protection programmes prepared and agreed	• Signed programme/project documents	NYD
• Flood protection programmes implemented	• Programme/project completion reports	NYD
• All large and small towns protected from 1: 100 year floods	• Physical evidence and hydrological data	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

Large and Small Town Stormwater Drainage

Ref :

TR 008

Cluster :	Towns and Rural Areas	Region(s) :	All
Focus/Foci :	Stormwater Drainage	Location :	Nationwide
Start Year ¹ :	2003	Duration ² :	25 year(s)
		Agency(s) Responsible :	Paurashavas (Lead) LGIs (Supporting)
Short Description :	§4.6 says that "Lack of proper sanitation and drainage facilities, are the primary causes of diseases in the urban areas". Storm water drainage is an increasing problem in urban areas, as the construction of buildings and paved areas has progressively increased run-off. At the same time, pressures on land has caused natural drainage channels to be filled in and built upon. Encroachment on watercourses and water bodies has progressively reduced natural drainage. No urban areas have adequate storm drainage at present. This programme provides resources for a nationwide installation/upgrading and maintenance of stormwater drainage facilities in large and small towns. These will most probably be gravity systems which although cost-effective, will require regular adequate maintenance.		

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

Finance				Funding (%)		Expected by
	Costs	Private	GoB	Beneficiaries	Programme	Year
Total Capital ³	64,000.00 MTk	0%	100%	0%		25
Ultimate Recurring	7,040.00 MTk/yr	n/a	50%	50%		26
Date of Data :	31	07	01	Stacked Cumulative Cash Flow Chart		
	(dd)	(mm)	(yy)			
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
• Stormwater drainage programme prepared and agree	• Signed programme/project documents	NYD
• Stormwater drainage programmes implemented	• Programme/project completion reports	NYD
• Stormwater drainage installed in all large and small towns	• Survey reports	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, Regional and Key Feeder Roads - Flood Proofing

Ref : **DM 004**

Cluster :	Disaster Management	Region(s) :	NW, NC, NE, SE, SC,SW
Focus/Foci :	Flood Proofing	Location :	Regions NW, NC, NE, SE, SC,SW
Start Year ¹ :	2001	Duration ² :	25 year(s)
		Agency(s) Responsible :	RHD (Lead) LGED (Supporting)
Short Description :	In line with Policy's call for coping with floods in relation to vital infrastructure (NWPo §4.2.p.ii), this programme targets the flood proofing needs of key portions of Bangladesh's highway network. As with current practice, the National Highways, Regional Roads and Type A Feeder Roads will be raised by the central Roads and Highways Department (RHD). Type B Feeder Roads and Rural Roads will be raised by the Local Government Engineering Departments (LGEDs). The programme also has collateral benefits since the raised embankments comprise safe havens while facilitating the movement of relief goods during flood emergencies. This is a long term programme with national coverage, however it has been assumed that embankment raising will be carried out when a particular road is due for major maintenance or re-surfacing, with priority given to high risk areas in the case of national and regional roads..		

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

Finance				Funding (%)		Expected by
	Costs	Private	GoB	Beneficiaries	ProgrammeYear	
Total Capital ³	10,904.80 MTk	0%	100%	0%		25
Ultimate Recurring	436.20 MTk/yr	n/a	100%	0%		26
Date of Data :	31 07 01	Stacked Cumulative Cash Flow Chart				
	(dd) (mm) (yy)					
Status :	Identified					
Financial Base Year:	mid-2000					
Planned Expenditure (to date) :	428 MTk					
Actual Expenditure ⁴ (to date) :	MTk					

Monitoring

Objective	Indicator	Present Status ⁵
• Quantitative needs assessment	• Needs assessment reports	NYD
• Programme documents prepared	• Programme documents	NYD
• Programmes underway	• Signed contracts/work orders	NYD
• 100% of all national and feeder roads raised by 1m in high and .5m in low risk areas; 20% of feeder and rural roads raised by 1m in high risk areas	• Construction records • Site visits	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

Railway Flood Proofing

Ref : **DM 005**

Cluster :	Disaster Management	Region(s) :	SW, SC, NW, NC, NE, SE	
Focus/Foci :	Flood Proofing	Location :	Regions SW, SC, NW, NC, NE, SE	
Start Year ¹ :	2001	Duration ² :	25 year(s)	Agency(s) BR (Lead) Responsible : None (Supporting)
Short Description :	In line with Policy's call for coping with floods in relation to vital infrastructure (NWPo §4.2.p.ii), this programme targets at the flood proofing needs of key portions of Bangladesh's railway network. The Railway Department will be responsible for implementation of this programme. The programme has collateral benefits since the raised embankments comprise safe havens while facilitating the movement of relief goods during flood emergencies. This is a long term programme with coverage in six hydrological regions and work is expected to proceed as part of the network upgrading programmes. However, a significant risk to this programme is that the disruption to services that is inevitable when line raising is in progress, may well persuade the railway operators that it is cheaper to lose income for a few hours or days each year than to incur expenditure raising lines while simultaneously losing revenues for that period.			

MIS Links	Cost Calculation :	DM Programme costing.xls	Map :	DM 005 Map.jpg
	Disb't Schedule :	DM Programme costing.xls	Description :	DM 005 PgP.doc

Finance			Funding (%)		Expected by
	Costs	Private	GoB	Beneficiaries	ProgrammeYear
Total Capital ³	977.00 MTk	0%	100%	0%	25
Ultimate Recurring	39.10 MTk/yr	n/a	100%	0%	26
Date of Data :	31 07 01	Stacked Cumulative Cash Flow Chart			
	(dd) (mm) (yy)				
Status :	Identified				
Financial Base Year:	mid-2000				
Planned Expenditure (to date) :	33 MTk				
Actual Expenditure ⁴ (to date) :	MTk				

Monitoring		
Objective	Indicator	Present Status⁵
• Quantitative needs assessment	• Needs assessment reports	NYD
• Programme documents prepared	• Programme documents	NYD
• Programmes underway	• Signed contracts/work orders	NYD
• 100% of all high risk railways raised by 1m and 100% of low risk railway raised by .5m	• Construction records • Site visits	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

Supplementary Irrigation and Drought Proofing of Rural Water Supplies

Ref : **DM 006**

Cluster :	Disaster Management	Region(s) :	All
Focus/Foci :	Drought Proofing	Location :	Nationwide but emphasising NW, NC, SE, SW, SC
Start Year : ¹	2002	Duration ² :	10 year(s)
Short Description :	This programme aims to promote supplementary irrigation during the drought-prone aman season, as well as including efforts to drought-proof rural water supplies.		
	Agency(s) Responsible :	DAE	(Lead)
		None	(Supporting)

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

Finance					
	Costs	Private	Funding (%)	Beneficiaries	Expected by Programme Year
Total Capital ³	1,041.40 MTk	0%	85%	15%	10
Ultimate Recurring	0.00 MTk/yr	n/a	n/a	n/a	n/a
Date of Data :	31 07 01	Stacked Cumulative Cash Flow Chart			
	(dd) (mm) (yy)				
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
• New Tara hand tubewells commissioned	• Physical number of new wells	NYD
• Increased area of aman rice under supplementary irrigation	• Areas planted	NYD
• Increased quality of life in target areas	• Return on family labour	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

Promotion of Expanded Minor Irrigation and Improved On-farm Water Management

Ref : **AW 001**

Cluster :	Agriculture and Water Management	Region(s) :	All
Focus/Foci :	Irrigation	Location :	Nationwide
Start Year ¹ :	2002	Duration ² :	15 year(s)
		Agency(s) Responsible :	DAE (Lead) None (Supporting)
Short Description :	It is the policy of the Government to "Encourage and promote continued development of minor irrigation" (NWPo §4.7.a) and to "Encourage future groundwater development for irrigation by both the public and the private sectors" (§4.7.b). With the ultimate goal of increased agricultural productivity, this programme involves the improvement of irrigation pumping efficiency, promotion of lower cost force-mode tubewell pumps, and a farmer education/training component to improve on-farm water management and the wise use of water		

MIS Links	Cost Calculation :	AW Programme costing.xls	Map :	AW 001 Map.jpg
	Disb't Schedule :	AW Programme costing.xls	Description :	AW 001 PgP.doc

Finance						
		Costs	Private	Funding (%) GoB	Beneficiaries	Expected by ProgrammeYear
Total Capital ³	310.00 MTk	0%	85%	15%	15	
Ultimate Recurring	7.20 MTk/yr	n/a	0%	100%	16	
Date of Data :	31 (dd)	07 (mm)	01 (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
• Increased diesel pump engine efficiencies	• Sample tests	NYD
• Farmers adopt force mode pumpsets	• Farmer survey	NYD
• Irrigation water use efficiencies increased	• Sample tests	NYD
• Average return per unit of water increased in minor irrigation areas	• Household surveys and field measurements	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

Improved Performance of Existing Public Surface Water Irrigation Schemes Ref : **AW 002**

Cluster :	Agriculture and Water Management	Region(s) :	All
Focus/Foci :	Irrigation	Location :	Nationwide
Start Year ¹ :	2004	Duration ² :	20 year(s)
		Agency(s) Responsible :	BWDB (Lead) BMDA, CBOs, LGIs, NGOs, Private Sector (Supporting)
Short Description :	It is the policy of the government to "encourage future groundwater development for irrigation by both the public and private sectors" (NWPo §4.7.b). Even so experience confirms that current performance of existing public irrigation schemes is not satisfactory. This programme is intended to address both challenges by means of the following approaches: full participation of beneficiaries; command area development; conjunctive use of surface and groundwater; rehabilitation; improved O&M and appropriate beneficiary contributions to both capital and recurring costs.		

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

Finance					
	Costs	Private	Funding (%)	Expected by	
			GoB	Beneficiaries	ProgrammeYear
Total Capital ³	3,275.00 MTk	0%	85%	15%	20
Ultimate Recurring	98.30 MTk/yr	n/a	25%	75%	21

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

Status : **Identified**

Financial Base Year: **mid-2000**

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

Actual Expenditure⁴ (to date) : **0** MTk

Stacked Cumulative Cash Flow Chart

Monitoring		
Objective	Indicator	Present Status⁵
• Sustainable operation and maintenance	• User group records • Long term O&M expenditure trends	NYD
• Public irrigation schemes rehabilitated and upgraded	• Construction records • On site verification	NYD
• Increased returns per unit of water and labour on public irrigation areas	• Household surveys and field measurements	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

New Public Surface Water Irrigation Schemes

Ref : **AW 003**

Cluster :	Agriculture and Water Management	Region(s) :	All
Focus/Foci :	Irrigation	Location :	Nationwide
Start Year ¹ :	2005	Duration ² :	15 year(s)
		Agency(s) Responsible :	BWDB (Lead) LGED (Supporting)
Short Description :	The preamble NWPo §4.7 requires government to continue promoting the development of surface water irrigation where feasible and to focus where practical on the conjunctive use of groundwater and surface water. The overall objective of this programme is to increase agricultural production and reduce demand on groundwater abstraction by promoting and implementing new surface water irrigation schemes.		

MIS Links	Cost Calculation :	AW Programme costing.xls	Map :	AW 003 Map.jpg
	Disb't Schedule :	AW Programme costing.xls	Description :	AW 003 PgP.doc

Finance			Funding (%)		Expected by
	Costs	Private	GoB	Beneficiaries	ProgrammeYear
Total Capital ³	6,125.00 MTk	0%	85%	15%	15
Ultimate Recurring	306.30 MTk/yr	n/a	25%	75%	16
Date of Data :	31 07 01	Stacked Cumulative Cash Flow Chart			
	(dd) (mm) (yy)				
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
• Plans prepared	• Project documents	NYD
• Projects in progress	• Funding in place	NYD
	• Signed contracts/work orders	
• Increased area under public surface water irrigation	• Construction records	NYD
	• On site verification	

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

Improved Water Management at Local Government Level

Ref : **AW 005**

Cluster :	Agriculture and Water Management	Region(s) :	All
Focus/Foci :	Water Management	Location :	Nationwide
Start Year ¹ :	2001	Duration ² :	24 year(s)
		Agency(s) Responsible :	LGED (Lead) None (Supporting)
Short Description :	Implementation of the NWPo will result in a four tiered civil-administrative hierarchy for the water sector: central, regional, local and community. The BWDB will remain responsible for water management issues as they affect or occur in the main and regional rivers. Equally, management of certain schemes below 5000ha will become the responsibility of community based organisations. Water courses, whether natural or man-made, that will be the management responsibility of neither BWDB nor community organisations will become the responsibility of LGI's. Furthermore, actual ownership of all schemes except municipal water schemes will be transferred to the LGI's. This programme is intended to rehabilitate, upgrade and restore as appropriate, the water courses involved as well as to provide the LGI's with the necessary appurtenant equipment and facilities.		

MIS Links	Cost Calculation :	AW Programme costing.xls	Map :	AW 005 Map.jpg
	Disb't Schedule :	AW Programme costing.xls	Description :	AW 005 PgP.doc

Finance				Funding (%)	Expected by
	Costs	Private	GoB	Beneficiaries	ProgrammeYear
Total Capital ³	5,495.00 MTk	0%	85%	15%	24
Ultimate Recurring	156.00 MTk/yr	n/a	25%	75%	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 Status ⁵
• Sustainable management and ownership models in place	• Reports • Legal instruments	NYD
• Local rivers, feeder canals and main drains transferred to LGI's for management/ownership as per policy	• Instruments of transfer ratified and promulgated • Title deeds	NYD
• Local rivers, feeders canals and main drains restored, rehabilitated, upgraded as appropriate	• Project completion reports • Physical surveys • Hydrological records	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

Improved Water Management at Community Level

Ref : **AW 006**

Cluster :	Agriculture and Water Management	Region(s) :	All
Focus/Foci :	Water Management	Location :	Nationwide
Start Year ¹ :	2001	Duration ² :	24 year(s)
		Agency(s) Responsible :	LGED (Lead) LGIs, DAE (Supporting)
Short Description :	Implementation of the NWPo will result in a four tiered civil-administrative hierarchy for the water sector: central, regional, local and community. The BWDB will remain responsible for water management issues as they affect or occur in the main and regional rivers. Local rivers and scheme delivery systems will become the management (and in some cases property) of LGI's while management of certain schemes below 5000ha will become the responsibility of community based organisations. This programme is intended to rehabilitate, upgrade and restore as appropriate, the water courses and field distribution/collection systems involved as well as to assist in providing with the necessary appurtenant equipment and facilities.		

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

Finance					
	Costs	Private	Funding (%) GoB	Beneficiaries	Expected by ProgrammeYear
Total Capital ³	865.00 MTk	0%	15%	85%	24
Ultimate Recurring	24.60 MTk/yr	n/a	0%	100%	26
Date of Data :	31	07	01	Stacked Cumulative Cash Flow Chart	
	(dd)	(mm)	(yy)		
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
• Effective community based water management organisations	• Field evaluations	NYD
• Khals re-excavated over 10,000ha	• Physical survey	NYD
• Sustainable sub-secondary water use efficiencies of 60% for paddy and 75% for dryfoot crops	• Field tests	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

Rationalisation of Existing FCD Infrastructure

Ref : **AW 007**

Cluster :	Agriculture and Water Management	Region(s) :	All
Focus/Foci :	Coastal Protection, AND Flood Control and Drainage	Location :	Nationwide
Start Year ¹ :	2007	Duration ² :	20 year(s)
		Agency(s) Responsible :	BWDB (Lead) LGED (Supporting)
Short Description :	The NWPo states that "Ownership of FCD and FCDI projects with command area of 1000 ha or less will gradually be transferred to the local governments, beginning with the ones that are being satisfactorily managed and operated by the beneficiary/ community organisations." (NWPo §4.4.f) and that is also the policy of the government to "Investigate thoroughly, important flood control and management issues, such as the efficacy of coastal polders, for guiding future policy on structural interventions" (NWPo §4.15.c). This programme will assess and rationalise all existing FCD schemes by specifying and implementing the appropriate course of action for each scheme according to the following options: a) continuation of the present situation; b) handover to beneficiaries or local govt.; c) rehabilitation and improvement; d) complete withdrawal.		

MIS Links	Cost Calculation :	AW Programme costing.xls	Map :	AW 007 Map.jpg
	Disb't Schedule :	AW Programme costing.xls	Description :	AW 007 PgP.doc

Finance					
	Costs	Private	Funding (%) GoB	Beneficiaries	Expected by ProgrammeYear
Total Capital ³	21,471.70 MTk	0%	85%	15%	20
Ultimate Recurring	1,152.80 MTk/yr	n/a	50%	50%	21
Date of Data :	31 07 01	Stacked Cumulative Cash Flow Chart			
	(dd) (mm) (yy)				
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
• Sustainable operation and maintenance on 50% of all existing inland and coastal FCD/I schemes	• User group records • Long term O&M expenditure trends	NYD
• Inland and coastal FCD/I rehabilitated and upgraded on a participatory basis	• Participatory agreements • Project completion reports	NYD
• Increased returns per unit of water and labour in public irrigation areas	• Household surveys and field measurements	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 Fish Pass Programme

Ref : **EA 005**

Cluster :	Environment and Aquatic Resources	Region(s) :	All
Focus/Foci :	Water Management for Fisheries	Location :	Nationwide
Start Year ¹ :	2003	Duration ² :	15 year(s)
		Agency(s) Responsible :	BWDB (Lead) DoFish (Supporting)
Short Description :	The NWPo requires that "Fisheries and wildlife will receive due emphasis in water resource planning in areas where their social impact is high" (NWPo §4.9.a); "Measures will be taken to minimise disruption to the natural aquatic environment in streams and water channels." (NWPo §4.9.b), and; "Water development plans will not interrupt fish movement and will make adequate provisions in control structures for allowing fish migration and breeding." (NWPo §4.9.e). Yet there has been a reduction in fish production in recent years due, at least in part, to structures that inhibit fish migration routes. As a response, this programme will screen all major existing FCD/I projects (>5000ha) and will prepare and implement a plan for mitigation works. Emphasis will be given to 'fish-friendly' structures rather than separate dedicated fish-pass structures.		

MIS Links	Cost Calculation :	EA Programme costing.xls	Map :	EA 005 Map.jpg
	Disb't Schedule :	EA Programme costing.xls	Description :	EA 005 PgP.doc

Finance				Funding (%)		Expected by
	Costs	Private	GoB	Beneficiaries	Programme	Year
Total Capital ³	3,000.00 MTk	0%	100%	0%		15
Ultimate Recurring	75.00 MTk/yr	n/a	50%	50%		16
Date of Data :	31 07 01	Stacked Cumulative Cash Flow Chart				
	(dd) (mm) (yy)					
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
• Appropriate fish-friendly measures routinely adopted in the design and operation of all relevant structures	• Number of conforming designs	NYD
• 90% of all feasible fish passes in place	• Design regulation	NYD
• Sustainable increase in floodplain fish catches, in terms of both numbers and diversity	• Number of operational fish passes	NYD
	• Fish catch statistics (provided that impact of water sector measures can be distinguished from other impacts)	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

Unspecified Regional Programmes

Ref : **EA 006**

Cluster :	Environment and Aquatic Resources	Region(s) :	All
Focus/Foci :	General Environmental Responsibilities	Location :	Nationwide
Start Year ¹ :	2005 Duration ² : 15 year(s)	Agency(s) Responsible :	WARPO (Lead) DoE, DoFish, DoForest, BWDB, LGED, RHD (Supporting)
Short Description :	The purpose of this programme is to ensure that provision is made for particular regional environmental concerns that are not well reflected in the other EA Programmes. This allows for comparatively small, but locally important issues to be dealt with according to regional priorities. This also implies regional (and down to village level) participation in identifying the concerns, which are therefore left non-specific at this stage.		

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

Finance					
	Costs	Private	Funding (%) GoB	Beneficiaries	Expected by ProgrammeYear
Total Capital ³	600.00 MTk	0%	100%	0%	15
Ultimate Recurring	19.30 MTk/yr	n/a	25%	75%	16

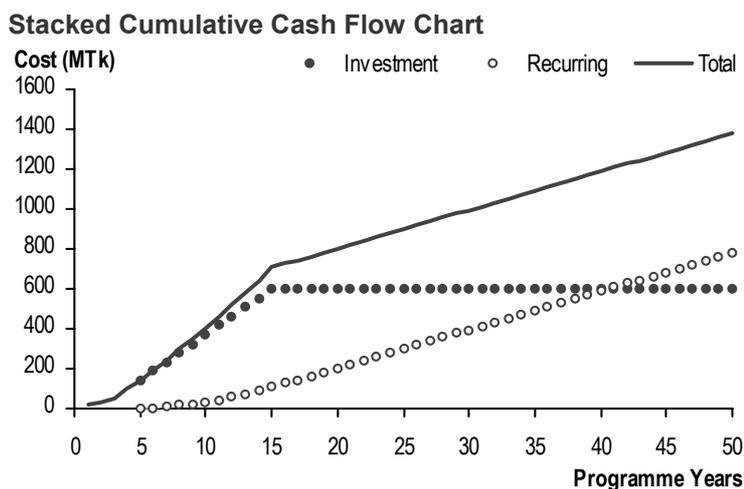
Date of Data : **31 07 01**
(dd) (mm) (yy)

Status : **Identified**

Financial Base Year: **mid-2000**

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

Actual Expenditure⁴ (to date) : **0** MTk



Monitoring

Objective	Indicator	Present Status ⁵
• 8 pilot projects (one per region) completed and evaluated	• Project evaluation reports	NYD
• Improvement in region-specific environmental characteristics	• Specific indicators and thresholds as appropriate	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

Environmentally Critical Areas and Integrated Wetland Management

Ref : **EA 008**

Cluster :	Environment and Aquatic Resources	Region(s) :	All
Focus/Foci :	Water Management for Eco-Sensitive Areas	Location :	Nationwide
Start Year ¹ :	2002	Duration ² :	23 year(s)
		Agency(s) Responsible :	DoE (Lead) WARPO, LGIs (Supporting)
Short Description :	The country's aquatic habitat is rapidly shrinking as a result of abstractions (especially for irrigation); flood control and agricultural encroachment. And deteriorating water quality exacerbates the problems. Supported by other measures, safeguarding the water resources of the nation's water bodies is necessary to arrest the trend and provide for both the human and the natural environments (eg health, nutrition, livelihoods, fish and broader biodiversity). This programme is intended to provide the necessary protection and sustainable use measures in the water sector as part of a wider integrated wetlands management (IWM) programme.		

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

Finance				Funding (%)	Expected by
	Costs	Private	GoB	Beneficiaries	ProgrammeYear
Total Capital ³	800.00 MTk	0%	100%	0%	23
Ultimate Recurring	15.00 MTk/yr	n/a	50%	50%	24
Date of Data :	31	07	01	Stacked Cumulative Cash Flow Chart	
	(dd)	(mm)	(yy)		
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
• Water requirements defined and/or refined	• Thresholds • Status of indicator species	NYD
• Regulatory framework for environmentally critical areas	• The regulations • Number of voluntary agreements concluded • Number of prosecutions	NYD
• Integrated wetland management	• Status of indicator species • Extent and duration of wetlands	NYD
• Improved levels of protection extended to existing and new environmentally critical areas	• New regulations gazetted • Number of new environmentally critical areas gazetted	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

3 North Central Region

3.1 *Regional Overview*

With a population of 26.3M and an area of about 15,950km², NC Region is bounded by the Brahmaputra, Padma and Meghna rivers and by the Old Brahmaputra and Lakhya rivers in the north and north east. Total NCA is 1.06Mha. It is physiographically more diverse than other regions except EH, with the elevated Madhupur Tract, much of which is forested, covering some 2,400km² in the centre of the region. Annual average rainfall is 1,400–2,200mm. Like NW Region, shallow groundwater is readily available, except in parts of the Madhupur Tract, and arsenic is not a serious problem except near the major rivers.

With Dhaka (9.0M) and also Gazipur (0.8M), Mymensingh (0.5M), Tangail (0.3M) and other large towns, NC Region is the most urbanised and industrialised in the country. Rapid urban growth is expected to continue in the future. Outside the Madhupur Tract, agriculture is similar to that of the NW Region, with intensive STW irrigation and its accompanying seasonal watertable decline problem. Except in the south, flooding and drainage problems are less and the area of existing FCIDI schemes is much smaller.

In NC Region the expansion of urban water-related services and infrastructure will be an even greater challenge than elsewhere, because of the rapidly growing needs of the Dhaka conurbation. Industrial pollution is also particularly serious there. Other water-related issues to be faced in the NWMP include:

- Further raw water supplies for Dhaka City. At present, these come largely from DTWs, with a consequent severe over-exploitation of the local aquifer. The only long-term solution is to bring surface water from one or more of the major rivers.
- Flooding and drainage problems in various parts of the region. These are most serious in the low-lying parts of Manikganj, Dhaka and Munshiganj Districts on the left banks of the Brahmaputra and Padma rivers. However, due to topographic and drainage conditions in this area, it will be difficult to reduce such flooding appreciably.
- Flood proofing needs in the Brahmaputra and Padma river charlands (also covered in the RE Region)
- The possible eventual need for barrages on the Brahmaputra and Meghna rivers.

3.2 *Programme for North Central Region*

Twenty seven programmes will benefit the North Central Region of which four are exclusive to the region. The exclusive programmes are targeted at Dhaka's

pressing need for water supply, sanitation, sewerage, flood protection and stormwater drainage.

Shared programmes will address major river abstraction; improved surface water distribution; rural and urban arsenic mitigation and flood proofing of key infrastructure.

Institutions and agencies involved in the North Central Programmes will include:

- BWDB
- WARPO
- LGI's
- NGO's
- IWTA
- LGED
- DCC
- RHD
- DWASA
- BR

Cost estimates for the North Central Regional programmes are provided in Table 3.1

Table 3.1: Cost Estimates for the North Central Regional Programmes

MIS Ref	Title	COSTS (Tk M mid 2000)				
		ST	MT	LT	Residual	TOTAL
Exclusive to Region						
MC 002	Dhaka Bulk Water Supply and Distribution Systems	5,200.0	25,900.0	61,550.0	2,500.0	95,150.0
MC 006	Dhaka Sanitation and Sewerage Systems	6,000.0	19,000.0	62,176.0	2,500.0	89,676.0
MC 010	Dhaka Flood Protection	2,410.0	2,410.0	489.9	113.1	5,423.0
MC 011	Dhaka Stormwater Drainage	4,000.0	18,400.0	14,475.0	1,625.0	38,500.0
Shared with other Regions						
ID 003	FCD and FCD/I Management Rationalisation	31.3	42.8	-	-	74.1
MR 006	Regional River Management and Improvement	214.7	420.9	1,058.1	136.9	1,830.6
MR 009	North Central and North West Regional Surface Water Distribution Networks	-	-	2,143.7	4,287.3	6,431.0
TR 001	Urban Arsenic Mitigation	47.6	-	-	-	47.6
TR 002	Rural Arsenic Mitigation	71.9	56.6	-	-	128.5
TR 003	Large and Small Town Water Supply and Distribution Systems	427.2	2,306.7	4,452.0	341.7	7,527.6
TR 004	Rural Water Supply and Distribution Systems	1,552.5	4,902.5	5,267.6	408.5	12,131.1
TR 005	Large and Small Town Sanitation and Sewerage Systems	427.2	1,059.4	4,304.9	170.9	5,962.3
TR 006	Rural Sanitation	898.8	2,410.4	1,695.0	163.4	5,167.6
TR 007	Large and Small Town Flood Protection	411.8	905.9	998.6	154.4	2,470.8
TR 008	Large and Small Town Stormwater Drainage	1,025.2	3,075.6	5,809.5	1,025.2	10,935.6
DM 004	National, Regional and Key Feeder Roads - Flood Proofing	579.3	724.1	2,172.2	144.8	3,620.4
DM 005	Railway Flood Proofing	45.5	56.9	170.6	11.4	284.3
DM 006	Supplementary Irrigation and Drought Proofing of Rural Water Supplies	45.3	44.2	7.4	-	96.9
AW 001	Promotion of Expanded Minor Irrigation and Improved On-farm Water Managem	8.4	10.0	10.4	-	28.8
AW 002	Improved Performance of Existing Public Surface Water Irrigation Schemes	3.1	15.3	42.7	-	61.0
AW 003	New Public Surface Water Irrigation Schemes	-	100.0	200.1	-	300.1
AW 005	Improved Water Management at Local Government Level	49.7	96.6	444.9	29.7	620.9
AW 006	Improved Water Management at Community Level	2.3	19.5	71.2	4.7	97.7
AW 007	Rationalisation of Existing FCD Infrastructure	-	52.1	779.5	392.3	1,223.9
EA 005	National Fish Pass Programme	22.8	57.0	91.2	-	171.0
EA 006	Unspecified Regional Programmes	-	17.7	57.3	-	75.0
EA 008	Environmentally Critical Areas and Integrated Wetland Management	5.9	12.2	36.7	-	54.8
TOTAL		23,480.3	82,096.5	168,504.5	14,009.3	288,090.6

Programmes Exclusive to the Region

Dhaka Bulk Water Supply and Distribution Systems

Ref : **MC 002**

Cluster :	Major Cities	Region(s) :	NC
Focus/Foci :	Water Supplies	Location :	Dhaka City
Start Year ¹ :	2002	Duration ² :	24 year(s)
		Agency(s) Responsible :	DWASA (Lead) None (Supporting)
Short Description :	Water allocation for domestic and municipal use is the first priority under the NWPo. This programme, which responds to both the NWPo and the National Policy for Safe Water Supply and Sanitation (NPSWSS), aims to address the need for "...safe and affordable drinking water supplies through various means..." for all inhabitants, especially the urban poor (NWPo §4.6.a). The population of Dhaka is expected to treble over the next 25 years, from 9 million in 2000 to 27 million in 2025. At present, only 76% of the population is served by the main public water supply system, the rest being dependant on unreliable and increasingly polluted local sources. This programme deals with the massive task of rehabilitation, improvement and extension of the city's water supply systems in order to raise and sustain coverage levels at 100% by 2010. It will be accomplished through the development of new water sources, improvement and expansion of the existing DTW-fed system, and the introduction of safe hand-pumps fed by small DTW systems in peri-urban and poor communities.		

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

Finance					
	Costs	Private	Funding (%)	Expected by	
			GoB	Beneficiaries	ProgrammeYear
Total Capital ³	95,150.00 MTk	30%	65%	5%	24
Ultimate Recurring	9,050.40 MTk/yr	n/a	50%	50%	26
Date of Data :	31	07	01	Stacked Cumulative Cash Flow Chart	
	(dd)	(mm)	(yy)		
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
• Uncollected water fees reduced to 10% of due	• DWASA records	NYD
• Sustainable operation and maintenance of city water supply systems	• Frequency of service breaks • Response times	NYD
• Reduced incidence of water borne or water related disease	• Public health records • Water quality	NYD
• 100% of Dhaka's population have access to reliable water supplies	• Survey Reports	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

Dhaka Sanitation and Sewerage Systems

Ref : **MC 006**

Cluster :	Major Cities	Region(s) :	NC
Focus/Foci :	Sanitation	Location :	Dhaka City
Start Year ¹ :	2002	Duration ² :	24 year(s)
		Agency(s) Responsible :	DWASA (Lead) None (Supporting)
Short Description :	The NWPo "mandates relevant public water and sewerage institutions to provide necessary drainage and sanitation, including treatment of domestic wastewater and sewage and replacement of open drains and construction of sewers, in the interest of public health." (§4.6.c). The population of Dhaka is expected to treble over the next 25 years, from 9 million in 2000 to 27 million in 2025. At present, about 68% of the population is adequately served by sanitation facilities. The main public sewerage system is in poor condition and is inadequately maintained, and as such is likely to exacerbate pollution and public health problems and increase the likelihood of epidemic outbreaks of waterborne and water-related diseases. This programme aims to ensure that by 2010, there are appropriate sanitation facilities for 98% of the city's population.		

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

Finance			Funding (%)		Expected by
	Costs	Private	GoB	Beneficiaries	ProgrammeYear
Total Capital ³	89,676.00 MTk	0%	100%	0%	24
Ultimate Recurring	9,435.80 MTk/yr	n/a	50%	50%	26
Date of Data :	31	07	Stacked Cumulative Cash Flow Chart		
	(dd)	(mm)	(yy)		
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
• Sustainable operation and maintenance of town sanitation systems	• Frequency of service break downs • Response times	NYD
• Reduced environmental pollution	• Fæcal coliform counts	NYD
• Improved public health	• Public health statistics	NYD
• 100% of Dhaka's population have access to sanitation facilities	• Survey reports	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

Dhaka Flood Protection

Ref : **MC 010**

Cluster :	Major Cities	Region(s) :	NC
Focus/Foci :	Flood Protection	Location :	Dhaka City
Start Year ¹ :	2003	Duration ² :	23 year(s)
		Agency(s) Responsible :	BWDB (Lead) None (Supporting)
Short Description :	NWPo states that "Regions of economic importance such as metropolitan areas,...will be fully protected against floods as a matter of first priority" (§4.2.p.i) After Dhaka was severely affected by the 1988 flood, the western flood embankment was constructed. During the 1998 flood it afforded some relief to parts of the city but the eastern part was extensively inundated. There are significant areas of existing development in Dhaka where reconstruction and the associated opportunity to raise land will not occur for many years. This programme will provide flood control infrastructures along right bank of the Balu River, which will include construction of a flood embankment, flood wall and drainage sluices.		

MIS Links	Cost Calculation :	MC Programme costing.xls	Map :	MC 010 Map.jpg
	Disb't Schedule :	MC Programme costing.xls	Description :	MC 010 PgP.doc

Finance					
	Costs	Private	Funding (%) GoB	Beneficiaries	Expected by ProgrammeYear
Total Capital ³	5,423.00 MTk	0%	100%	0%	23
Ultimate Recurring	488.10 MTk/yr	n/a	85%	15%	26
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				

Monitoring

Objective	Indicator	Present Status ⁵
• Dhaka Flood protection programme prepared and agreed	• Signed programme/project documents	NYD
• Dhaka Flood protection programme implemented	• Programme/project completion reports	NYD
• Dhaka protected from 1:100 year flood	• Physical evidence and hydrological data	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

Dhaka Stormwater Drainage

Ref : **MC 011**

Cluster :	Major Cities	Region(s) :	NC
Focus/Foci :	Stormwater Drainage	Location :	Dhaka City
Start Year ¹ :	2004	Duration ² :	22 year(s)
		Agency(s) Responsible :	DWASA (Lead) DCC (Supporting)
Short Description :	NWPo states that "Regions of economic importance such as metropolitan areas,...will be fully protected against floods as a matter of first priority" (§4.2.p.i). The progressive expansion and urbanization of Dhaka increases the need for storm drainage as the increase in paved surfaces hastens runoff rates and reduces infiltration thereby causing urban flooding. Each heavy rainstorm causes inconvenience and sometimes major damage and disruption as a result of ineffective or inadequate drainage. This 38500TkM programme will mitigate Dhakas' drainage problem by providing a properly planned, comprehensive drainage system ranging from collection of water at local street level to disposal of accumulated drainage water at pump stations.		

MIS Links	Cost Calculation :	MC Programme costing.xls	Map :	MC 011 Map.jpg
	Disb't Schedule :	MC Programme costing.xls	Description :	MC 011 PgP.doc

Finance				Funding (%)	Expected by
		Costs	Private	GoB	Beneficiaries
Total Capital ³	38,500.00 MTk	0%	100%	0%	22
Ultimate Recurring	3,080.00 MTk/yr	n/a	85%	15%	26
Date of Data :	31 07 01	Stacked Cumulative Cash Flow Chart			
	(dd) (mm) (yy)				
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
• Dhaka Stormwater drainage programme prepared and agreed	• Signed programme/project documents	NYD
• Dhaka Stormwater drainage programme implemented	• Programme/project completion reports	NYD
• Dhaka served by stormwater drainage facilities	• Survey reports	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

Programmes Shared with Other Region(s)

FCD and FCD/I Management Rationalisation

Ref : **ID 003**

Cluster :	Institutional Development	Region(s) :	All
Focus/Foci :	Bangladesh Water Development Board	Location :	Nationwide
Start Year ¹ :	2002	Duration ² :	6 year(s)
		Agency(s) Responsible :	BWDB (Lead) None (Supporting)
Short Description :	This programme is intended to facilitate the transfer of FCD/I scheme management as per policy. Three steps will be involved. In the short term BWDB will receive capacity building with respect to environmental and social issues, while in consultation with the stakeholders a range of transfer options will be identified and prepared. Finally these options will be pilot tested at selected locations during the short and medium term.		

MIS Links	Cost Calculation :	ID Programme costing.xls	Map :	ID 003 Map.jpg
	Disb't Schedule :	ID Programme costing.xls	Description :	ID 003 PgP.doc

Finance						
		Costs	Private	Funding (%)	Beneficiaries	Expected by ProgrammeYear
Total Capital ³	1,300.00	MTk	0%	85%	15%	6
Ultimate Recurring	25.20	MTk/yr	n/a	50%	50%	7
Date of Data :	31	07	01	Stacked Cumulative Cash Flow Chart		
	(dd)	(mm)	(yy)			
Status :	Identified					
Financial Base Year:	mid-2000					
Planned Expenditure (to date) :	MTk					
Actual Expenditure ⁴ (to date) :	MTk					

Monitoring

Objective	Indicator	Present Status ⁵
• Reduction in the number of schemes directly managed by BWDB	• Nationwide FCD(/I) statistics	NYD
• Increase in funds for O&M after turnover of scheme	• Scheme accounts	NYD
• 75% of decentralised FCD/I schemes considered sustainable within 10 years of transfer	• National FCD/I scheme statistics	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

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				Funding (%)	Expected by
	Costs	Private	GoB	Beneficiaries	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	Stacked Cumulative Cash Flow Chart			
	(dd) (mm) (yy)				
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
• Integrated river management plans	• Plan documents approved	NYD
• Sustainable river development and management works	• Physical progress	NYD
	• Effective operation and maintenance	
	• Independent surveys of end users	

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

North Central and North West Regional Surface Water Distribution Networks Ref : **MR 009**

Cluster :	Main Rivers	Region(s) :	NW, NC
Focus/Foci :	Surface Distribution Networks	Location :	NW & NC Regions
Start Year ¹ :	2021	Duration ² :	12 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 Brahmaputra, 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 005, which would also determine the scope of the distribution network required.		

MIS Links	Cost Calculation :	MR Programme costing.xls	Map :	MR 009 Map.jpg
	Disb't Schedule :	MR Programme costing.xls	Description :	MR 009 PgP.doc

Finance			Funding (%)		Expected by
	Costs	Private	GoB	Beneficiaries	ProgrammeYear
Total Capital ³	12,862.00 MTk	0%	98%	2%	12
Ultimate Recurring	385.90 MTk/yr	n/a	75%	25%	13
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				

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 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

Urban Arsenic Mitigation

Ref : **TR 001**

Cluster :	Towns and Rural Areas	Region(s) :	NW, NC, NE, SW, SC, SE, EH
Focus/Foci :	Arsenic Mitigation	Location :	NW, NC, NE, SW, SC, SE, & EH regions
Start Year ¹ :	2001 Duration ² : 4 year(s)	Agency(s) Responsible :	Paurashavas (Lead) CBOs (Supporting)
Short Description :	Arsenic contamination of groundwater water supplies has become a serious health hazard in Bangladesh affecting some 30 million people. This is recognised by NWPo §4.06a of the NWPo which requires the Government to “facilitate availability of safe...drinking water through various means”. This programme will provide short term arsenic mitigation measures for water supplies (such as arsenic filters and household removal facilities in all urban areas except those comprising the Statistical Metropolitan Areas (See the Major City cluster). More permanent measures will be introduced in the medium and long terms (see Programme TR 003).		

MIS Links	Cost Calculation :	TR Programme costing.xls	Map :	TR 001 Map.jpg
	Disb't Schedule :	TR Programme costing.xls	Description :	TR 001 PgP.doc

Finance				Funding (%)	Expected by
	Costs	Private	GoB	Beneficiaries	ProgrammeYear
Total Capital ³	439.00 MTk	0%	85%	15%	4
Ultimate Recurring	216.90 MTk/yr	n/a	0%	100%	5
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
• Procurement and installation programmes prepared	• Signed programme/project documents	NYD
• Procurement and installation programmes complete	• Programme/Project completion reports	NYD
	• Household surveys	
• Arsenic free potable water available to 100% of large and small town populations	• Water quality	NYD
	• Community health records	

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

Rural Arsenic Mitigation

Ref : **TR 002**

Cluster :	Towns and Rural Areas	Region(s) :	NW, NC, NE, SW, SC, SE, EH
Focus/Foci :	Arsenic Mitigation	Location :	NW, NC, NE, SW, SC, SE, & EH regions
Start Year ¹ :	2001 Duration ² : 9 year(s)	Agency(s) :	DPHE (Lead)
		Responsible :	CBOs (Supporting)
Short Description :	Arsenic contamination of groundwater water supplies has become a serious health hazard in Bangladesh affecting some 76 million people. This is recognised by NWPo §4.06a of the NWPo which requires the Government to “facilitate availability of safe...drinking water through various means”. This programme will provide short term and medium term arsenic mitigation measures for water supplies (such as arsenic filters and household removal facilities in all rural. More permanent measures will be introduced in the long term (See Programme TR 004) .		

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

Finance					
	Costs	Private	Funding (%) GoB	Beneficiaries	Expected by ProgrammeYear
Total Capital ³	1,185.00 MTk	0%	85%	15%	9
Ultimate Recurring	585.40 MTk/yr	n/a	0%	100%	10
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
• Procurement and installation programmes prepared	• Signed programme/project documents	NYD
• Procurement and installation programmes complete	• Programme/Project completion reports	NYD
	• Household/community surveys	
• Arsenic free potable water available to 100% of rural population	• Water quality	NYD
	• Community health records	

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

Large and Small Town Water Supply and Distribution Systems

Ref :

TR 003

Cluster :	Towns and Rural Areas	Region(s) :	All
Focus/Foci :	Water Supplies	Location :	Nationwide
Start Year ¹ :	2002	Duration ² :	25 year(s)
		Agency(s) Responsible :	DPHE (Lead) CBOs, Private Sector (Supporting)
Short Description :	The preamble to NWPo §4.6 of the NWPo highlights the water supply problems facing Bangladesh's urban areas (large and small). Water tables are receding due to heavy groundwater abstraction. Furthermore, saline intrusion in coastal aquifers and contamination elsewhere further compromises the drinking water supplies for urban inhabitants. In accordance with the Government's policy to "Facilitate availability of safe and affordable drinking water supplies." (NWPo §4.6.a), this programme is intended to provide resources for the implementation of piped water supply schemes fed from DTW or surface water sources in order to serve 100% of the population (of each town) with piped drinking water supplies by year 2010.		

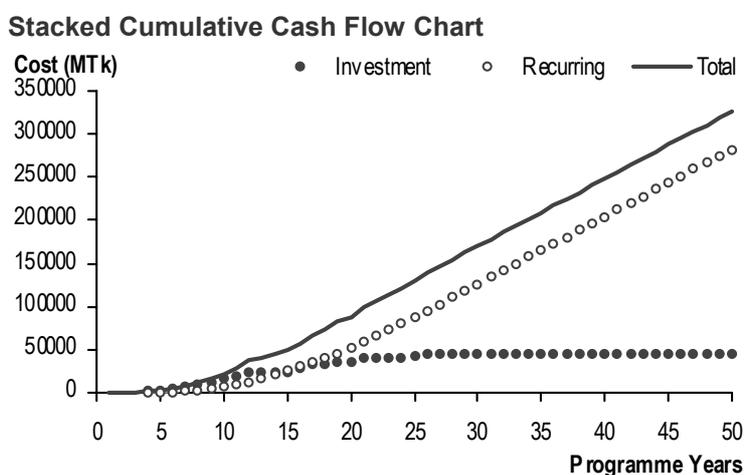
MIS Links	Cost Calculation :	TR Programme costing.xls	Map :	TR 003 Map.jpg
	Disb't Schedule :	TR Programme costing.xls	Description :	TR 003 PgP.doc

Finance					
	Costs	Private	Funding (%)	Expected by	
			GoB	Beneficiaries	ProgrammeYear
Total Capital ³	44,055.00 MTk	0%	100%	0%	25
Ultimate Recurring	7,820.80 MTk/yr	n/a	0%	100%	26

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

Status : **Identified**
Financial Base Year: **mid-2000**

Planned Expenditure (to date) : **0** MTk
Actual Expenditure⁴ (to date) : **0** MTk



Monitoring

Objective	Indicator	Present Status ⁵
• Town water supply programmes prepared	• Signed programme/project documents	NYD
• Sustainable operation and maintenance of town water supply systems	• Frequency of pipe breaks • Response times	NYD
• Town water supply programme completed	• Programme/project completion reports • Household, district surveys	NYD
• 100% of large and small town population have access to formal water supplies	• Survey reports	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

Rural Water Supply and Distribution Systems

Ref :

TR 004

Cluster :	Towns and Rural Areas	Region(s) :	All
Focus/Foci :	Water Supplies	Location :	Rural Areas Nationwide
Start Year ¹ :	2001	Duration ² :	25 year(s)
		Agency(s) Responsible :	DPHE (Lead) LGIs, DPHE, CBOs (Supporting)
Short Description :	The preamble to NWPo §4.6 of the NWPo recognises that "The rural areas of Bangladesh suffer from a lack of quality drinking water". This situation is worsening due to heavy withdrawals of groundwater (the principle source for most of the rural areas) for irrigation a trend which is exacerbated by agro-chemical and saline pollution of groundwater. Although the rural population is expected to increase relatively slowly over the next 25 years, from 102 million in 2000 to 108 million in 2025, it is nonetheless the GoB's intention to "facilitate the availability of safe and affordable drinking water supplies through various means" (NWPo §4.6.a). It is estimated that 92% of the rural population normally have access to potable water, mainly through shallow HTWs. The thrust of this programme is therefore to improve the quality of water supply services (reliability and access) in areas already served as well as extending the coverage to 100% by 2005.		

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

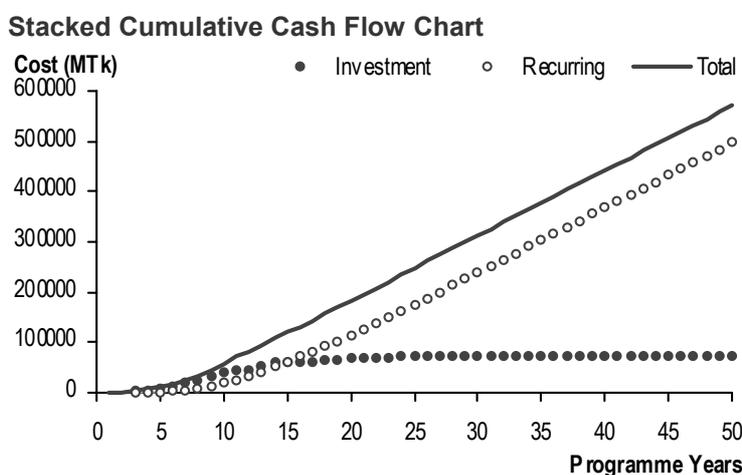
Finance					
	Costs	Private	Funding (%)	Expected by	
			GoB	Beneficiaries	ProgrammeYear
Total Capital ³	74,234.00 MTk	80%	20%	0%	25
Ultimate Recurring	12,884.30 MTk/yr	n/a	0%	100%	25

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

Status : **Identified**
Financial Base Year: **mid-2000**

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

Actual Expenditure⁴ (to date) : **0** MTk



Monitoring

Objective	Indicator	Present Status ⁵
• Rural water supply programmes prepared	• Signed programme/project documents	NYD
• Sustainable operation and maintenance of rural water supply systems	• Frequency of pipe breaks • Response times	NYD
• Rural water supply programmes completed	• Programme/project completion reports • Household, community surveys	NYD
• 100% of rural population has access to formal water supplies	• Survey reports	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

Large and Small Town Sanitation and Sewerage Systems

Ref : **TR 005**

Cluster :	Towns and Rural Areas	Region(s) :	All
Focus/Foci :	Sanitation	Location :	Nationwide
Start Year ¹ :	2002	Duration ² :	25 year(s)
		Agency(s) Responsible :	Paurashavas (Lead) LGIs, LGED, DPHE, CBOs (Supporting)
Short Description :	<p>§4.6.c of the NWPo "mandates relevant public water and sewerage institutions to provide necessary drainage and sanitation, including treatment of domestic wastewater and sewage and replacement of open drains and construction of sewers, in the interest of public health." The population of large (>50,000) and small towns is expected to more than double over the next 25 years, from 14 million in 2000 to 36 million in 2025. At present, between 55% (small towns) and 65% (large towns) of the population is adequately served by sanitation facilities, mainly by pit latrines with/without septic tanks. In the poor areas and fringe communities, people are dependant on 'hanging latrines' and open defecation which exacerbates pollution and public health problems and increases the likelihood of epidemic outbreaks of waterborne and water-related diseases. This programme aims to provide appropriate sanitation facilities and raise and sustain service coverage at 100% by 2010.</p>		

MIS Links	Cost Calculation :	TR Programme costing.xls	Map :	TR 005 Map.jpg
	Disb't Schedule :	TR Programme costing.xls	Description :	TR 005 PgP.doc

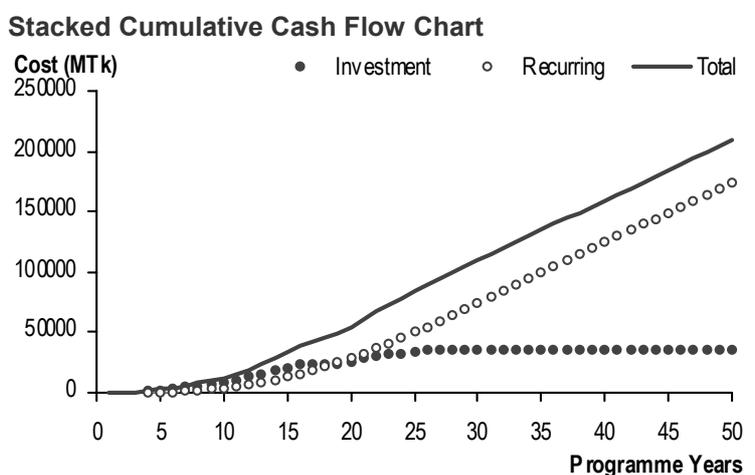
Finance			Funding (%)		Expected by
	Costs	Private	GoB	Beneficiaries	ProgrammeYear
Total Capital ³	34,894.00 MTk	0%	100%	0%	25
Ultimate Recurring	4,543.10 MTk/yr	n/a	0%	100%	26

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

Status : **Identified**
Financial Base Year: **mid-2000**

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

Actual Expenditure⁴ (to date) : **0** MTk



Monitoring

Objective	Indicator	Present Status ⁵
• Sustainable operation and maintenance of town sanitation systems	• Frequency of service break downs • Response times	NYD
• Reduced environmental pollution	• Faecal coliform counts	NYD
• Improved public health	• Public health statistics	NYD
• 100% of large and small town populations have access to sanitation facilities	• Survey reports	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

Rural Sanitation

Ref : **TR 006**

Cluster :	Towns and Rural Areas	Region(s) :	All
Focus/Foci :	Sanitation	Location :	Rural Areas Nationwide
Start Year ¹ :	2001	Duration ² :	25 year(s)
		Agency(s) Responsible :	DPHE (Lead) CBOs, Private sector, LGIs (Supporting)
Short Description :	§4.6.c of the NWPo "mandates relevant public water and sewerage institutions to provide necessary drainage and sanitation, including treatment of domestic wastewater and sewage and replacement of open drains and construction of sewers, in the interest of public health." The population of rural areas is expected to increase slightly over the next 25 years, from 102 million in 2000 to 108 million in 2025. At present, only 40% of the population has access to pit latrine facilities, the other 60% relying on 'hanging latrines' and open defecation which exacerbates pollution and public health problems and increases the likelihood of epidemic outbreaks of waterborne and water-related diseases. This programme aims to provide appropriate sanitation facilities for the whole rural population and raise and sustain service coverage at 100% by 2010.		

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

Finance			Funding (%)		Expected by
	Costs	Private	GoB	Beneficiaries	ProgrammeYear
Total Capital ³	31,622.00 MTk	80%	20%	0%	25
Ultimate Recurring	5,901.00 MTk/yr	n/a	0%	100%	26

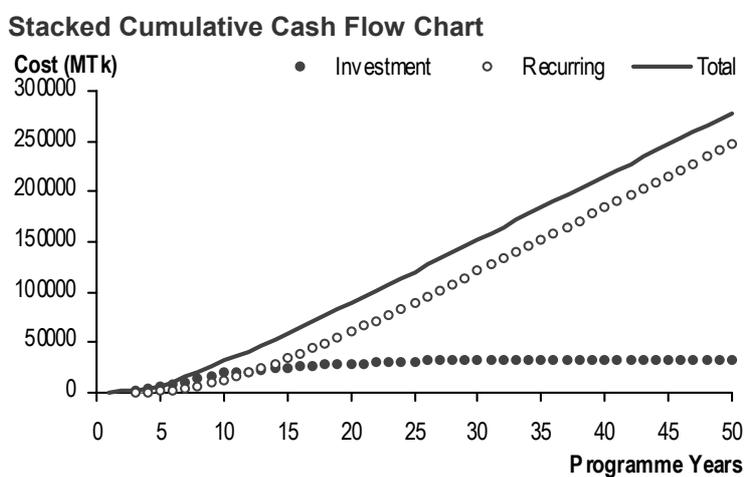
Date of Data : **31 07 01**
(dd) (mm) (yy)

Status : **Identified**

Financial Base Year: **mid-2000**

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

Actual Expenditure⁴ (to date) : **0** MTk



Monitoring

Objective	Indicator	Present Status ⁵
• Sustainable operation and maintenance of rural sanitation systems	• Frequency of service break downs • Response times	NYD
• Reduced environmental pollution	• Faecal coliform counts	NYD
• Improved public health	• Public health statistics	NYD
• 100% of rural populations have access to sanitation facilities	• Survey reports	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

Large and Small Town Flood Protection

Ref :

TR 007

Cluster :	Towns and Rural Areas	Region(s) :	All
Focus/Foci :	Flood Protection	Location :	Large and Small towns throughout the country
Start Year ¹ :	2003	Duration ² :	25 year(s)
		Agency(s) Responsible :	BWDB (Lead) None (Supporting)
Short Description :	§4.2.9.i of the NWPo states that "...critical areas such as district and Upazila towns, important commercial centres, and places of historical importance will be gradually provided reasonable degree of protection against flood". The low areas of many of the towns in Bangladesh are vulnerable to flooding during monsoon. Significant damage was caused during the 1988 and 1998 floods due either to absence of embankments, embankment failure or the inability of protected areas to drain during times of heavy rainfall because of high water levels outside. This programme will undertake measures such as: raising of existing embankment crest levels; repair of damaged embankments; and, provision of erosion protection works where necessary. New flood protection works will also be involved consisting mainly of constructing embankments on riverbanks with integral drainage sluices.		

MIS Links	Cost Calculation :	TR Programme costing.xls	Map :	TR 007 Map.jpg
	Disb't Schedule :	TR Programme costing.xls	Description :	TR 007 PgP.doc

Finance				Funding (%)		Expected by
	Costs	Private	GoB	Beneficiaries	ProgrammeYear	
Total Capital ³	14,460.00 MTk	0%	100%	0%		25
Ultimate Recurring	1,301.40 MTk/yr	n/a	50%	50%		26
Date of Data :	31 07 01	Stacked Cumulative Cash Flow Chart				
	(dd) (mm) (yy)					
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
• Flood protection programmes prepared and agreed	• Signed programme/project documents	NYD
• Flood protection programmes implemented	• Programme/project completion reports	NYD
• All large and small towns protected from 1: 100 year floods	• Physical evidence and hydrological data	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

Large and Small Town Stormwater Drainage

Ref :

TR 008

Cluster :	Towns and Rural Areas	Region(s) :	All
Focus/Foci :	Stormwater Drainage	Location :	Nationwide
Start Year ¹ :	2003	Duration ² :	25 year(s)
		Agency(s) Responsible :	Paurashavas (Lead) LGIs (Supporting)
Short Description :	§4.6 says that "Lack of proper sanitation and drainage facilities, are the primary causes of diseases in the urban areas". Storm water drainage is an increasing problem in urban areas, as the construction of buildings and paved areas has progressively increased run-off. At the same time, pressures on land has caused natural drainage channels to be filled in and built upon. Encroachment on watercourses and water bodies has progressively reduced natural drainage. No urban areas have adequate storm drainage at present. This programme provides resources for a nationwide installation/upgrading and maintenance of stormwater drainage facilities in large and small towns. These will most probably be gravity systems which although cost-effective, will require regular adequate maintenance.		

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

Finance					
	Costs	Private	Funding (%) GoB	Beneficiaries	Expected by ProgrammeYear
Total Capital ³	64,000.00 MTk	0%	100%	0%	25
Ultimate Recurring	7,040.00 MTk/yr	n/a	50%	50%	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 Status ⁵
• Stormwater drainage programme prepared and agree	• Signed programme/project documents	NYD
• Stormwater drainage programmes implemented	• Programme/project completion reports	NYD
• Stormwater drainage installed in all large and small towns	• Survey reports	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, Regional and Key Feeder Roads - Flood Proofing

Ref : **DM 004**

Cluster :	Disaster Management	Region(s) :	NW, NC, NE, SE, SC,SW
Focus/Foci :	Flood Proofing	Location :	Regions NW, NC, NE, SE, SC,SW
Start Year ¹ :	2001	Duration ² :	25 year(s)
		Agency(s) Responsible :	RHD (Lead) LGED (Supporting)
Short Description :	In line with Policy's call for coping with floods in relation to vital infrastructure (§4.2.p.ii), this programme targets the flood proofing needs of key portions of Bangladesh's highway network. As with current practice, the National Highways, Regional Roads and Type A Feeder Roads will be raised by the central Roads and Highways Department (RHD). Type B Feeder Roads and Rural Roads will be raised by the Local Government Engineering Departments (LGEDs). The programme also has collateral benefits since the raised embankments comprise safe havens while facilitating the movement of relief goods during flood emergencies. This is a long term programme with national coverage, however it has been assumed that embankment raising will be carried out when a particular road is due for major maintenance or re-surfacing, with priority given to high risk areas in the case of national and regional roads..		

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

Finance				Funding (%)	Expected by
	Costs	Private	GoB	Beneficiaries	ProgrammeYear
Total Capital ³	10,904.80 MTk	0%	100%	0%	25
Ultimate Recurring	436.20 MTk/yr	n/a	100%	0%	26
Date of Data :	31	07	01	Stacked Cumulative Cash Flow Chart	
	(dd)	(mm)	(yy)		
Status :	Identified				
Financial Base Year:	mid-2000				
Planned Expenditure (to date) :	428 MTk				
Actual Expenditure ⁴ (to date) :	MTk				

Monitoring

Objective	Indicator	Present Status ⁵
• Quantitative needs assessment	• Needs assessment reports	NYD
• Programme documents prepared	• Programme documents	NYD
• Programmes underway	• Signed contracts/work orders	NYD
• 100% of all national and feeder roads raised by 1m in high and .5m in low risk areas; 20% of feeder and rural roads raised by 1m in high risk areas	• Construction records • Site visits	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

Railway Flood Proofing

Ref : **DM 005**

Cluster :	Disaster Management	Region(s) :	SW, SC, NW, NC, NE, SE
Focus/Foci :	Flood Proofing	Location :	Regions SW, SC, NW, NC, NE, SE
Start Year ¹ :	2001	Duration ² :	25 year(s)
		Agency(s) Responsible :	BR (Lead) None (Supporting)
Short Description :	In line with Policy's call for coping with floods in relation to vital infrastructure (NWPo §4.2.p.ii), this programme targets at the flood proofing needs of key portions of Bangladesh's railway network. The Railway Department will be responsible for implementation of this programme. The programme has collateral benefits since the raised embankments comprise safe havens while facilitating the movement of relief goods during flood emergencies. This is a long term programme with coverage in six hydrological regions and work is expected to proceed as part of the network upgrading programmes. However, a significant risk to this programme is that the disruption to services that is inevitable when line raising is in progress, may well persuade the railway operators that it is cheaper to lose income for a few hours or days each year than to incur expenditure raising lines while simultaneously losing revenues for that period.		

MIS Links	Cost Calculation :	DM Programme costing.xls	Map :	DM 005 Map.jpg
	Disb't Schedule :	DM Programme costing.xls	Description :	DM 005 PgP.doc

Finance				Funding (%)		Expected by
	Costs	Private	GoB	Beneficiaries	Programme	Year
Total Capital ³	977.00 MTk	0%	100%	0%		25
Ultimate Recurring	39.10 MTk/yr	n/a	100%	0%		26
Date of Data :	31	07	01	Stacked Cumulative Cash Flow Chart		
	(dd)	(mm)	(yy)			
Status :	Identified					
Financial Base Year:	mid-2000					
Planned Expenditure (to date) :	33 MTk					
Actual Expenditure ⁴ (to date) :	MTk					

Monitoring		
Objective	Indicator	Present Status⁵
• Quantitative needs assessment	• Needs assessment reports	NYD
• Programme documents prepared	• Programme documents	NYD
• Programmes underway	• Signed contracts/work orders	NYD
• 100% of all high risk railways raised by 1m and 100% of low risk railway raised by .5m	• Construction records • Site visits	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

Supplementary Irrigation and Drought Proofing of Rural Water Supplies

Ref : **DM 006**

Cluster :	Disaster Management	Region(s) :	All
Focus/Foci :	Drought Proofing	Location :	Nationwide but emphasising NW, NC, SE, SW, SC
Start Year ¹ :	2002	Duration ² :	10 year(s)
		Agency(s) Responsible :	DAE (Lead) None (Supporting)
Short Description :	This programme aims to promote supplementary irrigation during the drought-prone aman season, as well as including efforts to drought-proof rural water supplies.		

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

Finance						
		Costs	Private	Funding (%)	GoB	Beneficiaries
Total Capital ³	1,041.40	MTk	0%	85%	15%	10
Ultimate Recurring	0.00	MTk/yr	n/a	n/a	n/a	n/a
Date of Data :	31	07	01	Stacked Cumulative Cash Flow Chart		
	(dd)	(mm)	(yy)			
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
• New Tara hand tubewells commissioned	• Physical number of new wells	NYD
• Increased area of aman rice under supplementary irrigation	• Areas planted	NYD
• Increased quality of life in target areas	• Return on family labour	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

Promotion of Expanded Minor Irrigation and Improved On-farm Water Management

Ref : **AW 001**

Cluster :	Agriculture and Water Management	Region(s) :	All
Focus/Foci :	Irrigation	Location :	Nationwide
Start Year ¹ :	2002	Duration ² :	15 year(s)
		Agency(s) Responsible :	DAE (Lead) None (Supporting)
Short Description :	It is the policy of the Government to "Encourage and promote continued development of minor irrigation" (NWPo §4.7.a) and to "Encourage future groundwater development for irrigation by both the public and the private sectors" (§4.7.b). With the ultimate goal of increased agricultural productivity, this programme involves the improvement of irrigation pumping efficiency, promotion of lower cost force-mode tubewell pumps, and a farmer education/training component to improve on-farm water management and the wise use of water		

MIS Links	Cost Calculation :	AW Programme costing.xls	Map :	AW 001 Map.jpg
	Disb't Schedule :	AW Programme costing.xls	Description :	AW 001 PgP.doc

Finance				Funding (%)		Expected by
	Costs	Private	GoB	Beneficiaries	ProgrammeYear	
Total Capital ³	310.00 MTk	0%	85%	15%		15
Ultimate Recurring	7.20 MTk/yr	n/a	0%	100%		16
Date of Data :	31	07	01	Stacked Cumulative Cash Flow Chart		
	(dd)	(mm)	(yy)			
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
• Increased diesel pump engine efficiencies	• Sample tests	NYD
• Farmers adopt force mode pumpsets	• Farmer survey	NYD
• Irrigation water use efficiencies increased	• Sample tests	NYD
• Average return per unit of water increased in minor irrigation areas	• Household surveys and field measurements	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

Improved Performance of Existing Public Surface Water Irrigation Schemes

Ref : **AW 002**

Cluster :	Agriculture and Water Management	Region(s) :	All
Focus/Foci :	Irrigation	Location :	Nationwide
Start Year ¹ :	2004	Duration ² :	20 year(s)
		Agency(s) Responsible :	BWDB (Lead) BMDA, CBOs, LGIs, NGOs, Private Sector (Supporting)
Short Description :	It is the policy of the government to "encourage future groundwater development for irrigation by both the public and private sectors" (NWPo §4.7.b). Even so experience confirms that current performance of existing public irrigation schemes is not satisfactory. This programme is intended to address both challenges by means of the following approaches: full participation of beneficiaries; command area development; conjunctive use of surface and groundwater; rehabilitation; improved O&M and appropriate beneficiary contributions to both capital and recurring costs.		

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

Finance					
	Costs	Private	Funding (%)	Expected by	
			GoB	Beneficiaries	ProgrammeYear
Total Capital ³	3,275.00 MTk	0%	85%	15%	20
Ultimate Recurring	98.30 MTk/yr	n/a	25%	75%	21

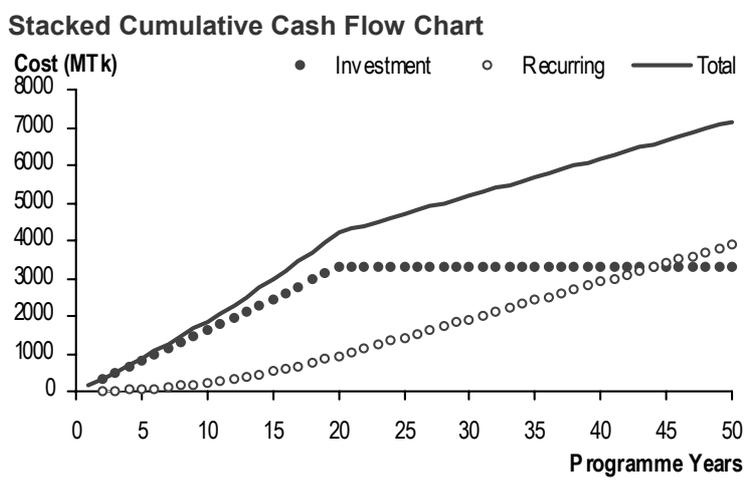
Date of Data : **31 07 01**
(dd) (mm) (yy)

Status : **Identified**

Financial Base Year: **mid-2000**

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

Actual Expenditure⁴ (to date) : **0** MTk



Monitoring

Objective	Indicator	Present Status ⁵
• Sustainable operation and maintenance	• User group records • Long term O&M expenditure trends	NYD
• Public irrigation schemes rehabilitated and upgraded	• Construction records • On site verification	NYD
• Increased returns per unit of water and labour on public irrigation areas	• Household surveys and field measurements	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

New Public Surface Water Irrigation Schemes

Ref : **AW 003**

Cluster :	Agriculture and Water Management	Region(s) :	All
Focus/Foci :	Irrigation	Location :	Nationwide
Start Year ¹ :	2005	Duration ² :	15 year(s)
		Agency(s) Responsible :	BWDB (Lead) LGED (Supporting)
Short Description :	The preamble NWPo §4.7 requires government to continue promoting the development of surface water irrigation where feasible and to focus where practical on the conjunctive use of groundwater and surface water. The overall objective of this programme is to increase agricultural production and reduce demand on groundwater abstraction by promoting and implementing new surface water irrigation schemes.		

MIS Links	Cost Calculation :	AW Programme costing.xls	Map :	AW 003 Map.jpg
	Disb't Schedule :	AW Programme costing.xls	Description :	AW 003 PgP.doc

Finance			Funding (%)		Expected by
	Costs	Private	GoB	Beneficiaries	ProgrammeYear
Total Capital ³	6,125.00 MTk	0%	85%	15%	15
Ultimate Recurring	306.30 MTk/yr	n/a	25%	75%	16
Date of Data :	31 07 01	Stacked Cumulative Cash Flow Chart			
	(dd) (mm) (yy)				
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
• Plans prepared	• Project documents	NYD
• Projects in progress	• Funding in place	NYD
	• Signed contracts/work orders	
• Increased area under public surface water irrigation	• Construction records	NYD
	• On site verification	

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

Improved Water Management at Local Government Level

Ref : **AW 005**

Cluster :	Agriculture and Water Management	Region(s) :	All
Focus/Foci :	Water Management	Location :	Nationwide
Start Year ¹ :	2001	Duration ² :	24 year(s)
		Agency(s) Responsible :	LGED (Lead) None (Supporting)
Short Description :	Implementation of the NWPo will result in a four tiered civil-administrative hierarchy for the water sector: central, regional, local and community. The BWDB will remain responsible for water management issues as they affect or occur in the main and regional rivers. Equally, management of certain schemes below 5000ha will become the responsibility of community based organisations. Water courses, whether natural or man-made, that will be the management responsibility of neither BWDB nor community organisations will become the responsibility of LGI's. Furthermore, actual ownership of all schemes except municipal water schemes will be transferred to the LGI's. This programme is intended to rehabilitate, upgrade and restore as appropriate, the water courses involved as well as to provide the LGI's with the necessary appurtenant equipment and facilities.		

MIS Links	Cost Calculation :	AW Programme costing.xls	Map :	AW 005 Map.jpg
	Disb't Schedule :	AW Programme costing.xls	Description :	AW 005 PgP.doc

Finance					
	Costs	Private	Funding (%) GoB	Beneficiaries	Expected by ProgrammeYear
Total Capital ³	5,495.00 MTk	0%	85%	15%	24
Ultimate Recurring	156.00 MTk/yr	n/a	25%	75%	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
• Sustainable management and ownership models in place	• Reports • Legal instruments	NYD
• Local rivers, feeder canals and main drains transferred to LGI's for management/ownership as per policy	• Instruments of transfer ratified and promulgated • Title deeds	NYD
• Local rivers, feeders canals and main drains restored, rehabilitated, upgraded as appropriate	• Project completion reports • Physical surveys • Hydrological records	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

Improved Water Management at Community Level

Ref :

AW 006

Cluster :	Agriculture and Water Management	Region(s) :	All
Focus/Foci :	Water Management	Location :	Nationwide
Start Year ¹ :	2001	Duration ² :	24 year(s)
		Agency(s) Responsible :	LGED (Lead) LGIs, DAE (Supporting)
Short Description :	Implementation of the NWPo will result in a four tiered civil-administrative hierarchy for the water sector: central, regional, local and community. The BWDB will remain responsible for water management issues as they affect or occur in the main and regional rivers. Local rivers and scheme delivery systems will become the management (and in some cases property) of LGI's while management of certain schemes below 5000ha will become the responsibility of community based organisations. This programme is intended to rehabilitate, upgrade and restore as appropriate, the water courses and field distribution/collection systems involved as well as to assist in providing with the necessary appurtenant equipment and facilities.		

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

Finance				Funding (%)		Expected by
	Costs	Private	GoB	Beneficiaries	Programme	Year
Total Capital ³	865.00 MTk	0%	15%	85%		24
Ultimate Recurring	24.60 MTk/yr	n/a	0%	100%		26
Date of Data :	31	07	01	Stacked Cumulative Cash Flow Chart		
	(dd)	(mm)	(yy)			
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
• Effective community based water management organisations	• Field evaluations	NYD
• Khals re-excavated over 10,000ha	• Physical survey	NYD
• Sustainable sub-secondary water use efficiencies of 60% for paddy and 75% for dryfoot crops	• Field tests	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

Rationalisation of Existing FCD Infrastructure

Ref : **AW 007**

Cluster :	Agriculture and Water Management	Region(s) :	All
Focus/Foci :	Coastal Protection, AND Flood Control and Drainage	Location :	Nationwide
Start Year ¹ :	2007	Duration ² :	20 year(s)
		Agency(s) Responsible :	BWDB (Lead) LGED (Supporting)
Short Description :	The NWPo states that "Ownership of FCD and FCDI projects with command area of 1000 ha or less will gradually be transferred to the local governments, beginning with the ones that are being satisfactorily managed and operated by the beneficiary/ community organisations." (NWPo §4.4.f) and that is also the policy of the government to "Investigate thoroughly, important flood control and management issues, such as the efficacy of coastal polders, for guiding future policy on structural interventions" (NWPo §4.15.c). This programme will assess and rationalise all existing FCD schemes by specifying and implementing the appropriate course of action for each scheme according to the following options: a) continuation of the present situation; b) handover to beneficiaries or local govt.; c) rehabilitation and improvement; d) complete withdrawal.		

MIS Links	Cost Calculation :	AW Programme costing.xls	Map :	AW 007 Map.jpg
	Disb't Schedule :	AW Programme costing.xls	Description :	AW 007 PgP.doc

Finance			Funding (%)		Expected by
	Costs	Private	GoB	Beneficiaries	ProgrammeYear
Total Capital ³	21,471.70 MTk	0%	85%	15%	20
Ultimate Recurring	1,152.80 MTk/yr	n/a	50%	50%	21
Date of Data :	31 07 01	Stacked Cumulative Cash Flow Chart			
	(dd) (mm) (yy)				
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
• Sustainable operation and maintenance on 50% of all existing inland and coastal FCD/I schemes	• User group records • Long term O&M expenditure trends	NYD
• Inland and coastal FCD/I rehabilitated and upgraded on a participatory basis	• Participatory agreements • Project completion reports	NYD
• Increased returns per unit of water and labour in public irrigation areas	• Household surveys and field measurements	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 Fish Pass Programme

Ref : **EA 005**

Cluster :	Environment and Aquatic Resources	Region(s) :	All
Focus/Foci :	Water Management for Fisheries	Location :	Nationwide
Start Year ¹ :	2003	Duration ² :	15 year(s)
		Agency(s) Responsible :	BWDB (Lead) DoFish (Supporting)
Short Description :	The NWPo requires that "Fisheries and wildlife will receive due emphasis in water resource planning in areas where their social impact is high" (NWPo §4.9.a); "Measures will be taken to minimise disruption to the natural aquatic environment in streams and water channels." (NWPo §4.9.b), and; "Water development plans will not interrupt fish movement and will make adequate provisions in control structures for allowing fish migration and breeding." (NWPo §4.9.e). Yet there has been a reduction in fish production in recent years due, at least in part, to structures that inhibit fish migration routes. As a response, this programme will screen all major existing FCD/I projects (>5000ha) and will prepare and implement a plan for mitigation works. Emphasis will be given to 'fish-friendly' structures rather than separate dedicated fish-pass structures.		

MIS Links	Cost Calculation :	EA Programme costing.xls	Map :	EA 005 Map.jpg
	Disb't Schedule :	EA Programme costing.xls	Description :	EA 005 PgP.doc

Finance				Funding (%)		Expected by
	Costs	Private	GoB	Beneficiaries	Programme	Year
Total Capital ³	3,000.00 MTk	0%	100%	0%		15
Ultimate Recurring	75.00 MTk/yr	n/a	50%	50%		16
Date of Data :	31 07 01	Stacked Cumulative Cash Flow Chart				
	(dd) (mm) (yy)					
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
• Appropriate fish-friendly measures routinely adopted in the design and operation of all relevant structures	• Number of conforming designs	NYD
• 90% of all feasible fish passes in place	• Design regulation	NYD
• Sustainable increase in floodplain fish catches, in terms of both numbers and diversity	• Number of operational fish passes	NYD
	• Fish catch statistics (provided that impact of water sector measures can be distinguished from other impacts)	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

Unspecified Regional Programmes

Ref : **EA 006**

Cluster :	Environment and Aquatic Resources	Region(s) :	All
Focus/Foci :	General Environmental Responsibilities	Location :	Nationwide
Start Year ¹ :	2005 Duration ² : 15 year(s)	Agency(s) Responsible :	WARPO (Lead) DoE, DoFish, DoForest, BWDB, LGED, RHD (Supporting)
Short Description :	The purpose of this programme is to ensure that provision is made for particular regional environmental concerns that are not well reflected in the other EA Programmes. This allows for comparatively small, but locally important issues to be dealt with according to regional priorities. This also implies regional (and down to village level) participation in identifying the concerns, which are therefore left non-specific at this stage.		

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

Finance					
	Costs	Private	Funding (%)	Expected by	
			GoB	Beneficiaries	ProgrammeYear
Total Capital ³	600.00 MTk	0%	100%	0%	15
Ultimate Recurring	19.30 MTk/yr	n/a	25%	75%	16

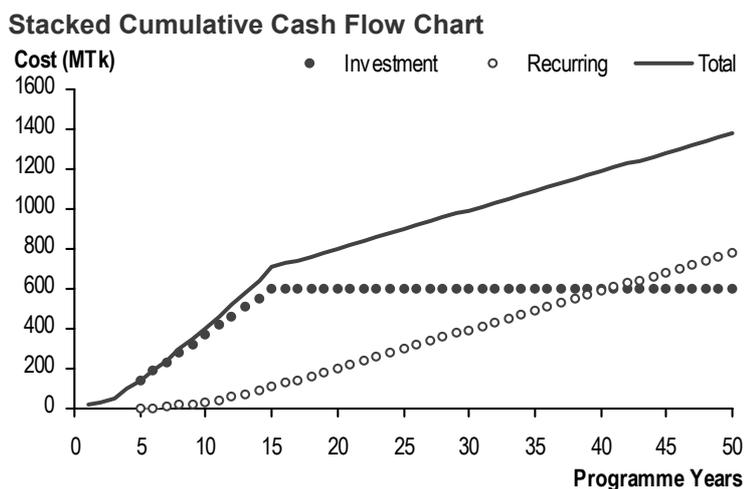
Date of Data : **31 07 01**
(dd) (mm) (yy)

Status : **Identified**

Financial Base Year: **mid-2000**

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

Actual Expenditure⁴ (to date) : **0** MTk



Monitoring

Objective	Indicator	Present Status ⁵
• 8 pilot projects (one per region) completed and evaluated	• Project evaluation reports	NYD
• Improvement in region-specific environmental characteristics	• Specific indicators and thresholds as appropriate	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

Environmentally Critical Areas and Integrated Wetland Management

Ref : **EA 008**

Cluster :	Environment and Aquatic Resources	Region(s) :	All
Focus/Foci :	Water Management for Eco-Sensitive Areas	Location :	Nationwide
Start Year ¹ :	2002	Duration ² :	23 year(s)
		Agency(s) Responsible :	DoE (Lead) WARPO, LGIs (Supporting)
Short Description :	The country's aquatic habitat is rapidly shrinking as a result of abstractions (especially for irrigation); flood control and agricultural encroachment. And deteriorating water quality exacerbates the problems. Supported by other measures, safeguarding the water resources of the nation's water bodies is necessary to arrest the trend and provide for both the human and the natural environments (eg health, nutrition, livelihoods, fish and broader biodiversity). This programme is intended to provide the necessary protection and sustainable use measures in the water sector as part of a wider integrated wetlands management (IWM) programme.		

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

Finance				Funding (%)	Expected by
	Costs	Private	GoB	Beneficiaries	ProgrammeYear
Total Capital ³	800.00 MTk	0%	100%	0%	23
Ultimate Recurring	15.00 MTk/yr	n/a	50%	50%	24
Date of Data :	31	07	01	Stacked Cumulative Cash Flow Chart	
	(dd)	(mm)	(yy)		
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
• Water requirements defined and/or refined	• Thresholds • Status of indicator species	NYD
• Regulatory framework for environmentally critical areas	• The regulations • Number of voluntary agreements concluded • Number of prosecutions	NYD
• Integrated wetland management	• Status of indicator species • Extent and duration of wetlands	NYD
• Improved levels of protection extended to existing and new environmentally critical areas	• New regulations gazetted • Number of new environmentally critical areas gazetted	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

4 North East Region

4.1 *Regional Overview*

With a population of 14.9M, 90% of it rural, and an area of about 20,100km², the NE Region has distinct differences from NW and NC Regions. Total NCA is 1.41Mha. It is much wetter (average annual rainfall 3,200mm), has relatively little exploitable shallow groundwater except in the north west, due to aquifer problems, but has more abundant dry season surface water resources. Most irrigation is therefore from LLPs rather than STWs. The principal rivers are the Barak (Surma and Kushiya), Juri, Manu and Khowai.

Apart from tea growing and natural gas production, the region's dominant feature is the 5,600km² Haor Basin, containing some 47 major haors and 6,300 beels, of which about 55% are perennial. For fisheries and waterfowl this is the most important wetland area in the country. Due to the deep monsoon flooding (5m or more), partial rather than full FCD is applied here, with submersible embankments which protect the boro crop from flash flooding from the Indian hills in April – May and are then overtopped when the monsoon floods arrive.

There has been less urban and industrial development in NE Region and the largest town, Sylhet, has a population of only some 0.4M. Other important towns are Kishoreganj, Netrokona, Sunamganj, Hobiganj and Maulvibazar, all with under 0.2M inhabitants.

In addition to the provision of better urban services and environmental management and pollution control, major issues to be tackled by the NWMP in NE Region include:

- The arsenic problem, which is found in most of the region
- Environmental management of the wetlands of the Haor Basin, for fisheries and bio-diversity purposes
- Remedial actions for existing FCD schemes. About half the existing FCD area of 0.56Mha has partial rather than full flood protection (ie submersible embankments), which has been found to be preferable to full protection in economic and environmental terms.
- Flood proofing of the 1,000 or so villages in the Haor Basin
- Reducing drainage congestion in the Kalni–Kushiya and other major rivers
- Local development of hill irrigation

4.2 Programmes for North East Region

Twenty five programmes will benefit the North East Region. Of these one exclusive to the region and concerns improved water management in the ecologically important Haor Basin.

The shared programmes will address major river abstraction; improved surface water distribution; rural and urban arsenic mitigation and flood proofing of key infrastructure; river charlands and the Haor Basin.

Institutions and agencies involved in the North East Programmes will include:

- BWDB
- LGED
- LGI's
- DMB
- RHD
- BR
- WARPO
- BHWDB

Cost estimates for the North East Regional programmes are provided in Table 4.1

Table 4.1: Cost Estimates for the North East Regional Programmes

MIS Ref	Title	COSTS (Tk M mid 2000)				
		ST	MT	LT	Residual	TOTAL
Exclusive to Region						
EA 007	Improved Water Management in the Haor Basins of the North East Region	80.0	333.3	586.7	-	1,000.0
Shared with other Regions						
ID 003	FCD and FCD/I Management Rationalisation	63.2	86.3	-	-	149.5
MR 006	Regional River Management and Improvement	309.7	607.1	1,526.3	197.5	2,640.6
MR 008	North East and South East Regional Surface Water Distribution Networks	-	-	901.6	-	901.6
TR 001	Urban Arsenic Mitigation	60.7	-	-	-	60.7
TR 002	Rural Arsenic Mitigation	91.6	72.1	-	-	163.8
TR 003	Large and Small Town Water Supply and Distribution Systems	245.1	1,323.5	2,554.4	196.1	4,319.1
TR 004	Rural Water Supply and Distribution Systems	1,243.7	3,927.6	4,220.1	327.3	9,718.7
TR 005	Large and Small Town Sanitation and Sewerage Systems	245.1	607.8	2,470.0	98.0	3,421.0
TR 006	Rural Sanitation	720.1	1,931.1	1,357.9	130.9	4,139.9
TR 007	Large and Small Town Flood Protection	236.3	519.8	573.0	88.6	1,417.6
TR 008	Large and Small Town Stormwater Drainage	588.2	1,764.7	3,333.3	588.2	6,274.5
DM 003	Flood Proofing in the Charlands and Haor Basin	173.1	432.8	259.7	-	865.6
DM 004	National, Regional and Key Feeder Roads - Flood Proofing	52.3	65.4	196.3	13.1	327.1
DM 005	Railway Flood Proofing	7.5	9.4	28.1	1.9	46.9
DM 006	Supplementary Irrigation and Drought Proofing of Rural Water Supplies	38.0	37.0	6.2	-	81.2
AW 001	Promotion of Expanded Minor Irrigation and Improved On-farm Water Managem	7.0	8.4	8.7	-	24.2
AW 002	Improved Performance of Existing Public Surface Water Irrigation Schemes	4.1	20.5	57.4	-	82.0
AW 003	New Public Surface Water Irrigation Schemes	-	400.2	800.3	-	1,200.5
AW 005	Improved Water Management at Local Government Level	71.7	139.4	641.8	42.8	895.7
AW 006	Improved Water Management at Community Level	3.3	28.2	102.7	6.8	141.0
AW 007	Rationalisation of Existing FCD Infrastructure	-	105.2	1,572.6	791.4	2,469.2
EA 005	National Fish Pass Programme	46.0	115.0	184.0	-	345.0
EA 006	Unspecified Regional Programmes	-	17.7	57.3	-	75.0
EA 008	Environmentally Critical Areas and Integrated Wetland Management	20.3	42.3	126.8	-	189.4
TOTAL		4307.0	12594.9	21565.3	2482.6	40949.8

Programmes Exclusive to the Region

Improved Water Management in the Haor Basins of the North East Region

Ref : **EA 007**

Cluster :	Environment and Aquatic Resources	Region(s) :	NE
Focus/Foci :	Water Management for Eco-Sensitive Areas	Location :	Haor Basin, NE region
Start Year ¹ :	2003	Duration ² :	15 year(s)
		Agency(s) Responsible :	BHWDB (Lead) None (Supporting)
Short Description :	The Haor Basin contains the last major remaining semi-natural and large-scale freshwater wetlands of the country and includes important mother-fish sites. The Basin is under threat from encroachment of agriculture and capture fisheries. The purpose of the programme is to safeguard the water resources and to preserve the semi-natural characteristics of the whole Basin with special attention being paid to the ecologically important sites. This will be achieved by the development and implementation of a staged, environmentally responsible water management plan for the area.		

MIS Links	Cost Calculation :	EA Programme costing.xls	Map :	EA 007 Map.jpg
	Disb't Schedule :	EA Programme costing.xls	Description :	EA 007 PgP.doc

Finance				Funding (%)		Expected by
	Costs	Private	GoB	Beneficiaries	Programme	Year
Total Capital ³	1,000.00 MTk	0%	100%	0%		15
Ultimate Recurring	26.40 MTk/yr	n/a	25%	75%		16
Date of Data :	31	07	01	Stacked Cumulative Cash Flow Chart		
	(dd)	(mm)	(yy)	Cost (MTk)	● Investment	○ Recurring
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
• Management Plan for the Haor basins of the NE agreed by a majority of stakeholders	• The Plan	NYD
• Regular water monitoring	• Stakeholder endorsement	NYD
• Water-related regulations established	• Monitoring schedules and reports	NYD
	• The Regulations	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

Programmes Shared with Other Region(s)

FCD and FCD/I Management Rationalisation

Ref : **ID 003**

Cluster :	Institutional Development	Region(s) :	All
Focus/Foci :	Bangladesh Water Development Board	Location :	Nationwide
Start Year ¹ :	2002	Duration ² :	6 year(s)
		Agency(s) Responsible :	BWDB (Lead) None (Supporting)
Short Description :	This programme is intended to facilitate the transfer of FCD/I scheme management as per policy. Three steps will be involved. In the short term BWDB will receive capacity building with respect to environmental and social issues, while in consultation with the stakeholders a range of transfer options will be identified and prepared. Finally these options will be pilot tested at selected locations during the short and medium term.		

MIS Links	Cost Calculation :	ID Programme costing.xls	Map :	ID 003 Map.jpg
	Disb't Schedule :	ID Programme costing.xls	Description :	ID 003 PgP.doc

Finance						
		Costs	Private	Funding (%)	Beneficiaries	Expected by ProgrammeYear
Total Capital ³	1,300.00	MTk	0%	85%	15%	6
Ultimate Recurring	25.20	MTk/yr	n/a	50%	50%	7
Date of Data :	31	07	01	Stacked Cumulative Cash Flow Chart		
	(dd)	(mm)	(yy)			
Status :	Identified					
Financial Base Year:	mid-2000					
Planned Expenditure (to date) :	MTk					
Actual Expenditure ⁴ (to date) :	MTk					

Monitoring

Objective	Indicator	Present Status ⁵
• Reduction in the number of schemes directly managed by BWDB	• Nationwide FCD(/I) statistics	NYD
• Increase in funds for O&M after turnover of scheme	• Scheme accounts	NYD
• 75% of decentralised FCD/I schemes considered sustainable within 10 years of transfer	• National FCD/I scheme statistics	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

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				Funding (%)	Expected by
	Costs	Private	GoB	Beneficiaries	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	Stacked Cumulative Cash Flow Chart	
	(dd)	(mm)	(yy)		
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
• Integrated river management plans	• Plan documents approved	NYD
• Sustainable river development and management works	• Physical progress	NYD
	• Effective operation and maintenance	
	• Independent surveys of end users	

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

North East and South East Regional Surface Water Distribution Networks

Ref : **MR 008**

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				Funding (%)		Expected by
	Costs	Private	GoB	Beneficiaries	Programme	Year
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	Stacked Cumulative Cash Flow Chart				
	(dd) (mm) (yy)					
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
• 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

Urban Arsenic Mitigation

Ref : **TR 001**

Cluster :	Towns and Rural Areas	Region(s) :	NW, NC, NE, SW, SC, SE, EH
Focus/Foci :	Arsenic Mitigation	Location :	NW, NC, NE, SW, SC, SE, & EH regions
Start Year ¹ :	2001 Duration ² : 4 year(s)	Agency(s) Responsible :	Paurashavas (Lead) CBOs (Supporting)
Short Description :	Arsenic contamination of groundwater water supplies has become a serious health hazard in Bangladesh affecting some 30 million people. This is recognised by NWPo §4.06a of the NWPo which requires the Government to “facilitate availability of safe...drinking water through various means”. This programme will provide short term arsenic mitigation measures for water supplies (such as arsenic filters and household removal facilities in all urban areas except those comprising the Statistical Metropolitan Areas (See the Major City cluster). More permanent measures will be introduced in the medium and long terms (see Programme TR 003).		

MIS Links	Cost Calculation :	TR Programme costing.xls	Map :	TR 001 Map.jpg
	Disb't Schedule :	TR Programme costing.xls	Description :	TR 001 PgP.doc

Finance				Funding (%)	Expected by
		Costs	Private	GoB	Beneficiaries
Total Capital ³	439.00 MTk	0%	85%	15%	4
Ultimate Recurring	216.90 MTk/yr	n/a	0%	100%	5
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
• Procurement and installation programmes prepared	• Signed programme/project documents	NYD
• Procurement and installation programmes complete	• Programme/Project completion reports	NYD
	• Household surveys	
• Arsenic free potable water available to 100% of large and small town populations	• Water quality	NYD
	• Community health records	

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

Rural Arsenic Mitigation

Ref : **TR 002**

Cluster :	Towns and Rural Areas	Region(s) :	NW, NC, NE, SW, SC, SE, EH
Focus/Foci :	Arsenic Mitigation	Location :	NW, NC, NE, SW, SC, SE, & EH regions
Start Year ¹ :	2001	Duration ² :	9 year(s)
		Agency(s) :	DPHE (Lead)
		Responsible :	CBOs (Supporting)
Short Description :	Arsenic contamination of groundwater water supplies has become a serious health hazard in Bangladesh affecting some 76 million people. This is recognised by NWPo §4.06a of the NWPo which requires the Government to “facilitate availability of safe...drinking water through various means”. This programme will provide short term and medium term arsenic mitigation measures for water supplies (such as arsenic filters and household removal facilities in all rural. More permanent measures will be introduced in the long term (See Programme TR 004) .		

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

Finance					
	Costs	Private	Funding (%)	Beneficiaries	Expected by ProgrammeYear
Total Capital ³	1,185.00 MTk	0%	85%	15%	9
Ultimate Recurring	585.40 MTk/yr	n/a	0%	100%	10
Date of Data :	31 07 01	Stacked Cumulative Cash Flow Chart			
	(dd) (mm) (yy)				
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
• Procurement and installation programmes prepared	• Signed programme/project documents	NYD
• Procurement and installation programmes complete	• Programme/Project completion reports	NYD
	• Household/community surveys	
• Arsenic free potable water available to 100% of rural population	• Water quality	NYD
	• Community health records	

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

Large and Small Town Water Supply and Distribution Systems

Ref :

TR 003

Cluster :	Towns and Rural Areas	Region(s) :	All
Focus/Foci :	Water Supplies	Location :	Nationwide
Start Year ¹ :	2002	Duration ² :	25 year(s)
		Agency(s) Responsible :	DPHE (Lead) CBOs, Private Sector (Supporting)
Short Description :	The preamble to NWPo §4.6 of the NWPo highlights the water supply problems facing Bangladesh's urban areas (large and small). Water tables are receding due to heavy groundwater abstraction. Furthermore, saline intrusion in coastal aquifers and contamination elsewhere further compromises the drinking water supplies for urban inhabitants. In accordance with the Government's policy to "Facilitate availability of safe and affordable drinking water supplies." (NWPo §4.6.a), this programme is intended to provide resources for the implementation of piped water supply schemes fed from DTW or surface water sources in order to serve 100% of the population (of each town) with piped drinking water supplies by year 2010.		

MIS Links	Cost Calculation :	TR Programme costing.xls	Map :	TR 003 Map.jpg
	Disb't Schedule :	TR Programme costing.xls	Description :	TR 003 PgP.doc

Finance					
	Costs	Private	Funding (%)	Expected by	
			GoB	Beneficiaries	ProgrammeYear
Total Capital ³	44,055.00 MTk	0%	100%	0%	25
Ultimate Recurring	7,820.80 MTk/yr	n/a	0%	100%	26

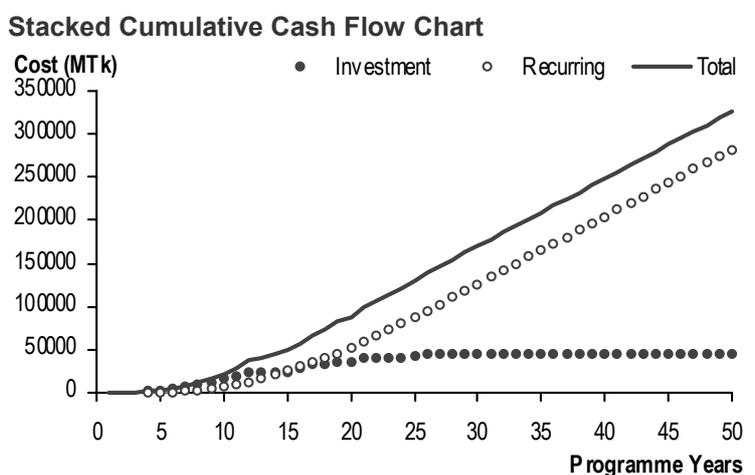
Date of Data : **31 07 01**
(dd) (mm) (yy)

Status : **Identified**

Financial Base Year: **mid-2000**

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

Actual Expenditure⁴ (to date) : **0** MTk



Monitoring

Objective	Indicator	Present Status ⁵
• Town water supply programmes prepared	• Signed programme/project documents	NYD
• Sustainable operation and maintenance of town water supply systems	• Frequency of pipe breaks • Response times	NYD
• Town water supply programme completed	• Programme/project completion reports • Household, district surveys	NYD
• 100% of large and small town population have access to formal water supplies	• Survey reports	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

Rural Water Supply and Distribution Systems

Ref :

TR 004

Cluster :	Towns and Rural Areas	Region(s) :	All
Focus/Foci :	Water Supplies	Location :	Rural Areas Nationwide
Start Year ¹ :	2001	Duration ² :	25 year(s)
		Agency(s) Responsible :	DPHE (Lead) LGIs, DPHE, CBOs (Supporting)
Short Description :	<p>The preamble to NWPo §4.6 of the NWPo recognises that "The rural areas of Bangladesh suffer from a lack of quality drinking water". This situation is worsening due to heavy withdrawals of groundwater (the principle source for most of the rural areas) for irrigation a trend which is exacerbated by agro-chemical and saline pollution of groundwater. Although the rural population is expected to increase relatively slowly over the next 25 years, from 102 million in 2000 to 108 million in 2025, it is nonetheless the GoB's intention to "facilitate the availability of safe and affordable drinking water supplies through various means" (NWPo §4.6.a). It is estimated that 92% of the rural population normally have access to potable water, mainly through shallow HTWs. The thrust of this programme is therefore to improve the quality of water supply services (reliability and access) in areas already served as well as extending the coverage to 100% by 2005.</p>		

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

Finance					
	Costs	Private	Funding (%)	Expected by	
			GoB	Beneficiaries	ProgrammeYear
Total Capital ³	74,234.00 MTk	80%	20%	0%	25
Ultimate Recurring	12,884.30 MTk/yr	n/a	0%	100%	25

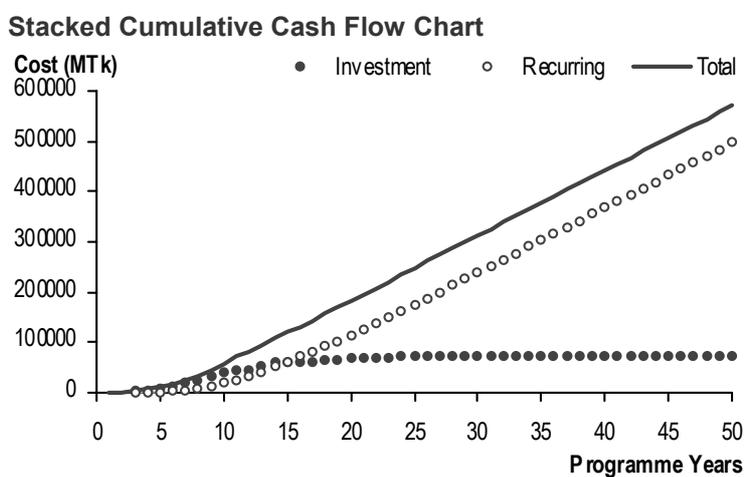
Date of Data : **31 07 01**
(dd) (mm) (yy)

Status : **Identified**

Financial Base Year: **mid-2000**

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

Actual Expenditure⁴ (to date) : **0** MTk



Monitoring

Objective	Indicator	Present Status ⁵
• Rural water supply programmes prepared	• Signed programme/project documents	NYD
• Sustainable operation and maintenance of rural water supply systems	• Frequency of pipe breaks • Response times	NYD
• Rural water supply programmes completed	• Programme/project completion reports • Household, community surveys	NYD
• 100% of rural population has access to formal water supplies	• Survey reports	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

Large and Small Town Sanitation and Sewerage Systems

Ref : **TR 005**

Cluster :	Towns and Rural Areas	Region(s) :	All
Focus/Foci :	Sanitation	Location :	Nationwide
Start Year ¹ :	2002	Duration ² :	25 year(s)
		Agency(s) Responsible :	Paurashavas (Lead) LGIs, LGED, DPHE, CBOs (Supporting)
Short Description :	§4.6.c of the NWPo "mandates relevant public water and sewerage institutions to provide necessary drainage and sanitation, including treatment of domestic wastewater and sewage and replacement of open drains and construction of sewers, in the interest of public health." The population of large (>50,000) and small towns is expected to more than double over the next 25 years, from 14 million in 2000 to 36 million in 2025. At present, between 55% (small towns) and 65% (large towns) of the population is adequately served by sanitation facilities, mainly by pit latrines with/without septic tanks. In the poor areas and fringe communities, people are dependant on 'hanging latrines' and open defecation which exacerbates pollution and public health problems and increases the likelihood of epidemic outbreaks of waterborne and water-related diseases. This programme aims to provide appropriate sanitation facilities and raise and sustain service coverage at 100% by 2010.		

MIS Links	Cost Calculation :	TR Programme costing.xls	Map :	TR 005 Map.jpg
	Disb't Schedule :	TR Programme costing.xls	Description :	TR 005 PgP.doc

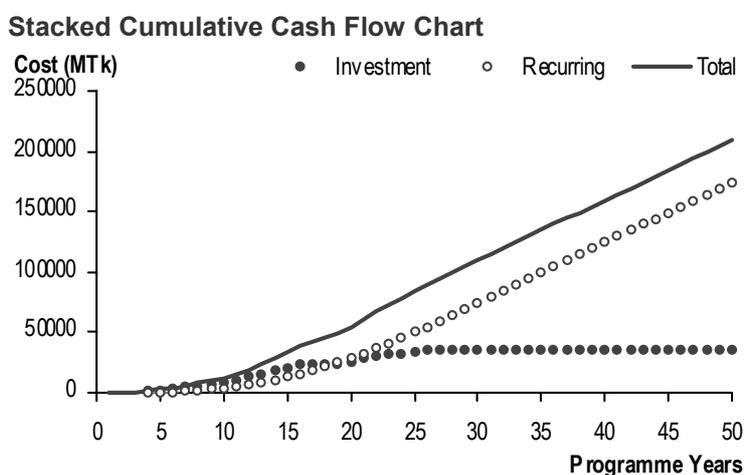
Finance			Funding (%)		Expected by
	Costs	Private	GoB	Beneficiaries	ProgrammeYear
Total Capital ³	34,894.00 MTk	0%	100%	0%	25
Ultimate Recurring	4,543.10 MTk/yr	n/a	0%	100%	26

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

Status : **Identified**
Financial Base Year: **mid-2000**

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

Actual Expenditure⁴ (to date) : **0** MTk



Monitoring

Objective	Indicator	Present Status ⁵
• Sustainable operation and maintenance of town sanitation systems	• Frequency of service break downs • Response times	NYD
• Reduced environmental pollution	• Faecal coliform counts	NYD
• Improved public health	• Public health statistics	NYD
• 100% of large and small town populations have access to sanitation facilities	• Survey reports	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

Rural Sanitation

Ref : **TR 006**

Cluster :	Towns and Rural Areas	Region(s) :	All
Focus/Foci :	Sanitation	Location :	Rural Areas Nationwide
Start Year ¹ :	2001	Duration ² :	25 year(s)
		Agency(s) Responsible :	DPHE (Lead) CBOs, Private sector, LGIs (Supporting)
Short Description :	§4.6.c of the NWPo "mandates relevant public water and sewerage institutions to provide necessary drainage and sanitation, including treatment of domestic wastewater and sewage and replacement of open drains and construction of sewers, in the interest of public health." The population of rural areas is expected to increase slightly over the next 25 years, from 102 million in 2000 to 108 million in 2025. At present, only 40% of the population has access to pit latrine facilities, the other 60% relying on 'hanging latrines' and open defecation which exacerbates pollution and public health problems and increases the likelihood of epidemic outbreaks of waterborne and water-related diseases. This programme aims to provide appropriate sanitation facilities for the whole rural population and raise and sustain service coverage at 100% by 2010.		

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

Finance					
	Costs	Private	Funding (%) GoB	Beneficiaries	Expected by Programme Year
Total Capital ³	31,622.00 MTk	80%	20%	0%	25
Ultimate Recurring	5,901.00 MTk/yr	n/a	0%	100%	26

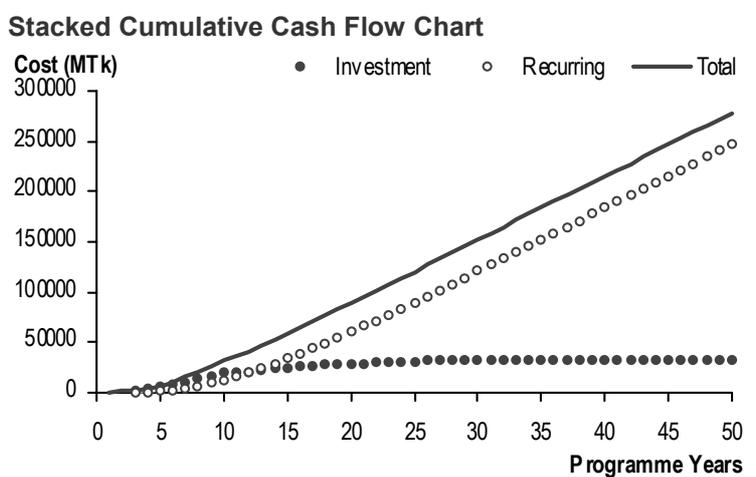
Date of Data : **31 07 01**
(dd) (mm) (yy)

Status : **Identified**

Financial Base Year: **mid-2000**

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

Actual Expenditure⁴ (to date) : **0** MTk



Monitoring

Objective	Indicator	Present Status ⁵
• Sustainable operation and maintenance of rural sanitation systems	• Frequency of service break downs • Response times	NYD
• Reduced environmental pollution	• Faecal coliform counts	NYD
• Improved public health	• Public health statistics	NYD
• 100% of rural populations have access to sanitation facilities	• Survey reports	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

Large and Small Town Flood Protection

Ref :

TR 007

Cluster :	Towns and Rural Areas	Region(s) :	All
Focus/Foci :	Flood Protection	Location :	Large and Small towns throughout the country
Start Year ¹ :	2003	Duration ² :	25 year(s)
		Agency(s) Responsible :	BWDB (Lead) None (Supporting)
Short Description :	§4.2.9.i of the NWPo states that "...critical areas such as district and Upazila towns, important commercial centres, and places of historical importance will be gradually provided reasonable degree of protection against flood". The low areas of many of the towns in Bangladesh are vulnerable to flooding during monsoon. Significant damage was caused during the 1988 and 1998 floods due either to absence of embankments, embankment failure or the inability of protected areas to drain during times of heavy rainfall because of high water levels outside. This programme will undertake measures such as: raising of existing embankment crest levels; repair of damaged embankments; and, provision of erosion protection works where necessary. New flood protection works will also be involved consisting mainly of constructing embankments on riverbanks with integral drainage sluices.		

MIS Links	Cost Calculation :	TR Programme costing.xls	Map :	TR 007 Map.jpg
	Disb't Schedule :	TR Programme costing.xls	Description :	TR 007 PgP.doc

Finance				Funding (%)		Expected by
	Costs	Private	GoB	Beneficiaries	ProgrammeYear	
Total Capital ³	14,460.00 MTk	0%	100%	0%		25
Ultimate Recurring	1,301.40 MTk/yr	n/a	50%	50%		26
Date of Data :	31 07 01	Stacked Cumulative Cash Flow Chart				
	(dd) (mm) (yy)					
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
• Flood protection programmes prepared and agreed	• Signed programme/project documents	NYD
• Flood protection programmes implemented	• Programme/project completion reports	NYD
• All large and small towns protected from 1: 100 year floods	• Physical evidence and hydrological data	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

Large and Small Town Stormwater Drainage

Ref :

TR 008

Cluster :	Towns and Rural Areas	Region(s) :	All
Focus/Foci :	Stormwater Drainage	Location :	Nationwide
Start Year ¹ :	2003	Duration ² :	25 year(s)
		Agency(s) Responsible :	Paurashavas (Lead) LGIs (Supporting)
Short Description :	§4.6 says that "Lack of proper sanitation and drainage facilities, are the primary causes of diseases in the urban areas". Storm water drainage is an increasing problem in urban areas, as the construction of buildings and paved areas has progressively increased run-off. At the same time, pressures on land has caused natural drainage channels to be filled in and built upon. Encroachment on watercourses and water bodies has progressively reduced natural drainage. No urban areas have adequate storm drainage at present. This programme provides resources for a nationwide installation/upgrading and maintenance of stormwater drainage facilities in large and small towns. These will most probably be gravity systems which although cost-effective, will require regular adequate maintenance.		

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

Finance			Funding (%)		Expected by
	Costs	Private	GoB	Beneficiaries	ProgrammeYear
Total Capital ³	64,000.00 MTk	0%	100%	0%	25
Ultimate Recurring	7,040.00 MTk/yr	n/a	50%	50%	26
Date of Data :	31 07 01	Stacked Cumulative Cash Flow Chart			
	(dd) (mm) (yy)				
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
• Stormwater drainage programme prepared and agree	• Signed programme/project documents	NYD
• Stormwater drainage programmes implemented	• Programme/project completion reports	NYD
• Stormwater drainage installed in all large and small towns	• Survey reports	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

Flood Proofing in the Charlands and Haor Basin

Ref :

DM 003

Cluster :	Disaster Management	Region(s) :	NW, NE, RE
Focus/Foci :	Flood Proofing	Location :	NW, NE, & RE regions
Start Year ¹ :	2003	Duration ² :	10 year(s)
		Agency(s) Responsible :	NGOs (Lead) LGED (Supporting)
Short Description :	NWPo §4.2.o of the NWPo requires the Government, through it's responsible agencies, to develop flood proofing systems to manage natural disasters, and clause p of the same section requires that appropriate measures are provided, in designated flood risk zones, to protect life, property and vital infrastructure etc. This programme is concerned with providing proven cost effective technologies for flood proofing such as encouraging raised dwellings and the construction of communal flood shelters.		

MIS Links	Cost Calculation :	DM Programme costing.xls	Map :	DM 003 Map.jpg
	Disb't Schedule :	DM Programme costing.xls	Description :	DM 003 PgP.doc

Finance				Funding (%)		Expected by
	Costs	Private	GoB	Beneficiaries	ProgrammeYear	
Total Capital ³	2,599.40 MTk	0%	100%	0%	10	
Ultimate Recurring	130.00 MTk/yr	n/a	0%	100%	11	
Date of Data :	31	07	01	Stacked Cumulative Cash Flow Chart		
	(dd)	(mm)	(yy)			
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
• Quantitative needs assessment	• Needs assessment reports	NYD
• Modalities accepted	• Signed agreements	NYD
• Programme documents prepared	• Programme documents	NYD
• Programmes underway	• Signed contracts/work orders	NYD
• 3,500,000 charland and haor basin inhabitants in flood proofed dwellings	• Actual number of charland and haor basin inhabitants in flood proofed dwellings	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, Regional and Key Feeder Roads - Flood Proofing

Ref : **DM 004**

Cluster :	Disaster Management	Region(s) :	NW, NC, NE, SE, SC,SW
Focus/Foci :	Flood Proofing	Location :	Regions NW, NC, NE, SE, SC,SW
Start Year ¹ :	2001	Duration ² :	25 year(s)
		Agency(s) Responsible :	RHD (Lead) LGED (Supporting)
Short Description :	In line with Policy's call for coping with floods in relation to vital infrastructure (NWPo §4.2.p.ii), this programme targets the flood proofing needs of key portions of Bangladesh's highway network. As with current practice, the National Highways, Regional Roads and Type A Feeder Roads will be raised by the central Roads and Highways Department (RHD). Type B Feeder Roads and Rural Roads will be raised by the Local Government Engineering Departments (LGEDs). The programme also has collateral benefits since the raised embankments comprise safe havens while facilitating the movement of relief goods during flood emergencies. This is a long term programme with national coverage, however it has been assumed that embankment raising will be carried out when a particular road is due for major maintenance or re-surfacing, with priority given to high risk areas in the case of national and regional roads..		

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

Finance				Funding (%)		Expected by
	Costs	Private	GoB	Beneficiaries	Programme	Year
Total Capital ³	10,904.80 MTk	0%	100%	0%		25
Ultimate Recurring	436.20 MTk/yr	n/a	100%	0%		26
Date of Data :	31 07 01	Stacked Cumulative Cash Flow Chart				
	(dd) (mm) (yy)					
Status :	Identified					
Financial Base Year:	mid-2000					
Planned Expenditure (to date) :	428 MTk					
Actual Expenditure ⁴ (to date) :	MTk					

Monitoring

Objective	Indicator	Present Status ⁵
• Quantitative needs assessment	• Needs assessment reports	NYD
• Programme documents prepared	• Programme documents	NYD
• Programmes underway	• Signed contracts/work orders	NYD
• 100% of all national and feeder roads raised by 1m in high and .5m in low risk areas; 20% of feeder and rural roads raised by 1m in high risk areas	• Construction records • Site visits	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

Railway Flood Proofing

Ref : **DM 005**

Cluster :	Disaster Management	Region(s) :	SW, SC, NW, NC, NE, SE
Focus/Foci :	Flood Proofing	Location :	Regions SW, SC, NW, NC, NE, SE
Start Year ¹ :	2001	Duration ² :	25 year(s)
		Agency(s) Responsible :	BR (Lead) None (Supporting)
Short Description :	<p>In line with Policy's call for coping with floods in relation to vital infrastructure (NWPo §4.2.p.ii), this programme targets at the flood proofing needs of key portions of Bangladesh's railway network. The Railway Department will be responsible for implementation of this programme. The programme has collateral benefits since the raised embankments comprise safe havens while facilitating the movement of relief goods during flood emergencies. This is a long term programme with coverage in six hydrological regions and work is expected to proceed as part of the network upgrading programmes. However, a significant risk to this programme is that the disruption to services that is inevitable when line raising is in progress, may well persuade the railway operators that it is cheaper to lose income for a few hours or days each year than to incur expenditure raising lines while simultaneously losing revenues for that period.</p>		

MIS Links	Cost Calculation :	DM Programme costing.xls	Map :	DM 005 Map.jpg
	Disb't Schedule :	DM Programme costing.xls	Description :	DM 005 PgP.doc

Finance				Funding (%)		Expected by
	Costs	Private	GoB	Beneficiaries	Programme	Year
Total Capital ³	977.00 MTk	0%	100%	0%		25
Ultimate Recurring	39.10 MTk/yr	n/a	100%	0%		26
Date of Data :	31	07	01	Stacked Cumulative Cash Flow Chart		
	(dd)	(mm)	(yy)			
Status :	Identified					
Financial Base Year:	mid-2000					
Planned Expenditure (to date) :	33 MTk					
Actual Expenditure ⁴ (to date) :	MTk					

Monitoring		
Objective	Indicator	Present Status⁵
• Quantitative needs assessment	• Needs assessment reports	NYD
• Programme documents prepared	• Programme documents	NYD
• Programmes underway	• Signed contracts/work orders	NYD
• 100% of all high risk railways raised by 1m and 100% of low risk railway raised by .5m	• Construction records • Site visits	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

Supplementary Irrigation and Drought Proofing of Rural Water Supplies

Ref :

DM 006

Cluster :	Disaster Management	Region(s) :	All
Focus/Foci :	Drought Proofing	Location :	Nationwide but emphasising NW, NC, SE, SW, SC
Start Year ¹ :	2002	Duration ² :	10 year(s)
Short Description :	This programme aims to promote supplementary irrigation during the drought-prone aman season, as well as including efforts to drought-proof rural water supplies.		
	Agency(s) Responsible :	DAE	(Lead)
		None	(Supporting)

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

Finance					
	Costs	Private	Funding (%) GoB	Beneficiaries	Expected by Programme Year
Total Capital ³	1,041.40 MTk	0%	85%	15%	10
Ultimate Recurring	0.00 MTk/yr	n/a	n/a	n/a	n/a
Date of Data :	31 07 01	Stacked Cumulative Cash Flow Chart			
	(dd) (mm) (yy)				
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
• New Tara hand tubewells commissioned	• Physical number of new wells	NYD
• Increased area of aman rice under supplementary irrigation	• Areas planted	NYD
• Increased quality of life in target areas	• Return on family labour	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

Promotion of Expanded Minor Irrigation and Improved On-farm Water Management

Ref : **AW 001**

Cluster :	Agriculture and Water Management	Region(s) :	All
Focus/Foci :	Irrigation	Location :	Nationwide
Start Year ¹ :	2002	Duration ² :	15 year(s)
		Agency(s) Responsible :	DAE (Lead) None (Supporting)
Short Description :	It is the policy of the Government to "Encourage and promote continued development of minor irrigation" (NWPo §4.7.a) and to "Encourage future groundwater development for irrigation by both the public and the private sectors" (§4.7.b). With the ultimate goal of increased agricultural productivity, this programme involves the improvement of irrigation pumping efficiency, promotion of lower cost force-mode tubewell pumps, and a farmer education/training component to improve on-farm water management and the wise use of water		

MIS Links	Cost Calculation :	AW Programme costing.xls	Map :	AW 001 Map.jpg
	Disb't Schedule :	AW Programme costing.xls	Description :	AW 001 PgP.doc

Finance				Funding (%)		Expected by
	Costs	Private	GoB	Beneficiaries	Programme	Year
Total Capital ³	310.00 MTk	0%	85%	15%		15
Ultimate Recurring	7.20 MTk/yr	n/a	0%	100%		16
Date of Data :	31	07	01	Stacked Cumulative Cash Flow Chart		
	(dd)	(mm)	(yy)			
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
• Increased diesel pump engine efficiencies	• Sample tests	NYD
• Farmers adopt force mode pumpsets	• Farmer survey	NYD
• Irrigation water use efficiencies increased	• Sample tests	NYD
• Average return per unit of water increased in minor irrigation areas	• Household surveys and field measurements	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

Improved Performance of Existing Public Surface Water Irrigation Schemes

Ref : **AW 002**

Cluster :	Agriculture and Water Management	Region(s) :	All
Focus/Foci :	Irrigation	Location :	Nationwide
Start Year ¹ :	2004	Duration ² :	20 year(s)
		Agency(s) Responsible :	BWDB (Lead) BMDA, CBOs, LGIs, NGOs, Private Sector (Supporting)
Short Description :	It is the policy of the government to "encourage future groundwater development for irrigation by both the public and private sectors" (NWPo §4.7.b). Even so experience confirms that current performance of existing public irrigation schemes is not satisfactory. This programme is intended to address both challenges by means of the following approaches: full participation of beneficiaries; command area development; conjunctive use of surface and groundwater; rehabilitation; improved O&M and appropriate beneficiary contributions to both capital and recurring costs.		

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

Finance					
	Costs	Private	Funding (%)	Expected by	
			GoB	Beneficiaries	ProgrammeYear
Total Capital ³	3,275.00 MTk	0%	85%	15%	20
Ultimate Recurring	98.30 MTk/yr	n/a	25%	75%	21

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

Status : **Identified**

Financial Base Year: **mid-2000**

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

Actual Expenditure⁴ (to date) : **0** MTk

Stacked Cumulative Cash Flow Chart

Monitoring		
Objective	Indicator	Present Status⁵
• Sustainable operation and maintenance	• User group records • Long term O&M expenditure trends	NYD
• Public irrigation schemes rehabilitated and upgraded	• Construction records • On site verification	NYD
• Increased returns per unit of water and labour on public irrigation areas	• Household surveys and field measurements	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

New Public Surface Water Irrigation Schemes

Ref : **AW 003**

Cluster :	Agriculture and Water Management	Region(s) :	All
Focus/Foci :	Irrigation	Location :	Nationwide
Start Year ¹ :	2005	Duration ² :	15 year(s)
		Agency(s) Responsible :	BWDB (Lead) LGED (Supporting)
Short Description :	The preamble NWPo §4.7 requires government to continue promoting the development of surface water irrigation where feasible and to focus where practical on the conjunctive use of groundwater and surface water. The overall objective of this programme is to increase agricultural production and reduce demand on groundwater abstraction by promoting and implementing new surface water irrigation schemes.		

MIS Links	Cost Calculation :	AW Programme costing.xls	Map :	AW 003 Map.jpg
	Disb't Schedule :	AW Programme costing.xls	Description :	AW 003 PgP.doc

Finance			Funding (%)		Expected by
	Costs	Private	GoB	Beneficiaries	ProgrammeYear
Total Capital ³	6,125.00 MTk	0%	85%	15%	15
Ultimate Recurring	306.30 MTk/yr	n/a	25%	75%	16
Date of Data :	31 07 01	Stacked Cumulative Cash Flow Chart			
	(dd) (mm) (yy)				
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
• Plans prepared	• Project documents	NYD
• Projects in progress	• Funding in place	NYD
	• Signed contracts/work orders	
• Increased area under public surface water irrigation	• Construction records	NYD
	• On site verification	

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

Improved Water Management at Local Government Level

Ref : **AW 005**

Cluster :	Agriculture and Water Management	Region(s) :	All
Focus/Foci :	Water Management	Location :	Nationwide
Start Year ¹ :	2001	Duration ² :	24 year(s)
		Agency(s) Responsible :	LGED (Lead) None (Supporting)
Short Description :	Implementation of the NWPO will result in a four tiered civil-administrative hierarchy for the water sector: central, regional, local and community. The BWDB will remain responsible for water management issues as they affect or occur in the main and regional rivers. Equally, management of certain schemes below 5000ha will become the responsibility of community based organisations. Water courses, whether natural or man-made, that will be the management responsibility of neither BWDB nor community organisations will become the responsibility of LGI's. Furthermore, actual ownership of all schemes except municipal water schemes will be transferred to the LGI's. This programme is intended to rehabilitate, upgrade and restore as appropriate, the water courses involved as well as to provide the LGI's with the necessary appurtenant equipment and facilities.		

MIS Links	Cost Calculation :	AW Programme costing.xls	Map :	AW 005 Map.jpg
	Disb't Schedule :	AW Programme costing.xls	Description :	AW 005 PgP.doc

Finance					
	Costs	Private	Funding (%) GoB	Beneficiaries	Expected by ProgrammeYear
Total Capital ³	5,495.00 MTk	0%	85%	15%	24
Ultimate Recurring	156.00 MTk/yr	n/a	25%	75%	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
• Sustainable management and ownership models in place	• Reports • Legal instruments	NYD
• Local rivers, feeder canals and main drains transferred to LGI's for management/ownership as per policy	• Instruments of transfer ratified and promulgated • Title deeds	NYD
• Local rivers, feeders canals and main drains restored, rehabilitated, upgraded as appropriate	• Project completion reports • Physical surveys • Hydrological records	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

Improved Water Management at Community Level

Ref :

AW 006

Cluster :	Agriculture and Water Management	Region(s) :	All
Focus/Foci :	Water Management	Location :	Nationwide
Start Year ¹ :	2001	Duration ² :	24 year(s)
		Agency(s) Responsible :	LGED (Lead) LGIs, DAE (Supporting)
Short Description :	Implementation of the NWPo will result in a four tiered civil-administrative hierarchy for the water sector: central, regional, local and community. The BWDB will remain responsible for water management issues as they affect or occur in the main and regional rivers. Local rivers and scheme delivery systems will become the management (and in some cases property) of LGI's while management of certain schemes below 5000ha will become the responsibility of community based organisations. This programme is intended to rehabilitate, upgrade and restore as appropriate, the water courses and field distribution/collection systems involved as well as to assist in providing with the necessary appurtenant equipment and facilities.		

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

Finance				Funding (%)		Expected by
	Costs	Private	GoB	Beneficiaries	Programme	Year
Total Capital ³	865.00 MTk	0%	15%	85%		24
Ultimate Recurring	24.60 MTk/yr	n/a	0%	100%		26
Date of Data :	31	07	01	Stacked Cumulative Cash Flow Chart		
	(dd)	(mm)	(yy)			
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
• Effective community based water management organisations	• Field evaluations	NYD
• Khals re-excavated over 10,000ha	• Physical survey	NYD
• Sustainable sub-secondary water use efficiencies of 60% for paddy and 75% for dryfoot crops	• Field tests	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

Rationalisation of Existing FCD Infrastructure

Ref : **AW 007**

Cluster :	Agriculture and Water Management	Region(s) :	All
Focus/Foci :	Coastal Protection, AND Flood Control and Drainage	Location :	Nationwide
Start Year ¹ :	2007	Duration ² :	20 year(s)
		Agency(s) Responsible :	BWDB (Lead) LGED (Supporting)
Short Description :	The NWPo states that "Ownership of FCD and FCDI projects with command area of 1000 ha or less will gradually be transferred to the local governments, beginning with the ones that are being satisfactorily managed and operated by the beneficiary/ community organisations." (NWPo §4.4.f) and that is also the policy of the government to "Investigate thoroughly, important flood control and management issues, such as the efficacy of coastal polders, for guiding future policy on structural interventions" (NWPo §4.15.c). This programme will assess and rationalise all existing FCD schemes by specifying and implementing the appropriate course of action for each scheme according to the following options: a) continuation of the present situation; b) handover to beneficiaries or local govt.; c) rehabilitation and improvement; d) complete withdrawal.		

MIS Links	Cost Calculation :	AW Programme costing.xls	Map :	AW 007 Map.jpg
	Disb't Schedule :	AW Programme costing.xls	Description :	AW 007 PgP.doc

Finance			Funding (%)		Expected by
	Costs	Private	GoB	Beneficiaries	ProgrammeYear
Total Capital ³	21,471.70 MTk	0%	85%	15%	20
Ultimate Recurring	1,152.80 MTk/yr	n/a	50%	50%	21
Date of Data :	31 07 01	Stacked Cumulative Cash Flow Chart			
	(dd) (mm) (yy)				
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
• Sustainable operation and maintenance on 50% of all existing inland and coastal FCD/I schemes	• User group records • Long term O&M expenditure trends	NYD
• Inland and coastal FCD/I rehabilitated and upgraded on a participatory basis	• Participatory agreements • Project completion reports	NYD
• Increased returns per unit of water and labour in public irrigation areas	• Household surveys and field measurements	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 Fish Pass Programme

Ref : **EA 005**

Cluster :	Environment and Aquatic Resources	Region(s) :	All
Focus/Foci :	Water Management for Fisheries	Location :	Nationwide
Start Year ¹ :	2003	Duration ² :	15 year(s)
		Agency(s) Responsible :	BWDB (Lead) DoFish (Supporting)
Short Description :	The NWPo requires that "Fisheries and wildlife will receive due emphasis in water resource planning in areas where their social impact is high" (NWPo §4.9.a); "Measures will be taken to minimise disruption to the natural aquatic environment in streams and water channels." (NWPo §4.9.b), and; "Water development plans will not interrupt fish movement and will make adequate provisions in control structures for allowing fish migration and breeding." (NWPo §4.9.e). Yet there has been a reduction in fish production in recent years due, at least in part, to structures that inhibit fish migration routes. As a response, this programme will screen all major existing FCD/I projects (>5000ha) and will prepare and implement a plan for mitigation works. Emphasis will be given to 'fish-friendly' structures rather than separate dedicated fish-pass structures.		

MIS Links	Cost Calculation :	EA Programme costing.xls	Map :	EA 005 Map.jpg
	Disb't Schedule :	EA Programme costing.xls	Description :	EA 005 PgP.doc

Finance				Funding (%)		Expected by
	Costs	Private	GoB	Beneficiaries	Programme	Year
Total Capital ³	3,000.00 MTk	0%	100%	0%		15
Ultimate Recurring	75.00 MTk/yr	n/a	50%	50%		16
Date of Data :	31 07 01	Stacked Cumulative Cash Flow Chart				
	(dd) (mm) (yy)					
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
• Appropriate fish-friendly measures routinely adopted in the design and operation of all relevant structures	• Number of conforming designs	NYD
• 90% of all feasible fish passes in place	• Design regulation	NYD
• Sustainable increase in floodplain fish catches, in terms of both numbers and diversity	• Number of operational fish passes	NYD
	• Fish catch statistics (provided that impact of water sector measures can be distinguished from other impacts)	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

Unspecified Regional Programmes

Ref : **EA 006**

Cluster :	Environment and Aquatic Resources	Region(s) :	All
Focus/Foci :	General Environmental Responsibilities	Location :	Nationwide
Start Year ¹ :	2005 Duration ² : 15 year(s)	Agency(s) Responsible :	WARPO (Lead) DoE, DoFish, DoForest, BWDB, LGED, RHD (Supporting)
Short Description :	The purpose of this programme is to ensure that provision is made for particular regional environmental concerns that are not well reflected in the other EA Programmes. This allows for comparatively small, but locally important issues to be dealt with according to regional priorities. This also implies regional (and down to village level) participation in identifying the concerns, which are therefore left non-specific at this stage.		

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

Finance					
	Costs	Private	Funding (%) GoB	Beneficiaries	Expected by ProgrammeYear
Total Capital ³	600.00 MTk	0%	100%	0%	15
Ultimate Recurring	19.30 MTk/yr	n/a	25%	75%	16

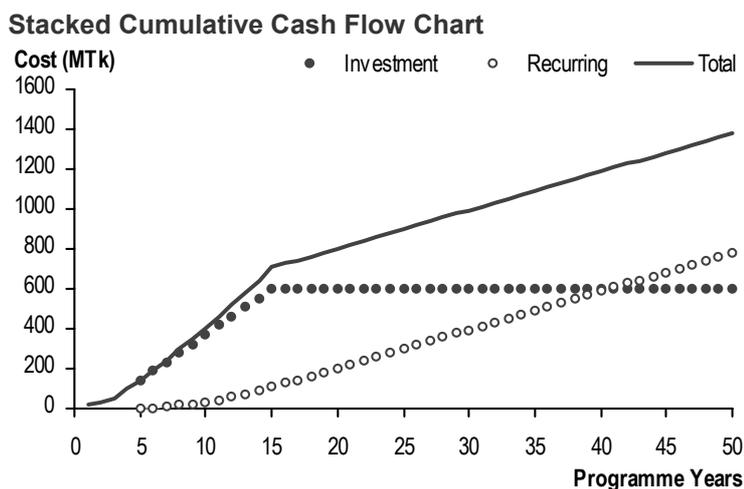
Date of Data : **31 07 01**
(dd) (mm) (yy)

Status : **Identified**

Financial Base Year: **mid-2000**

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

Actual Expenditure⁴ (to date) : **0** MTk



Monitoring

Objective	Indicator	Present Status ⁵
• 8 pilot projects (one per region) completed and evaluated	• Project evaluation reports	NYD
• Improvement in region-specific environmental characteristics	• Specific indicators and thresholds as appropriate	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

Environmentally Critical Areas and Integrated Wetland Management

Ref : **EA 008**

Cluster :	Environment and Aquatic Resources	Region(s) :	All
Focus/Foci :	Water Management for Eco-Sensitive Areas	Location :	Nationwide
Start Year ¹ :	2002	Duration ² :	23 year(s)
		Agency(s) Responsible :	DoE (Lead) WARPO, LGIs (Supporting)
Short Description :	The country's aquatic habitat is rapidly shrinking as a result of abstractions (especially for irrigation); flood control and agricultural encroachment. And deteriorating water quality exacerbates the problems. Supported by other measures, safeguarding the water resources of the nation's water bodies is necessary to arrest the trend and provide for both the human and the natural environments (eg health, nutrition, livelihoods, fish and broader biodiversity). This programme is intended to provide the necessary protection and sustainable use measures in the water sector as part of a wider integrated wetlands management (IWM) programme.		

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

Finance				Funding (%)	Expected by	
		Costs	Private	GoB	Beneficiaries	ProgrammeYear
Total Capital ³	800.00	MTk	0%	100%	0%	23
Ultimate Recurring	15.00	MTk/yr	n/a	50%	50%	24
Date of Data :	31	07	01	Stacked Cumulative Cash Flow Chart		
	(dd)	(mm)	(yy)	Cost (MTk)	● Investment	○ Recurring
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
• Water requirements defined and/or refined	• Thresholds • Status of indicator species	NYD
• Regulatory framework for environmentally critical areas	• The regulations • Number of voluntary agreements concluded • Number of prosecutions	NYD
• Integrated wetland management	• Status of indicator species • Extent and duration of wetlands	NYD
• Improved levels of protection extended to existing and new environmentally critical areas	• New regulations gazetted • Number of new environmentally critical areas gazetted	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

5 South West Region

5.1 *Regional Overview*

This large region (26,200km² and a population of 18.3M) comprises two distinct zones, the inland zone extending from the Ganges and Padma rivers south to around Khulna, and the coastal zone. Total NCA is 1.38Mha. Average annual rainfall is around 1,700mm and, also similarly to the NW, there is comparatively low rainfall area in the west along the Indian border. Arsenic occurs widely throughout the region, but is most concentrated in the groundwater areas adjacent to the main rivers.

Dry season flows down the Gorai river, the main conduit for Ganges river water into the region ceased between 1988 and 1998 due to excessive siltation at the intake from the Ganges, exacerbated by reduced flows in the Ganges following the construction of Farakka Barrage in India in 1975. This has contributed to a significant decline in the quality and extent of the Sundarbans, a mangrove forest of international importance and accorded the status of a RAMSAR site. Although dry season Gorai flows have been partially restored by dredging since early 1999, a permanent solution to this situation remains a pressing need for the region.

The northern and southern parts of the SW region are very different. Almost all the northern inland zone has widespread STW irrigation, and the dry season surface water is generally fresh rather than saline. Cyclones in the northern half are generally not a threat.

Conditions are more difficult in the coastal zone. Most shallow groundwater there is saline and surface water salinity is widespread, with consequently severe constraints on both domestic water supplies and irrigation. Cyclone vulnerability is reduced by the protection afforded by the Sundarbans, but the extensive development of brackish water bagda (Tiger Shrimp) farming has caused severe social and environmental problems. Other major problems include drainage congestion in the coastal polder zone.

In addition to Khulna, a large industrial city and major river port with a population of over 1M, Jessore, Kushtia, Bagerhat, Chuadanga and Jhenaidah, each with a population of over 0.2M, are other important centres. Intensive STW irrigation development has taken place in the inland zone. Here flooding is less of a problem than in most other regions, due particularly to its generally higher elevation, although severe overland flooding from the west occurred in 2000. The main FCDI developments in the region have been the coastal embankment and polder system, built largely in the 1960s and 1970s, and the Ganges–Kobadak (GK) pump irrigation scheme (116,000ha) in the north.

Apart from the issues of urban and rural water-related services and environmental management and pollution control, other issues to be tackled in the NWMP in SW Region include:

- The arsenic problem
- For environmental and other purposes, restoration of dry season freshwater inflows to the region from the Ganges through the Gorai and possibly other channels
- Maintenance, rehabilitation and, where necessary, improvement of the coastal embankment system and alleviation of its associated drainage congestion
- Remedial actions for the large areas of existing FCDI schemes, especially the GK Irrigation Project.
- Flood proofing in the Ganges river charlands (also covered in the RE Region).

5.2 *Programmes for South West Region*

Twenty nine programmes will benefit the South West Region of which five are exclusive to the region. The exclusive programmes are targeted at Khulna's pressing need for water supply, sanitation, sewerage, flood protection and stormwater drainage and the equally pressing need for salinity control in the Sundarbans.

Shared programmes will address major river abstraction; improved surface water distribution; dredging for navigation; rural and urban arsenic mitigation and flood proofing of key infrastructure.

Institutions and agencies involved in the South West Programmes will include:

- | | | | |
|--------------------------|---------|--------|--------|
| • BWDB | • WARPO | • LGED | • IWTA |
| • LGI's | • KCC | • RHD | • BR |
| • Newly created agencies | | | |

Cost estimates for the South West Regional programmes are provided in Table 5.1.

Table 5.1: Cost Estimates for the South West Regional Programmes

MIS Ref	Title	COSTS (Tk M mid 2000)				
		ST	MT	LT	Residual	TOTAL
Exclusive to Region						
MC 004	Khulna Bulk Water Supply and Distribution Systems	450.0	2,500.0	4,429.0	500.0	7,879.0
MC 008	Khulna Sanitation and Sewerage Systems	150.0	900.0	4,114.0	500.0	5,664.0
MC 014	Khulna Flood Protection	166.5	233.1	44.4	-	444.0
MC 015	Khulna Stormwater Drainage	500.0	1,900.0	1,143.0	181.0	3,724.0
EA 009	Improved Water Management and Salinity Control in the Sundarbans	150.0	100.0	-	-	250.0
Shared with other Regions						
ID 003	FCD and FCD/I Management Rationalisation	147.4	201.0	-	-	348.4
MR 006	Regional River Management and Improvement	549.1	1,076.5	2,706.1	350.1	4,681.8
MR 007	Ganges Dependent Area Regional Surface Water Distribution Networks	-	962.4	6,736.7	-	7,699.1
TR 001	Urban Arsenic Mitigation	119.7	-	-	-	119.7
TR 002	Rural Arsenic Mitigation	180.8	142.4	-	-	323.2
TR 003	Large and Small Town Water Supply and Distribution Systems	315.1	1,701.7	3,284.2	252.1	5,553.2
TR 004	Rural Water Supply and Distribution Systems	1,446.6	4,568.2	4,908.4	380.7	11,304.0
TR 005	Large and Small Town Sanitation and Sewerage Systems	315.1	781.5	3,175.7	126.1	4,398.4
TR 006	Rural Sanitation	837.5	2,246.1	1,579.4	152.3	4,815.2
TR 007	Large and Small Town Flood Protection	303.8	668.3	736.7	113.9	1,822.7
TR 008	Large and Small Town Stormwater Drainage	756.3	2,268.9	4,285.7	756.3	8,067.2
DM 004	National, Regional and Key Feeder Roads - Flood Proofing	167.5	209.4	628.1	41.9	1,046.9
DM 005	Railway Flood Proofing	28.9	36.1	108.4	7.2	180.7
DM 006	Supplementary Irrigation and Drought Proofing of Rural Water Supplies	106.1	103.5	17.4	-	227.0
AW 001	Promotion of Expanded Minor Irrigation and Improved On-farm Water Managem	19.6	23.5	24.4	-	67.6
AW 002	Improved Performance of Existing Public Surface Water Irrigation Schemes	39.6	198.0	554.4	-	792.0
AW 003	New Public Surface Water Irrigation Schemes	-	200.1	400.2	-	600.3
AW 005	Improved Water Management at Local Government Level	127.2	247.1	1,137.9	75.9	1,588.1
AW 006	Improved Water Management at Community Level	5.8	50.0	182.1	12.1	250.0
AW 007	Rationalisation of Existing FCD Infrastructure	-	245.2	3,664.9	1,844.3	5,754.4
AW 008	Land Reclamation, Coastal Protection and Afforestation	50.4	122.9	413.4	-	586.7
EA 005	National Fish Pass Programme	107.2	268.0	428.8	-	804.0
EA 006	Unspecified Regional Programmes	-	17.7	57.3	-	75.0
EA 008	Environmentally Critical Areas and Integrated Wetland Management	12.6	26.2	78.6	-	117.4
TOTAL		7052.8	21997.7	44839.5	5293.8	79183.8

Programmes Exclusive to the Region

Khulna Bulk Water Supply and Distribution Systems

Ref : **MC 004**

Cluster :	Major Cities	Region(s) :	SW
Focus/Foci :	Water Supplies	Location :	Khulna City
Start Year ¹ :	2003	Duration ² :	23 year(s)
		Agency(s) Responsible :	KCC (Lead) None (Supporting)
Short Description :	Water allocation for domestic and municipal use is the first priority under the NWPo. This programme, which responds to both the NWPo and the National Policy for Safe Water Supply and Sanitation (NPSWSS), aims to address the need for "...safe and affordable drinking water supplies through various means..." for all inhabitants, especially the urban poor (NWPo §4.6.a). The population of Khulna is expected to double over the next 25 years, from 1.1 million in 2000 to 2.4 million in 2025. At present, only 51% of the population is served by the main public water supply system, the rest being dependant on unreliable and increasingly polluted local sources. This programme deals with the massive task of rehabilitation, improvement and extension of the city's water supply systems in order to raise and sustain coverage levels at 100% by 2010. It will be accomplished through the development of new water sources, improvement and expansion of the existing DTW-fed system, and the introduction of safe hand-pumps fed by small DTW systems in peri-urban and poor communities.		

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

Finance				Funding (%)	Expected by
	Costs	Private	GoB	Beneficiaries	ProgrammeYear
Total Capital ³	7,879.00 MTk	30%	65%	5%	23
Ultimate Recurring	989.00 MTk/yr	n/a	50%	50%	26
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				

Monitoring

Objective	Indicator	Present Status ⁵
• Uncollected water fees reduced to 10% of due	• DPHE records	NYD
• Sustainable operation and maintenance of city water supply systems	• Frequency of service breaks • Response times	NYD
• Reduced incidence of water borne or water related disease	• Public health records • Water quality	NYD
• 100% of Khulna's population have access to formal water supplies	• Survey Reports	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

Khulna Sanitation and Sewerage Systems

Ref : **MC 008**

Cluster :	Major Cities	Region(s) :	SW
Focus/Foci :	Sanitation	Location :	Khulna City
Start Year ¹ :	2003	Duration ² :	23 year(s)
		Agency(s) Responsible :	KCC (Lead) None (Supporting)
Short Description :	The NWPo "mandates relevant public water and sewerage institutions to provide necessary drainage and sanitation, including treatment of domestic wastewater and sewage and replacement of open drains and construction of sewers, in the interest of public health." (§4.6.c). The population of Khulna is expected to double over the next 25 years, from 1.1 million in 2000 to 2.4 million in 2025. At present, about 51% of the population is adequately served by sanitation facilities, mainly by pit latrines with/without septic tanks. In one part of the city there is a smallbore sewerage system which is now defunct. There is no conventional waterborne sewerage system. In the slums and other disadvantaged areas, people are dependant on 'hanging latrines' and open defecation which exacerbates pollution and public health problems and increases the likelihood of epidemic outbreaks of waterborne and water-related diseases. This programme aims to raise and sustain appropriate service coverage to 100% by 2010.		

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

Finance				Funding (%)	Expected by	
		Costs	Private	GoB	Beneficiaries	ProgrammeYear
Total Capital ³	5,664.00	MTk	20%	75%	5%	23
Ultimate Recurring	575.80	MTk/yr	n/a	50%	50%	25
Date of Data :	31	07	01	Stacked Cumulative Cash Flow Chart		
	(dd)	(mm)	(yy)	Cost (MTk)	● Investment	○ Recurring
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
• Sustainable operation and maintenance of town sanitation systems	• Frequency of service break downs • Response times	NYD
• Reduced environmental pollution	• Fæcal coliform counts	NYD
• Improved public health	• Public health statistics	NYD
• 100% of Khulna's population have access to sanitation facilities	• Survey reports	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

Khulna Flood Protection

Ref : **MC 014**

Cluster :	Major Cities	Region(s) :	SW
Focus/Foci :	Flood Protection	Location :	Khulna City
Start Year ¹ :	2003	Duration ² :	10 year(s)
		Agency(s) Responsible :	BWDB (Lead) KCC (Supporting)
Short Description :	NWPo states that "Regions of economic importance such as metropolitan areas,...will be fully protected against floods as a matter of first priority" (§4.2.p.i). Some of the lower, southern parts of Khulna are vulnerable to flooding during spring tides and a flood protection embankment with tidal sluices has been constructed to provide protection. However, the protected area is vulnerable to waterlogging when the drainage sluices cannot be operated due to high external water levels. In other parts of the city, local flooding is caused by heavy rainfall due to inadequate storm drainage. This programme contains measures to address these problems.		

MIS Links	Cost Calculation :	MC Programme costing.xls	Map :	MC 014 Map.jpg
	Disb't Schedule :	MC Programme costing.xls	Description :	MC 014 PgP.doc

Finance				Funding (%)	Expected by
	Costs	Private	GoB	Beneficiaries	ProgrammeYear
Total Capital ³	444.00 MTk	0%	100%	0%	10
Ultimate Recurring	40.00 MTk/yr	n/a	85%	15%	11
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				

Monitoring

Objective	Indicator	Present Status ⁵
• Khulna Flood protection programme prepared and agreed	• Signed programme/project documents	NYD
• Khulna flood protection programme implemented	• Programme/project completion reports	NYD
• Khulna protected from 1:100 year flood	• Physical evidence and hydrological data	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

Khulna Stormwater Drainage

Ref : **MC 015**

Cluster :	Major Cities	Region(s) :	SW
Focus/Foci :	Stormwater Drainage	Location :	Khulna City
Start Year ¹ :	2004	Duration ² :	22 year(s)
		Agency(s) Responsible :	KCC (Lead) BWDB (Supporting)
Short Description :	NWPo states that "Regions of economic importance such as metropolitan areas,...will be fully protected against floods as a matter of first priority" (§4.2.p.i) . The progressive expansion and urbanization of Khulna City increases the need for storm drainage as the increase in paved surfaces hastens runoff rates and reduces infiltration thereby causing urban flooding. This programme will mitigate Khulnas' stormwater drainage problem by ensuring a properly planned, comprehensive drainage system ranging from collection of water at local street level to disposal of accumulated drainage water at pump stations.		

MIS Links	Cost Calculation :	MC Programme costing.xls	Map :	MC 015 Map.jpg
	Disb't Schedule :	MC Programme costing.xls	Description :	MC 015 PgP.doc

Finance						
	Costs	Private	Funding (%)	Beneficiaries	Expected by	
			GoB		ProgrammeYear	
Total Capital ³	3,724.00 MTk	0%	100%	0%		22
Ultimate Recurring	372.40 MTk/yr	n/a	85%	15%		26
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					

Monitoring

Objective	Indicator	Present Status ⁵
• Khulna stormwater drainage programme prepared and agreed	• Signed programme/project documents	NYD
• Khulna stormwater drainage programme implemented	• Programme/project completion reports	NYD
• Khulna served by stormwater drainage facilities	• Survey reports	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

Improved Water Management and Salinity Control in the Sundarbans

Ref : **EA 009**

Cluster :	Environment and Aquatic Resources	Region(s) :	SW
Focus/Foci :	Water Management for Eco-Sensitive Areas	Location :	Sundarbans Area of SW region
Start Year ¹ :	2002	Duration ² :	10 year(s)
		Agency(s) Responsible :	DoForest (Lead) DoE, BWDB, WARPO (Supporting)
Short Description :	Whilst action will be taken under Programme MR 003 to remedy the shortages of upland flows, and under MR 007 to ensure effective rejuvenation of the river systems within the Ganges Dependent Area, insufficient is known about the Sundarbans inter-acts with the water regime in this complex tidal area. The purpose of this programme is to improve knowledge of the inter-actions between the ecological health of the forest reserve and the aquatic environment within which it is situated. An extensive scoping exercise will precede data collection and assessment. Provision is also made for long-term monitoring of selected parameters.		

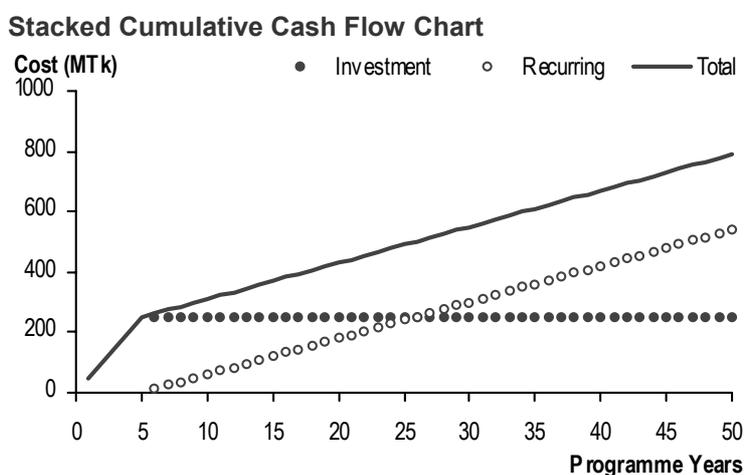
MIS Links	Cost Calculation :	EA Programme costing.xls	Map :	EA 009 Map.jpg
	Disb't Schedule :	EA Programme costing.xls	Description :	EA 009 PgP.doc

Finance			Funding (%)		Expected by
	Costs	Private	GoB	Beneficiaries	ProgrammeYear
Total Capital ³	250.00 MTk	0%	100%	0%	10
Ultimate Recurring	12.00 MTk/yr	n/a	100%	0%	11

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

Status : **Identified**
Financial Base Year: **mid-2000**

Planned Expenditure (to date) : **0** MTk
Actual Expenditure⁴ (to date) : **0** MTk



Monitoring

Objective	Indicator	Present Status ⁵
• Relevant data available	• Reports • Use of data	NYD
• Appropriate parameters established and accepted by DoE	• Documented parameters • Formal agreement	NYD
• Water quality targets achieved in the Sundarbans	• Water quality tests	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

Programmes Shared with Other Region(s)

FCD and FCD/I Management Rationalisation

Ref : **ID 003**

Cluster :	Institutional Development	Region(s) :	All
Focus/Foci :	Bangladesh Water Development Board	Location :	Nationwide
Start Year ¹ :	2002	Duration ² :	6 year(s)
		Agency(s) Responsible :	BWDB (Lead) None (Supporting)
Short Description :	This programme is intended to facilitate the transfer of FCD/I scheme management as per policy. Three steps will be involved. In the short term BWDB will receive capacity building with respect to environmental and social issues, while in consultation with the stakeholders a range of transfer options will be identified and prepared. Finally these options will be pilot tested at selected locations during the short and medium term.		

MIS Links	Cost Calculation :	ID Programme costing.xls	Map :	ID 003 Map.jpg
	Disb't Schedule :	ID Programme costing.xls	Description :	ID 003 PgP.doc

Finance						
	Costs	Private	Funding (%)	Beneficiaries	Expected by	
			GoB		ProgrammeYear	
Total Capital ³	1,300.00 MTk	0%	85%	15%	6	
Ultimate Recurring	25.20 MTk/yr	n/a	50%	50%	7	
Date of Data :	31	07	01	Stacked Cumulative Cash Flow Chart		
	(dd)	(mm)	(yy)	Cost (MTk)	● Investment	○ Recurring
Status :	Identified					
Financial Base Year:	mid-2000					
Planned Expenditure (to date) :	MTk					
Actual Expenditure ⁴ (to date) :	MTk					

Monitoring

Objective	Indicator	Present Status ⁵
• Reduction in the number of schemes directly managed by BWDB	• Nationwide FCD(/I) statistics	NYD
• Increase in funds for O&M after turnover of scheme	• Scheme accounts	NYD
• 75% of decentralised FCD/I schemes considered sustainable within 10 years of transfer	• National FCD/I scheme statistics	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

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				Funding (%)	Expected by
	Costs	Private	GoB	Beneficiaries	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	Stacked Cumulative Cash Flow Chart			
	(dd) (mm) (yy)				
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
• Integrated river management plans	• Plan documents approved	NYD
• Sustainable river development and management works	• Physical progress	NYD
	• Effective operation and maintenance	
	• Independent surveys of end users	

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

Ganges Dependent Area Regional Surface Water Distribution Networks

Ref : **MR 007**

Cluster :	Main Rivers	Region(s) :	NW, SW, SC
Focus/Foci :	Surface Distribution Networks	Location :	Ganges Dependent Area
Start Year ¹ :	2009	Duration ² :	8 year(s)
		Agency(s) Responsible :	BWDB (Lead) LGED (Supporting)
Short Description :	This programme provides for the capital investments necessary to develop both regional and local river distributary systems as part of the overall GDA development. This provision takes into account that part of these works will be developed under Programme AW 005. Three main link channels have been identified to serve both the Ganges left and right banks. The links would be sized to accommodate supplementary flows for salinity control, as well as for development of LLP irrigation and other consumptive needs.		

MIS Links	Cost Calculation :	MR Programme costing.xls	Map :	MR 007 Map.jpg
	Disb't Schedule :	MR Programme costing.xls	Description :	MR 007 PgP.doc

Finance							
		Costs	Private	Funding (%)	Beneficiaries	Expected by	ProgrammeYear
Total Capital ³	8,911.00	MTk	0%	98%	2%	8	
Ultimate Recurring	267.30	MTk/yr	n/a	75%	25%	9	
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						

Monitoring		
Objective	Indicator	Present Status⁵
• 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 GDA	• 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

Urban Arsenic Mitigation

Ref : **TR 001**

Cluster :	Towns and Rural Areas	Region(s) :	NW, NC, NE, SW, SC, SE, EH
Focus/Foci :	Arsenic Mitigation	Location :	NW, NC, NE, SW, SC, SE, & EH regions
Start Year ¹ :	2001 Duration ² : 4 year(s)	Agency(s) Responsible :	Paurashavas (Lead) CBOs (Supporting)
Short Description :	Arsenic contamination of groundwater water supplies has become a serious health hazard in Bangladesh affecting some 30 million people. This is recognised by NWPo §4.06a of the NWPo which requires the Government to “facilitate availability of safe...drinking water through various means”. This programme will provide short term arsenic mitigation measures for water supplies (such as arsenic filters and household removal facilities in all urban areas except those comprising the Statistical Metropolitan Areas (See the Major City cluster). More permanent measures will be introduced in the medium and long terms (see Programme TR 003).		

MIS Links	Cost Calculation :	TR Programme costing.xls	Map :	TR 001 Map.jpg
	Disb't Schedule :	TR Programme costing.xls	Description :	TR 001 PgP.doc

Finance				Funding (%)	Expected by
		Costs	Private	GoB	Beneficiaries
Total Capital ³	439.00 MTk	0%	85%	15%	4
Ultimate Recurring	216.90 MTk/yr	n/a	0%	100%	5
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
• Procurement and installation programmes prepared	• Signed programme/project documents	NYD
• Procurement and installation programmes complete	• Programme/Project completion reports	NYD
	• Household surveys	
• Arsenic free potable water available to 100% of large and small town populations	• Water quality	NYD
	• Community health records	

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

Rural Arsenic Mitigation

Ref : **TR 002**

Cluster :	Towns and Rural Areas	Region(s) :	NW, NC, NE, SW, SC, SE, EH
Focus/Foci :	Arsenic Mitigation	Location :	NW, NC, NE, SW, SC, SE, & EH regions
Start Year ¹ :	2001 Duration ² : 9 year(s)	Agency(s) :	DPHE (Lead)
		Responsible :	CBOs (Supporting)
Short Description :	Arsenic contamination of groundwater water supplies has become a serious health hazard in Bangladesh affecting some 76 million people. This is recognised by NWPo §4.06a of the NWPo which requires the Government to “facilitate availability of safe...drinking water through various means”. This programme will provide short term and medium term arsenic mitigation measures for water supplies (such as arsenic filters and household removal facilities in all rural. More permanent measures will be introduced in the long term (See Programme TR 004) .		

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

Finance					
	Costs	Private	Funding (%) GoB	Beneficiaries	Expected by ProgrammeYear
Total Capital ³	1,185.00 MTk	0%	85%	15%	9
Ultimate Recurring	585.40 MTk/yr	n/a	0%	100%	10
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
• Procurement and installation programmes prepared	• Signed programme/project documents	NYD
• Procurement and installation programmes complete	• Programme/Project completion reports	NYD
	• Household/community surveys	
• Arsenic free potable water available to 100% of rural population	• Water quality	NYD
	• Community health records	

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

Large and Small Town Water Supply and Distribution Systems

Ref :

TR 003

Cluster :	Towns and Rural Areas	Region(s) :	All
Focus/Foci :	Water Supplies	Location :	Nationwide
Start Year ¹ :	2002	Duration ² :	25 year(s)
		Agency(s) Responsible :	DPHE (Lead) CBOs, Private Sector (Supporting)
Short Description :	The preamble to NWPo §4.6 of the NWPo highlights the water supply problems facing Bangladesh's urban areas (large and small). Water tables are receding due to heavy groundwater abstraction. Furthermore, saline intrusion in coastal aquifers and contamination elsewhere further compromises the drinking water supplies for urban inhabitants. In accordance with the Government's policy to "Facilitate availability of safe and affordable drinking water supplies." (NWPo §4.6.a), this programme is intended to provide resources for the implementation of piped water supply schemes fed from DTW or surface water sources in order to serve 100% of the population (of each town) with piped drinking water supplies by year 2010.		

MIS Links	Cost Calculation :	TR Programme costing.xls	Map :	TR 003 Map.jpg
	Disb't Schedule :	TR Programme costing.xls	Description :	TR 003 PgP.doc

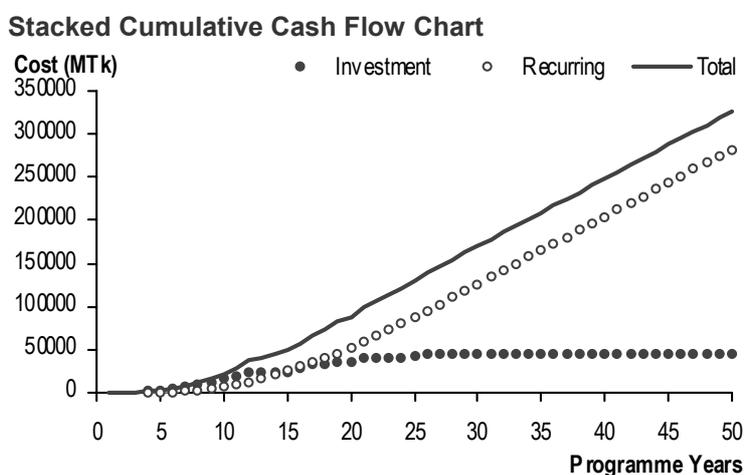
Finance					
	Costs	Private	Funding (%)	Expected by	
			GoB	Beneficiaries	ProgrammeYear
Total Capital ³	44,055.00 MTk	0%	100%	0%	25
Ultimate Recurring	7,820.80 MTk/yr	n/a	0%	100%	26

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

Status : **Identified**
Financial Base Year: **mid-2000**

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

Actual Expenditure⁴ (to date) : **0** MTk



Monitoring

Objective	Indicator	Present Status ⁵
• Town water supply programmes prepared	• Signed programme/project documents	NYD
• Sustainable operation and maintenance of town water supply systems	• Frequency of pipe breaks • Response times	NYD
• Town water supply programme completed	• Programme/project completion reports • Household, district surveys	NYD
• 100% of large and small town population have access to formal water supplies	• Survey reports	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

Rural Water Supply and Distribution Systems

Ref :

TR 004

Cluster :	Towns and Rural Areas	Region(s) :	All
Focus/Foci :	Water Supplies	Location :	Rural Areas Nationwide
Start Year ¹ :	2001	Duration ² :	25 year(s)
		Agency(s) Responsible :	DPHE (Lead) LGIs, DPHE, CBOs (Supporting)
Short Description :	<p>The preamble to NWPo §4.6 of the NWPo recognises that "The rural areas of Bangladesh suffer from a lack of quality drinking water". This situation is worsening due to heavy withdrawals of groundwater (the principle source for most of the rural areas) for irrigation a trend which is exacerbated by agro-chemical and saline pollution of groundwater. Although the rural population is expected to increase relatively slowly over the next 25 years, from 102 million in 2000 to 108 million in 2025, it is nonetheless the GoB's intention to "facilitate the availability of safe and affordable drinking water supplies through various means" (NWPo §4.6.a). It is estimated that 92% of the rural population normally have access to potable water, mainly through shallow HTWs. The thrust of this programme is therefore to improve the quality of water supply services (reliability and access) in areas already served as well as extending the coverage to 100% by 2005.</p>		

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

Finance					
	Costs	Private	Funding (%)	Expected by	
			GoB	Beneficiaries	ProgrammeYear
Total Capital ³	74,234.00 MTk	80%	20%	0%	25
Ultimate Recurring	12,884.30 MTk/yr	n/a	0%	100%	25

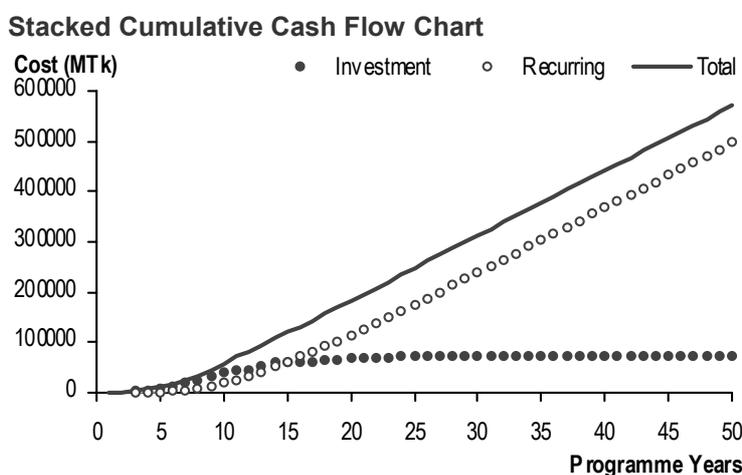
Date of Data : **31 07 01**
(dd) (mm) (yy)

Status : **Identified**

Financial Base Year: **mid-2000**

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

Actual Expenditure⁴ (to date) : **0** MTk



Monitoring

Objective	Indicator	Present Status ⁵
• Rural water supply programmes prepared	• Signed programme/project documents	NYD
• Sustainable operation and maintenance of rural water supply systems	• Frequency of pipe breaks	NYD
	• Response times	
• Rural water supply programmes completed	• Programme/project completion reports	NYD
	• Household, community surveys	
• 100% of rural population has access to formal water supplies	• Survey reports	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

Large and Small Town Sanitation and Sewerage Systems

Ref : **TR 005**

Cluster :	Towns and Rural Areas	Region(s) :	All
Focus/Foci :	Sanitation	Location :	Nationwide
Start Year ¹ :	2002	Duration ² :	25 year(s)
		Agency(s) Responsible :	Paurashavas (Lead) LGIs, LGED, DPHE, CBOs (Supporting)
Short Description :	<p>§4.6.c of the NWPo "mandates relevant public water and sewerage institutions to provide necessary drainage and sanitation, including treatment of domestic wastewater and sewage and replacement of open drains and construction of sewers, in the interest of public health." The population of large (>50,000) and small towns is expected to more than double over the next 25 years, from 14 million in 2000 to 36 million in 2025. At present, between 55% (small towns) and 65% (large towns) of the population is adequately served by sanitation facilities, mainly by pit latrines with/without septic tanks. In the poor areas and fringe communities, people are dependant on 'hanging latrines' and open defecation which exacerbates pollution and public health problems and increases the likelihood of epidemic outbreaks of waterborne and water-related diseases. This programme aims to provide appropriate sanitation facilities and raise and sustain service coverage at 100% by 2010.</p>		

MIS Links	Cost Calculation :	TR Programme costing.xls	Map :	TR 005 Map.jpg
	Disb't Schedule :	TR Programme costing.xls	Description :	TR 005 PgP.doc

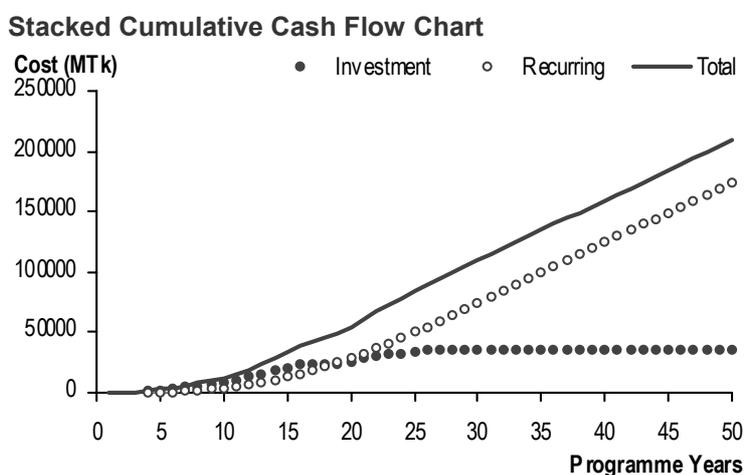
Finance			Funding (%)		Expected by
	Costs	Private	GoB	Beneficiaries	ProgrammeYear
Total Capital ³	34,894.00 MTk	0%	100%	0%	25
Ultimate Recurring	4,543.10 MTk/yr	n/a	0%	100%	26

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

Status : **Identified**
Financial Base Year: **mid-2000**

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

Actual Expenditure⁴ (to date) : **0** MTk



Monitoring

Objective	Indicator	Present Status ⁵
• Sustainable operation and maintenance of town sanitation systems	• Frequency of service break downs • Response times	NYD
• Reduced environmental pollution	• Faecal coliform counts	NYD
• Improved public health	• Public health statistics	NYD
• 100% of large and small town populations have access to sanitation facilities	• Survey reports	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

Rural Sanitation

Ref : **TR 006**

Cluster :	Towns and Rural Areas	Region(s) :	All
Focus/Foci :	Sanitation	Location :	Rural Areas Nationwide
Start Year ¹ :	2001	Duration ² :	25 year(s)
		Agency(s) Responsible :	DPHE (Lead) CBOs, Private sector, LGIs (Supporting)
Short Description :	§4.6.c of the NWPo "mandates relevant public water and sewerage institutions to provide necessary drainage and sanitation, including treatment of domestic wastewater and sewage and replacement of open drains and construction of sewers, in the interest of public health." The population of rural areas is expected to increase slightly over the next 25 years, from 102 million in 2000 to 108 million in 2025. At present, only 40% of the population has access to pit latrine facilities, the other 60% relying on 'hanging latrines' and open defecation which exacerbates pollution and public health problems and increases the likelihood of epidemic outbreaks of waterborne and water-related diseases. This programme aims to provide appropriate sanitation facilities for the whole rural population and raise and sustain service coverage at 100% by 2010.		

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

Finance					
	Costs	Private	Funding (%) GoB	Beneficiaries	Expected by Programme Year
Total Capital ³	31,622.00 MTk	80%	20%	0%	25
Ultimate Recurring	5,901.00 MTk/yr	n/a	0%	100%	26

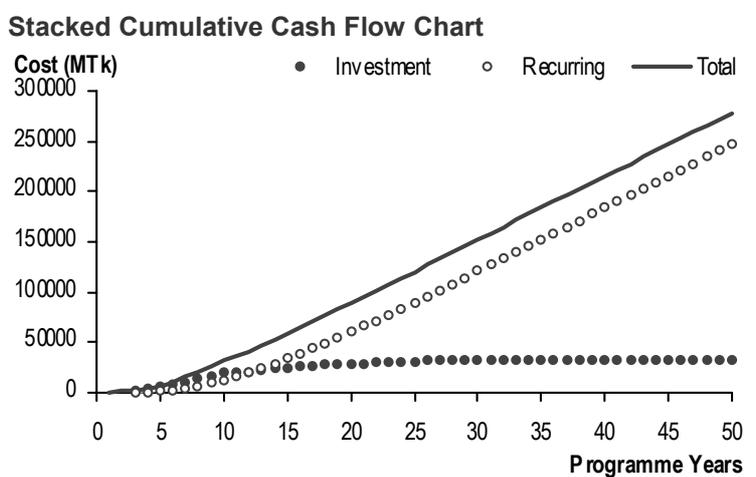
Date of Data : **31 07 01**
(dd) (mm) (yy)

Status : **Identified**

Financial Base Year: **mid-2000**

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

Actual Expenditure⁴ (to date) : **0** MTk



Monitoring

Objective	Indicator	Present Status ⁵
• Sustainable operation and maintenance of rural sanitation systems	• Frequency of service break downs • Response times	NYD
• Reduced environmental pollution	• Faecal coliform counts	NYD
• Improved public health	• Public health statistics	NYD
• 100% of rural populations have access to sanitation facilities	• Survey reports	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

Large and Small Town Flood Protection

Ref :

TR 007

Cluster :	Towns and Rural Areas	Region(s) :	All
Focus/Foci :	Flood Protection	Location :	Large and Small towns throughout the country
Start Year ¹ :	2003	Duration ² :	25 year(s)
		Agency(s) Responsible :	BWDB (Lead) None (Supporting)
Short Description :	§4.2.9.i of the NWPo states that "...critical areas such as district and Upazila towns, important commercial centres, and places of historical importance will be gradually provided reasonable degree of protection against flood". The low areas of many of the towns in Bangladesh are vulnerable to flooding during monsoon. Significant damage was caused during the 1988 and 1998 floods due either to absence of embankments, embankment failure or the inability of protected areas to drain during times of heavy rainfall because of high water levels outside. This programme will undertake measures such as: raising of existing embankment crest levels; repair of damaged embankments; and, provision of erosion protection works where necessary. New flood protection works will also be involved consisting mainly of constructing embankments on riverbanks with integral drainage sluices.		

MIS Links	Cost Calculation :	TR Programme costing.xls	Map :	TR 007 Map.jpg
	Disb't Schedule :	TR Programme costing.xls	Description :	TR 007 PgP.doc

Finance				Funding (%)		Expected by
	Costs	Private	GoB	Beneficiaries	ProgrammeYear	
Total Capital ³	14,460.00 MTk	0%	100%	0%		25
Ultimate Recurring	1,301.40 MTk/yr	n/a	50%	50%		26
Date of Data :	31 07 01	Stacked Cumulative Cash Flow Chart				
	(dd) (mm) (yy)					
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
• Flood protection programmes prepared and agreed	• Signed programme/project documents	NYD
• Flood protection programmes implemented	• Programme/project completion reports	NYD
• All large and small towns protected from 1: 100 year floods	• Physical evidence and hydrological data	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

Large and Small Town Stormwater Drainage

Ref :

TR 008

Cluster :	Towns and Rural Areas	Region(s) :	All
Focus/Foci :	Stormwater Drainage	Location :	Nationwide
Start Year ¹ :	2003	Duration ² :	25 year(s)
		Agency(s) Responsible :	Paurashavas (Lead) LGIs (Supporting)
Short Description :	§4.6 says that "Lack of proper sanitation and drainage facilities, are the primary causes of diseases in the urban areas". Storm water drainage is an increasing problem in urban areas, as the construction of buildings and paved areas has progressively increased run-off. At the same time, pressures on land has caused natural drainage channels to be filled in and built upon. Encroachment on watercourses and water bodies has progressively reduced natural drainage. No urban areas have adequate storm drainage at present. This programme provides resources for a nationwide installation/upgrading and maintenance of stormwater drainage facilities in large and small towns. These will most probably be gravity systems which although cost-effective, will require regular adequate maintenance.		

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

Finance					
	Costs	Private	Funding (%) GoB	Beneficiaries	Expected by ProgrammeYear
Total Capital ³	64,000.00 MTk	0%	100%	0%	25
Ultimate Recurring	7,040.00 MTk/yr	n/a	50%	50%	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
• Stormwater drainage programme prepared and agree	• Signed programme/project documents	NYD
• Stormwater drainage programmes implemented	• Programme/project completion reports	NYD
• Stormwater drainage installed in all large and small towns	• Survey reports	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, Regional and Key Feeder Roads - Flood Proofing

Ref : **DM 004**

Cluster :	Disaster Management	Region(s) :	NW, NC, NE, SE, SC,SW
Focus/Foci :	Flood Proofing	Location :	Regions NW, NC, NE, SE, SC,SW
Start Year ¹ :	2001	Duration ² :	25 year(s)
		Agency(s) Responsible :	RHD (Lead) LGED (Supporting)
Short Description :	In line with Policy's call for coping with floods in relation to vital infrastructure (NWPo §4.2.p.ii), this programme targets the flood proofing needs of key portions of Bangladesh's highway network. As with current practice, the National Highways, Regional Roads and Type A Feeder Roads will be raised by the central Roads and Highways Department (RHD). Type B Feeder Roads and Rural Roads will be raised by the Local Government Engineering Departments (LGEDs). The programme also has collateral benefits since the raised embankments comprise safe havens while facilitating the movement of relief goods during flood emergencies. This is a long term programme with national coverage, however it has been assumed that embankment raising will be carried out when a particular road is due for major maintenance or re-surfacing, with priority given to high risk areas in the case of national and regional roads..		

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

Finance				Funding (%)		Expected by
	Costs	Private	GoB	Beneficiaries	ProgrammeYear	
Total Capital ³	10,904.80 MTk	0%	100%	0%		25
Ultimate Recurring	436.20 MTk/yr	n/a	100%	0%		26
Date of Data :	31 07 01	Stacked Cumulative Cash Flow Chart				
	(dd) (mm) (yy)					
Status :	Identified					
Financial Base Year:	mid-2000					
Planned Expenditure (to date) :	428 MTk					
Actual Expenditure ⁴ (to date) :	MTk					

Monitoring

Objective	Indicator	Present Status ⁵
• Quantitative needs assessment	• Needs assessment reports	NYD
• Programme documents prepared	• Programme documents	NYD
• Programmes underway	• Signed contracts/work orders	NYD
• 100% of all national and feeder roads raised by 1m in high and .5m in low risk areas; 20% of feeder and rural roads raised by 1m in high risk areas	• Construction records • Site visits	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

Railway Flood Proofing

Ref : **DM 005**

Cluster :	Disaster Management	Region(s) :	SW, SC, NW, NC, NE, SE
Focus/Foci :	Flood Proofing	Location :	Regions SW, SC, NW, NC, NE, SE
Start Year ¹ :	2001	Duration ² :	25 year(s)
		Agency(s) Responsible :	BR (Lead) None (Supporting)
Short Description :	<p>In line with Policy's call for coping with floods in relation to vital infrastructure (NWPo §4.2.p.ii), this programme targets at the flood proofing needs of key portions of Bangladesh's railway network. The Railway Department will be responsible for implementation of this programme. The programme has collateral benefits since the raised embankments comprise safe havens while facilitating the movement of relief goods during flood emergencies. This is a long term programme with coverage in six hydrological regions and work is expected to proceed as part of the network upgrading programmes. However, a significant risk to this programme is that the disruption to services that is inevitable when line raising is in progress, may well persuade the railway operators that it is cheaper to lose income for a few hours or days each year than to incur expenditure raising lines while simultaneously losing revenues for that period.</p>		

MIS Links	Cost Calculation :	DM Programme costing.xls	Map :	DM 005 Map.jpg
	Disb't Schedule :	DM Programme costing.xls	Description :	DM 005 PgP.doc

Finance				Funding (%)		Expected by
	Costs	Private	GoB	Beneficiaries	Programme	Year
Total Capital ³	977.00 MTk	0%	100%	0%		25
Ultimate Recurring	39.10 MTk/yr	n/a	100%	0%		26
Date of Data :	31	07	01	Stacked Cumulative Cash Flow Chart		
	(dd)	(mm)	(yy)			
Status :	Identified					
Financial Base Year:	mid-2000					
Planned Expenditure (to date) :	33 MTk					
Actual Expenditure ⁴ (to date) :	MTk					

Monitoring		
Objective	Indicator	Present Status⁵
• Quantitative needs assessment	• Needs assessment reports	NYD
• Programme documents prepared	• Programme documents	NYD
• Programmes underway	• Signed contracts/work orders	NYD
• 100% of all high risk railways raised by 1m and 100% of low risk railway raised by .5m	• Construction records • Site visits	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

Supplementary Irrigation and Drought Proofing of Rural Water Supplies

Ref :

DM 006

Cluster :	Disaster Management	Region(s) :	All
Focus/Foci :	Drought Proofing	Location :	Nationwide but emphasising NW, NC, SE, SW, SC
Start Year ¹ :	2002	Duration ² :	10 year(s)
Short Description :	This programme aims to promote supplementary irrigation during the drought-prone aman season, as well as including efforts to drought-proof rural water supplies.		
	Agency(s) :	DAE	(Lead)
	Responsible :	None	(Supporting)

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

Finance					
	Costs	Private	Funding (%)	Beneficiaries	Expected by ProgrammeYear
Total Capital ³	1,041.40 MTk	0%	85%	15%	10
Ultimate Recurring	0.00 MTk/yr	n/a	n/a	n/a	n/a
Date of Data :	31 07 01	Stacked Cumulative Cash Flow Chart			
	(dd) (mm) (yy)				
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
• New Tara hand tubewells commissioned	• Physical number of new wells	NYD
• Increased area of aman rice under supplementary irrigation	• Areas planted	NYD
• Increased quality of life in target areas	• Return on family labour	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

Promotion of Expanded Minor Irrigation and Improved On-farm Water Management

Ref : **AW 001**

Cluster :	Agriculture and Water Management	Region(s) :	All
Focus/Foci :	Irrigation	Location :	Nationwide
Start Year ¹ :	2002	Duration ² :	15 year(s)
		Agency(s) Responsible :	DAE (Lead) None (Supporting)
Short Description :	It is the policy of the Government to "Encourage and promote continued development of minor irrigation" (NWPo §4.7.a) and to "Encourage future groundwater development for irrigation by both the public and the private sectors" (§4.7.b). With the ultimate goal of increased agricultural productivity, this programme involves the improvement of irrigation pumping efficiency, promotion of lower cost force-mode tubewell pumps, and a farmer education/training component to improve on-farm water management and the wise use of water		

MIS Links	Cost Calculation :	AW Programme costing.xls	Map :	AW 001 Map.jpg
	Disb't Schedule :	AW Programme costing.xls	Description :	AW 001 PgP.doc

Finance				Funding (%)		Expected by
	Costs	Private	GoB	Beneficiaries	Programme	Year
Total Capital ³	310.00 MTk	0%	85%	15%		15
Ultimate Recurring	7.20 MTk/yr	n/a	0%	100%		16
Date of Data :	31	07	01	Stacked Cumulative Cash Flow Chart		
	(dd)	(mm)	(yy)			
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
• Increased diesel pump engine efficiencies	• Sample tests	NYD
• Farmers adopt force mode pumpsets	• Farmer survey	NYD
• Irrigation water use efficiencies increased	• Sample tests	NYD
• Average return per unit of water increased in minor irrigation areas	• Household surveys and field measurements	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

Improved Performance of Existing Public Surface Water Irrigation Schemes Ref : **AW 002**

Cluster :	Agriculture and Water Management	Region(s) :	All
Focus/Foci :	Irrigation	Location :	Nationwide
Start Year ¹ :	2004	Duration ² :	20 year(s)
		Agency(s) Responsible :	BWDB (Lead) BMDA, CBOs, LGIs, NGOs, Private Sector (Supporting)
Short Description :	It is the policy of the government to "encourage future groundwater development for irrigation by both the public and private sectors" (NWPo §4.7.b). Even so experience confirms that current performance of existing public irrigation schemes is not satisfactory. This programme is intended to address both challenges by means of the following approaches: full participation of beneficiaries; command area development; conjunctive use of surface and groundwater; rehabilitation; improved O&M and appropriate beneficiary contributions to both capital and recurring costs.		

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

Finance					
	Costs	Private	Funding (%)	Expected by	
			GoB	Beneficiaries	ProgrammeYear
Total Capital ³	3,275.00 MTk	0%	85%	15%	20
Ultimate Recurring	98.30 MTk/yr	n/a	25%	75%	21

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

Status : **Identified**

Financial Base Year: **mid-2000**

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

Actual Expenditure⁴ (to date) : **0** MTk

Stacked Cumulative Cash Flow Chart

Monitoring		
Objective	Indicator	Present Status⁵
• Sustainable operation and maintenance	• User group records • Long term O&M expenditure trends	NYD
• Public irrigation schemes rehabilitated and upgraded	• Construction records • On site verification	NYD
• Increased returns per unit of water and labour on public irrigation areas	• Household surveys and field measurements	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

New Public Surface Water Irrigation Schemes

Ref : **AW 003**

Cluster :	Agriculture and Water Management	Region(s) :	All
Focus/Foci :	Irrigation	Location :	Nationwide
Start Year ¹ :	2005	Duration ² :	15 year(s)
		Agency(s) Responsible :	BWDB (Lead) LGED (Supporting)
Short Description :	The preamble NWPo §4.7 requires government to continue promoting the development of surface water irrigation where feasible and to focus where practical on the conjunctive use of groundwater and surface water. The overall objective of this programme is to increase agricultural production and reduce demand on groundwater abstraction by promoting and implementing new surface water irrigation schemes.		

MIS Links	Cost Calculation :	AW Programme costing.xls	Map :	AW 003 Map.jpg
	Disb't Schedule :	AW Programme costing.xls	Description :	AW 003 PgP.doc

Finance			Funding (%)		Expected by
	Costs	Private	GoB	Beneficiaries	ProgrammeYear
Total Capital ³	6,125.00 MTk	0%	85%	15%	15
Ultimate Recurring	306.30 MTk/yr	n/a	25%	75%	16
Date of Data :	31 07 01	Stacked Cumulative Cash Flow Chart			
	(dd) (mm) (yy)				
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
• Plans prepared	• Project documents	NYD
• Projects in progress	• Funding in place	NYD
	• Signed contracts/work orders	
• Increased area under public surface water irrigation	• Construction records	NYD
	• On site verification	

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

Improved Water Management at Local Government Level

Ref : **AW 005**

Cluster :	Agriculture and Water Management	Region(s) :	All
Focus/Foci :	Water Management	Location :	Nationwide
Start Year ¹ :	2001	Duration ² :	24 year(s)
		Agency(s) Responsible :	LGED (Lead) None (Supporting)
Short Description :	Implementation of the NWPO will result in a four tiered civil-administrative hierarchy for the water sector: central, regional, local and community. The BWDB will remain responsible for water management issues as they affect or occur in the main and regional rivers. Equally, management of certain schemes below 5000ha will become the responsibility of community based organisations. Water courses, whether natural or man-made, that will be the management responsibility of neither BWDB nor community organisations will become the responsibility of LGI's. Furthermore, actual ownership of all schemes except municipal water schemes will be transferred to the LGI's. This programme is intended to rehabilitate, upgrade and restore as appropriate, the water courses involved as well as to provide the LGI's with the necessary appurtenant equipment and facilities.		

MIS Links	Cost Calculation :	AW Programme costing.xls	Map :	AW 005 Map.jpg
	Disb't Schedule :	AW Programme costing.xls	Description :	AW 005 PgP.doc

Finance				Funding (%)	Expected by
	Costs	Private	GoB	Beneficiaries	ProgrammeYear
Total Capital ³	5,495.00 MTk	0%	85%	15%	24
Ultimate Recurring	156.00 MTk/yr	n/a	25%	75%	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
• Sustainable management and ownership models in place	• Reports • Legal instruments	NYD
• Local rivers, feeder canals and main drains transferred to LGI's for management/ownership as per policy	• Instruments of transfer ratified and promulgated • Title deeds	NYD
• Local rivers, feeders canals and main drains restored, rehabilitated, upgraded as appropriate	• Project completion reports • Physical surveys • Hydrological records	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

Improved Water Management at Community Level

Ref : **AW 006**

Cluster :	Agriculture and Water Management	Region(s) :	All
Focus/Foci :	Water Management	Location :	Nationwide
Start Year ¹ :	2001	Duration ² :	24 year(s)
		Agency(s) Responsible :	LGED (Lead) LGIs, DAE (Supporting)
Short Description :	Implementation of the NWPo will result in a four tiered civil-administrative hierarchy for the water sector: central, regional, local and community. The BWDB will remain responsible for water management issues as they affect or occur in the main and regional rivers. Local rivers and scheme delivery systems will become the management (and in some cases property) of LGI's while management of certain schemes below 5000ha will become the responsibility of community based organisations. This programme is intended to rehabilitate, upgrade and restore as appropriate, the water courses and field distribution/collection systems involved as well as to assist in providing with the necessary appurtenant equipment and facilities.		

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

Finance					
	Costs	Private	Funding (%) GoB	Beneficiaries	Expected by ProgrammeYear
Total Capital ³	865.00 MTk	0%	15%	85%	24
Ultimate Recurring	24.60 MTk/yr	n/a	0%	100%	26
Date of Data :	31	07	01	Stacked Cumulative Cash Flow Chart	
	(dd)	(mm)	(yy)		
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
• Effective community based water management organisations	• Field evaluations	NYD
• Khals re-excavated over 10,000ha	• Physical survey	NYD
• Sustainable sub-secondary water use efficiencies of 60% for paddy and 75% for dryfoot crops	• Field tests	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

Rationalisation of Existing FCD Infrastructure

Ref : **AW 007**

Cluster :	Agriculture and Water Management	Region(s) :	All
Focus/Foci :	Coastal Protection, AND Flood Control and Drainage	Location :	Nationwide
Start Year ¹ :	2007	Duration ² :	20 year(s)
		Agency(s) Responsible :	BWDB (Lead) LGED (Supporting)
Short Description :	The NWPo states that "Ownership of FCD and FCDI projects with command area of 1000 ha or less will gradually be transferred to the local governments, beginning with the ones that are being satisfactorily managed and operated by the beneficiary/ community organisations." (NWPo §4.4.f) and that is also the policy of the government to "Investigate thoroughly, important flood control and management issues, such as the efficacy of coastal polders, for guiding future policy on structural interventions" (NWPo §4.15.c). This programme will assess and rationalise all existing FCD schemes by specifying and implementing the appropriate course of action for each scheme according to the following options: a) continuation of the present situation; b) handover to beneficiaries or local govt.; c) rehabilitation and improvement; d) complete withdrawal.		

MIS Links	Cost Calculation :	AW Programme costing.xls	Map :	AW 007 Map.jpg
	Disb't Schedule :	AW Programme costing.xls	Description :	AW 007 PgP.doc

Finance			Funding (%)		Expected by
	Costs	Private	GoB	Beneficiaries	ProgrammeYear
Total Capital ³	21,471.70 MTk	0%	85%	15%	20
Ultimate Recurring	1,152.80 MTk/yr	n/a	50%	50%	21
Date of Data :	31 07 01	Stacked Cumulative Cash Flow Chart			
	(dd) (mm) (yy)				
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
• Sustainable operation and maintenance on 50% of all existing inland and coastal FCD/I schemes	• User group records • Long term O&M expenditure trends	NYD
• Inland and coastal FCD/I rehabilitated and upgraded on a participatory basis	• Participatory agreements • Project completion reports	NYD
• Increased returns per unit of water and labour in public irrigation areas	• Household surveys and field measurements	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

Land Reclamation, Coastal Protection and Afforestation

Ref :

AW 008

Cluster :	Agriculture and Water Management	Region(s) :	RE, SC, SE, EH
Focus/Foci :	Coastal Protection	Location :	Regions RE, SC, SE, EH
Start Year ¹ :	2001	Duration ² :	24 year(s)
		Agency(s) Responsible :	BWDB (Lead) DoForest (Supporting)
Short Description :	NWPo Article 4.2(r) states that the Government will "Plan and implement schemes for reclamation of land from the sea and rivers". In line with this Article, studies will be undertaken for reclamation of land from estuary region and sea. The NWPo also recognises the importance of coastal embankments/polders with the statement that it is the policy of the government to "Investigate thoroughly, important flood control and management issues, such as the efficacy of coastal polders, for guiding future policy on structural interventions." (NWPo §4.15.c). Another purpose of this programme is to embank and where necessary provide arborial protection to accreted land thereby protecting life/property/livelihoods from tides, or scend.		

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

Finance				Funding (%)		Expected by
		Costs	Private	GoB	Beneficiaries	ProgrammeYear
Total Capital ³	5,866.90	MTk	0%	100%	0%	24
Ultimate Recurring	201.00	MTk/yr	n/a	15%	85%	26
Date of Data :	31	07	01	Stacked Cumulative Cash Flow Chart		
	(dd)	(mm)	(yy)			
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
• Coastal protection programme prepared and agreed	• The programme document • Formal agreements	NYD
• 1550km ² of new coastal land protected	• On site verification	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 Fish Pass Programme

Ref : **EA 005**

Cluster :	Environment and Aquatic Resources	Region(s) :	All
Focus/Foci :	Water Management for Fisheries	Location :	Nationwide
Start Year ¹ :	2003	Duration ² :	15 year(s)
		Agency(s) Responsible :	BWDB (Lead) DoFish (Supporting)
Short Description :	The NWPo requires that "Fisheries and wildlife will receive due emphasis in water resource planning in areas where their social impact is high" (NWPo §4.9.a); "Measures will be taken to minimise disruption to the natural aquatic environment in streams and water channels." (NWPo §4.9.b), and; "Water development plans will not interrupt fish movement and will make adequate provisions in control structures for allowing fish migration and breeding." (NWPo §4.9.e). Yet there has been a reduction in fish production in recent years due, at least in part, to structures that inhibit fish migration routes. As a response, this programme will screen all major existing FCD/I projects (>5000ha) and will prepare and implement a plan for mitigation works. Emphasis will be given to 'fish-friendly' structures rather than separate dedicated fish-pass structures.		

MIS Links	Cost Calculation :	EA Programme costing.xls	Map :	EA 005 Map.jpg
	Disb't Schedule :	EA Programme costing.xls	Description :	EA 005 PgP.doc

Finance						
	Costs	Private	Funding (%)	Beneficiaries	Expected by	
			GoB		ProgrammeYear	
Total Capital ³	3,000.00 MTk	0%	100%	0%		15
Ultimate Recurring	75.00 MTk/yr	n/a	50%	50%		16
Date of Data :	31	07	Stacked Cumulative Cash Flow Chart			
	(dd)	(mm)	(yy)			
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
• Appropriate fish-friendly measures routinely adopted in the design and operation of all relevant structures	• Number of conforming designs	NYD
• 90% of all feasible fish passes in place	• Design regulation	NYD
• Sustainable increase in floodplain fish catches, in terms of both numbers and diversity	• Number of operational fish passes	NYD
	• Fish catch statistics (provided that impact of water sector measures can be distinguished from other impacts)	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

Unspecified Regional Programmes

Ref : **EA 006**

Cluster :	Environment and Aquatic Resources	Region(s) :	All
Focus/Foci :	General Environmental Responsibilities	Location :	Nationwide
Start Year ¹ :	2005 Duration ² : 15 year(s)	Agency(s) Responsible :	WARPO (Lead) DoE, DoFish, DoForest, BWDB, LGED, RHD (Supporting)
Short Description :	The purpose of this programme is to ensure that provision is made for particular regional environmental concerns that are not well reflected in the other EA Programmes. This allows for comparatively small, but locally important issues to be dealt with according to regional priorities. This also implies regional (and down to village level) participation in identifying the concerns, which are therefore left non-specific at this stage.		

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

Finance					
	Costs	Private	Funding (%) GoB	Beneficiaries	Expected by ProgrammeYear
Total Capital ³	600.00 MTk	0%	100%	0%	15
Ultimate Recurring	19.30 MTk/yr	n/a	25%	75%	16

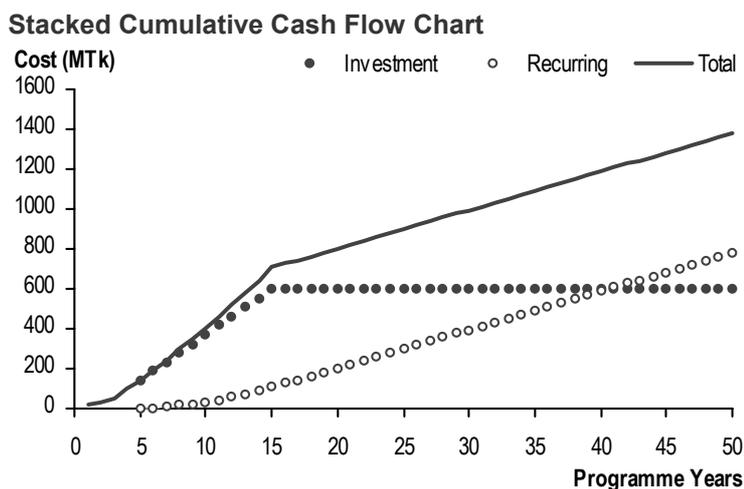
Date of Data : **31 07 01**
(dd) (mm) (yy)

Status : **Identified**

Financial Base Year: **mid-2000**

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

Actual Expenditure⁴ (to date) : **0** MTk



Monitoring

Objective	Indicator	Present Status ⁵
• 8 pilot projects (one per region) completed and evaluated	• Project evaluation reports	NYD
• Improvement in region-specific environmental characteristics	• Specific indicators and thresholds as appropriate	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

Environmentally Critical Areas and Integrated Wetland Management

Ref : **EA 008**

Cluster :	Environment and Aquatic Resources	Region(s) :	All
Focus/Foci :	Water Management for Eco-Sensitive Areas	Location :	Nationwide
Start Year ¹ :	2002	Duration ² :	23 year(s)
		Agency(s) Responsible :	DoE (Lead) WARPO, LGIs (Supporting)
Short Description :	The country's aquatic habitat is rapidly shrinking as a result of abstractions (especially for irrigation); flood control and agricultural encroachment. And deteriorating water quality exacerbates the problems. Supported by other measures, safeguarding the water resources of the nation's water bodies is necessary to arrest the trend and provide for both the human and the natural environments (eg health, nutrition, livelihoods, fish and broader biodiversity). This programme is intended to provide the necessary protection and sustainable use measures in the water sector as part of a wider integrated wetlands management (IWM) programme.		

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

Finance				Funding (%)	Expected by
	Costs	Private	GoB	Beneficiaries	ProgrammeYear
Total Capital ³	800.00 MTk	0%	100%	0%	23
Ultimate Recurring	15.00 MTk/yr	n/a	50%	50%	24
Date of Data :	31	07	01	Stacked Cumulative Cash Flow Chart	
	(dd)	(mm)	(yy)		
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
• Water requirements defined and/or refined	• Thresholds • Status of indicator species	NYD
• Regulatory framework for environmentally critical areas	• The regulations • Number of voluntary agreements concluded • Number of prosecutions	NYD
• Integrated wetland management	• Status of indicator species • Extent and duration of wetlands	NYD
• Improved levels of protection extended to existing and new environmentally critical areas	• New regulations gazetted • Number of new environmentally critical areas gazetted	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

6 South Central Region

6.1 *Regional Overview*

Adjoining the SW Region and bounded by the Padma and Meghna rivers, the SC Region (15,400km², 11.1M population) has a similar inland–coastal zone division. Total NCA is 0.93Mha and average annual rainfall is 2,300mm. As the water resource assessment in Main Report Section 3.6 shows, it does not have the same dry season water shortage problem as the SW. On the other hand, it is much more vulnerable to cyclone surges in the coastal zone, partly because it lacks a protective mangrove belt. Like the South West, the region has a serious arsenic problem. In the south of the SC, numerous large tidal channels dissect the land area.

SC Region is less industrialised than the country as a whole and only 12% of its population is urban. Barisal (0.4M), Faridpur (0.16M), Patuakhali (0.15M) and Shariatpur (0.12M) are the main centres. Irrigation is confined largely to the northern, less saline areas, both STWs and LLPs being used. Apart from the coastal embankment system, there are few existing FCD(I) schemes other than the problematic Barisal Irrigation Project.

The north eastern part of the SC is regularly flooded from the Padma river and the river intakes, notably of the Arial Khan, are unstable and frequently changing location. The Padma is morphologically a young river, and attempts to stabilise and/or embank it may well be premature.

In addition to urban and rural services and pollution control, specific issues to be addressed in the NWMP in the SC Region include:

- The arsenic problem
- Maintenance of the existing coastal embankment system
- Siltation and drainage congestion
- Improved cyclone protection
- Flood proofing adjacent to the Padma and in the Padma river charlands (also covered in the RE Region)

6.2 *Programmes for South Central Region*

Twenty five programmes will benefit the South Central Region of which all are shared with other regions. They will address major river abstraction; rural and urban arsenic mitigation; cyclone protection; flood proofing of key infrastructure and coastal protection.

Institutions and agencies involved in the South Central Programmes will include:

- BWDB
- WARPO
- RHD
- LGI's
- LGED
- DMB
- BR

Cost estimates for the South Central Regional programmes are provided in Table 6.1

Table 6.1: Cost Estimates for the South Central Regional Programmes

MIS Ref	Title	COSTS (Tk M mid 2000)				
		ST	MT	LT	Residual	TOTAL
Exclusive to Region						
	None					
Shared with other Regions						
ID 003	FCD and FCD/I Management Rationalisation	61.0	83.3	-	-	144.3
MR 006	Regional River Management and Improvement	281.2	551.3	1,385.8	179.3	2,397.6
TR 001	Urban Arsenic Mitigation	42.9	-	-	-	42.9
TR 002	Rural Arsenic Mitigation	64.8	51.0	-	-	115.8
TR 003	Large and Small Town Water Supply and Distribution Systems	238.1	1,285.7	2,481.4	190.5	4,195.7
TR 004	Rural Water Supply and Distribution Systems	935.0	2,952.6	3,172.5	246.1	7,306.2
TR 005	Large and Small Town Sanitation and Sewerage Systems	238.1	590.5	2,399.4	95.2	3,323.2
TR 006	Rural Sanitation	541.3	1,451.7	1,020.8	98.4	3,112.3
TR 007	Large and Small Town Flood Protection	229.5	505.0	556.6	86.1	1,377.1
TR 008	Large and Small Town Stormwater Drainage	571.4	1,714.3	3,238.1	571.4	6,095.2
DM 001	Cyclone Shelters and Killas	1,064.7	1,774.4	2,484.2	-	5,323.3
DM 002	Bari-level Cyclone Shelters	50.6	193.9	592.2	103.8	940.4
DM 004	National, Regional and Key Feeder Roads - Flood Proofing	291.4	364.2	1,092.7	72.8	1,821.1
DM 005	Railway Flood Proofing	4.5	5.7	17.0	1.1	28.3
DM 006	Supplementary Irrigation and Drought Proofing of Rural Water Supplies	28.7	28.0	4.7	-	61.4
AW 001	Promotion of Expanded Minor Irrigation and Improved On-farm Water Managem	5.3	6.4	6.6	-	18.3
AW 002	Improved Performance of Existing Public Surface Water Irrigation Schemes	51.3	256.3	717.5	-	1,025.0
AW 003	New Public Surface Water Irrigation Schemes	-	100.0	200.1	-	300.1
AW 005	Improved Water Management at Local Government Level	65.1	126.5	582.8	38.9	813.3
AW 006	Improved Water Management at Community Level	3.0	25.6	93.2	6.2	128.0
AW 007	Rationalisation of Existing FCD Infrastructure	-	101.5	1,517.9	763.9	2,383.4
AW 008	Land Reclamation, Coastal Protection and Afforestation	201.6	491.4	1,653.8	-	2,346.8
EA 005	National Fish Pass Programme	44.4	111.0	177.6	-	333.0
EA 006	Unspecified Regional Programmes	-	17.7	57.3	-	75.0
EA 008	Environmentally Critical Areas and Integrated Wetland Management	1.1	2.3	7.0	-	10.4
Total		5,015.0	12,790.3	23,459.2	2,453.7	43,718.2

Programmes Shared with Other Region(s)

FCD and FCD/I Management Rationalisation

Ref : **ID 003**

Cluster :	Institutional Development	Region(s) :	All
Focus/Foci :	Bangladesh Water Development Board	Location :	Nationwide
Start Year ¹ :	2002	Duration ² :	6 year(s)
		Agency(s) Responsible :	BWDB (Lead) None (Supporting)
Short Description :	This programme is intended to facilitate the transfer of FCD/I scheme management as per policy. Three steps will be involved. In the short term BWDB will receive capacity building with respect to environmental and social issues, while in consultation with the stakeholders a range of transfer options will be identified and prepared. Finally these options will be pilot tested at selected locations during the short and medium term.		

MIS Links	Cost Calculation :	ID Programme costing.xls	Map :	ID 003 Map.jpg
	Disb't Schedule :	ID Programme costing.xls	Description :	ID 003 PgP.doc

Finance						
	Costs	Private	Funding (%)	Beneficiaries	Expected by	
			GoB		ProgrammeYear	
Total Capital ³	1,300.00 MTk	0%	85%	15%	6	
Ultimate Recurring	25.20 MTk/yr	n/a	50%	50%	7	
Date of Data :	31	07	01	Stacked Cumulative Cash Flow Chart		
	(dd)	(mm)	(yy)	Cost (MTk)	● Investment	○ Recurring
Status :	Identified					
Financial Base Year:	mid-2000					
Planned Expenditure (to date) :	MTk					
Actual Expenditure ⁴ (to date) :	MTk					

Monitoring

Objective	Indicator	Present Status ⁵
• Reduction in the number of schemes directly managed by BWDB	• Nationwide FCD(/I) statistics	NYD
• Increase in funds for O&M after turnover of scheme	• Scheme accounts	NYD
• 75% of decentralised FCD/I schemes considered sustainable within 10 years of transfer	• National FCD/I scheme statistics	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

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				Funding (%)	Expected by
	Costs	Private	GoB	Beneficiaries	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	Stacked Cumulative Cash Flow Chart			
	(dd) (mm) (yy)				
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
• Integrated river management plans	• Plan documents approved	NYD
• Sustainable river development and management works	• Physical progress	NYD
	• Effective operation and maintenance	
	• Independent surveys of end users	

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

Urban Arsenic Mitigation

Ref : **TR 001**

Cluster :	Towns and Rural Areas	Region(s) :	NW, NC, NE, SW, SC, SE, EH
Focus/Foci :	Arsenic Mitigation	Location :	NW, NC, NE, SW, SC, SE, & EH regions
Start Year ¹ :	2001	Duration ² :	4 year(s)
		Agency(s) Responsible :	Paurashavas (Lead) CBOs (Supporting)
Short Description :	Arsenic contamination of groundwater water supplies has become a serious health hazard in Bangladesh affecting some 30 million people. This is recognised by NWPo §4.06a of the NWPo which requires the Government to “facilitate availability of safe...drinking water through various means”. This programme will provide short term arsenic mitigation measures for water supplies (such as arsenic filters and household removal facilities in all urban areas except those comprising the Statistical Metropolitan Areas (See the Major City cluster). More permanent measures will be introduced in the medium and long terms (see Programme TR 003).		

MIS Links	Cost Calculation :	TR Programme costing.xls	Map :	TR 001 Map.jpg
	Disb't Schedule :	TR Programme costing.xls	Description :	TR 001 PgP.doc

Finance					
	Costs	Private	Funding (%)	Expected by	
			GoB	Beneficiaries	ProgrammeYear
Total Capital ³	439.00 MTk	0%	85%	15%	4
Ultimate Recurring	216.90 MTk/yr	n/a	0%	100%	5
Date of Data :	31 07 01	Stacked Cumulative Cash Flow Chart			
	(dd) (mm) (yy)				
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
• Procurement and installation programmes prepared	• Signed programme/project documents	NYD
• Procurement and installation programmes complete	• Programme/Project completion reports	NYD
	• Household surveys	
• Arsenic free potable water available to 100% of large and small town populations	• Water quality	NYD
	• Community health records	

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

Rural Arsenic Mitigation

Ref : **TR 002**

Cluster :	Towns and Rural Areas	Region(s) :	NW, NC, NE, SW, SC, SE, EH
Focus/Foci :	Arsenic Mitigation	Location :	NW, NC, NE, SW, SC, SE, & EH regions
Start Year ¹ :	2001	Duration ² :	9 year(s)
		Agency(s) :	DPHE (Lead)
		Responsible :	CBOs (Supporting)
Short Description :	Arsenic contamination of groundwater water supplies has become a serious health hazard in Bangladesh affecting some 76 million people. This is recognised by NWPo §4.06a of the NWPo which requires the Government to “facilitate availability of safe...drinking water through various means”. This programme will provide short term and medium term arsenic mitigation measures for water supplies (such as arsenic filters and household removal facilities in all rural. More permanent measures will be introduced in the long term (See Programme TR 004) .		

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

Finance					
	Costs	Private	Funding (%)	Expected by	
			GoB	Beneficiaries	ProgrammeYear
Total Capital ³	1,185.00 MTk	0%	85%	15%	9
Ultimate Recurring	585.40 MTk/yr	n/a	0%	100%	10
Date of Data :	31 07 01	Stacked Cumulative Cash Flow Chart			
	(dd) (mm) (yy)				
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
• Procurement and installation programmes prepared	• Signed programme/project documents	NYD
• Procurement and installation programmes complete	• Programme/Project completion reports	NYD
	• Household/community surveys	
• Arsenic free potable water available to 100% of rural population	• Water quality	NYD
	• Community health records	

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

Large and Small Town Water Supply and Distribution Systems

Ref :

TR 003

Cluster :	Towns and Rural Areas	Region(s) :	All
Focus/Foci :	Water Supplies	Location :	Nationwide
Start Year ¹ :	2002	Duration ² :	25 year(s)
		Agency(s) Responsible :	DPHE (Lead) CBOs, Private Sector (Supporting)
Short Description :	The preamble to NWPo §4.6 of the NWPo highlights the water supply problems facing Bangladesh's urban areas (large and small). Water tables are receding due to heavy groundwater abstraction. Furthermore, saline intrusion in coastal aquifers and contamination elsewhere further compromises the drinking water supplies for urban inhabitants. In accordance with the Government's policy to "Facilitate availability of safe and affordable drinking water supplies." (NWPo §4.6.a), this programme is intended to provide resources for the implementation of piped water supply schemes fed from DTW or surface water sources in order to serve 100% of the population (of each town) with piped drinking water supplies by year 2010.		

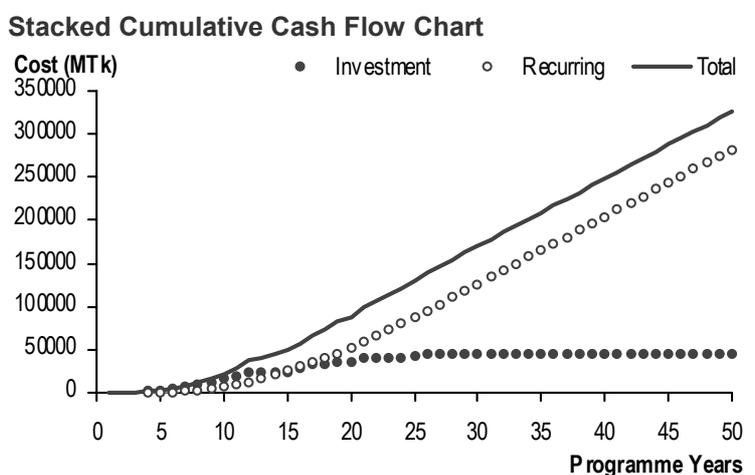
MIS Links	Cost Calculation :	TR Programme costing.xls	Map :	TR 003 Map.jpg
	Disb't Schedule :	TR Programme costing.xls	Description :	TR 003 PgP.doc

Finance					
	Costs	Private	Funding (%)	Expected by	
			GoB	Beneficiaries	ProgrammeYear
Total Capital ³	44,055.00 MTk	0%	100%	0%	25
Ultimate Recurring	7,820.80 MTk/yr	n/a	0%	100%	26

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

Status : **Identified**
Financial Base Year: **mid-2000**

Planned Expenditure (to date) : **0** MTk
Actual Expenditure⁴ (to date) : **0** MTk



Monitoring

Objective	Indicator	Present Status ⁵
• Town water supply programmes prepared	• Signed programme/project documents	NYD
• Sustainable operation and maintenance of town water supply systems	• Frequency of pipe breaks • Response times	NYD
• Town water supply programme completed	• Programme/project completion reports • Household, district surveys	NYD
• 100% of large and small town population have access to formal water supplies	• Survey reports	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

Rural Water Supply and Distribution Systems

Ref :

TR 004

Cluster :	Towns and Rural Areas	Region(s) :	All
Focus/Foci :	Water Supplies	Location :	Rural Areas Nationwide
Start Year ¹ :	2001	Duration ² :	25 year(s)
		Agency(s) Responsible :	DPHE (Lead) LGIs, DPHE, CBOs (Supporting)
Short Description :	<p>The preamble to NWPo §4.6 of the NWPo recognises that "The rural areas of Bangladesh suffer from a lack of quality drinking water". This situation is worsening due to heavy withdrawals of groundwater (the principle source for most of the rural areas) for irrigation a trend which is exacerbated by agro-chemical and saline pollution of groundwater. Although the rural population is expected to increase relatively slowly over the next 25 years, from 102 million in 2000 to 108 million in 2025, it is nonetheless the GoB's intention to "facilitate the availability of safe and affordable drinking water supplies through various means" (NWPo §4.6.a). It is estimated that 92% of the rural population normally have access to potable water, mainly through shallow HTWs. The thrust of this programme is therefore to improve the quality of water supply services (reliability and access) in areas already served as well as extending the coverage to 100% by 2005.</p>		

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

Finance			Funding (%)		Expected by
	Costs	Private	GoB	Beneficiaries	ProgrammeYear
Total Capital ³	74,234.00 MTk	80%	20%	0%	25
Ultimate Recurring	12,884.30 MTk/yr	n/a	0%	100%	25

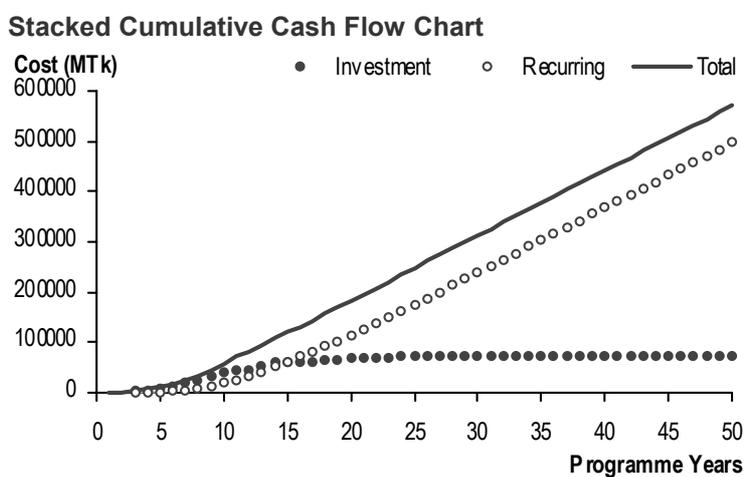
Date of Data : **31 07 01**
(dd) (mm) (yy)

Status : **Identified**

Financial Base Year: **mid-2000**

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

Actual Expenditure⁴ (to date) : **0** MTk



Monitoring

Objective	Indicator	Present Status ⁵
• Rural water supply programmes prepared	• Signed programme/project documents	NYD
• Sustainable operation and maintenance of rural water supply systems	• Frequency of pipe breaks • Response times	NYD
• Rural water supply programmes completed	• Programme/project completion reports • Household, community surveys	NYD
• 100% of rural population has access to formal water supplies	• Survey reports	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

Large and Small Town Sanitation and Sewerage Systems

Ref : **TR 005**

Cluster :	Towns and Rural Areas	Region(s) :	All
Focus/Foci :	Sanitation	Location :	Nationwide
Start Year ¹ :	2002	Duration ² :	25 year(s)
		Agency(s) Responsible :	Paurashavas (Lead) LGIs, LGED, DPHE, CBOs (Supporting)
Short Description :	<p>§4.6.c of the NWPo "mandates relevant public water and sewerage institutions to provide necessary drainage and sanitation, including treatment of domestic wastewater and sewage and replacement of open drains and construction of sewers, in the interest of public health." The population of large (>50,000) and small towns is expected to more than double over the next 25 years, from 14 million in 2000 to 36 million in 2025. At present, between 55% (small towns) and 65% (large towns) of the population is adequately served by sanitation facilities, mainly by pit latrines with/without septic tanks. In the poor areas and fringe communities, people are dependant on 'hanging latrines' and open defecation which exacerbates pollution and public health problems and increases the likelihood of epidemic outbreaks of waterborne and water-related diseases. This programme aims to provide appropriate sanitation facilities and raise and sustain service coverage at 100% by 2010.</p>		

MIS Links	Cost Calculation :	TR Programme costing.xls	Map :	TR 005 Map.jpg
	Disb't Schedule :	TR Programme costing.xls	Description :	TR 005 PgP.doc

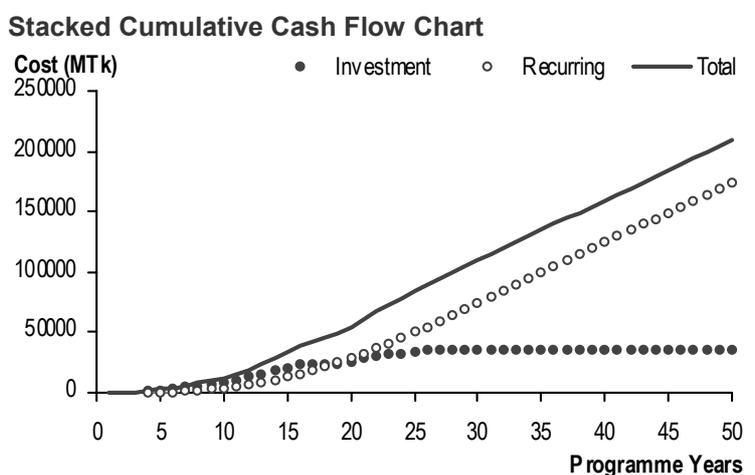
Finance					
	Costs	Private	Funding (%) GoB	Beneficiaries	Expected by Programme Year
Total Capital ³	34,894.00 MTk	0%	100%	0%	25
Ultimate Recurring	4,543.10 MTk/yr	n/a	0%	100%	26

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

Status : **Identified**
Financial Base Year: **mid-2000**

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

Actual Expenditure⁴ (to date) : **0** MTk



Monitoring

Objective	Indicator	Present Status ⁵
• Sustainable operation and maintenance of town sanitation systems	• Frequency of service break downs • Response times	NYD
• Reduced environmental pollution	• Faecal coliform counts	NYD
• Improved public health	• Public health statistics	NYD
• 100% of large and small town populations have access to sanitation facilities	• Survey reports	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

Rural Sanitation

Ref : **TR 006**

Cluster :	Towns and Rural Areas	Region(s) :	All
Focus/Foci :	Sanitation	Location :	Rural Areas Nationwide
Start Year ¹ :	2001	Duration ² :	25 year(s)
		Agency(s) Responsible :	DPHE (Lead) CBOs, Private sector, LGIs (Supporting)
Short Description :	§4.6.c of the NWPo "mandates relevant public water and sewerage institutions to provide necessary drainage and sanitation, including treatment of domestic wastewater and sewage and replacement of open drains and construction of sewers, in the interest of public health." The population of rural areas is expected to increase slightly over the next 25 years, from 102 million in 2000 to 108 million in 2025. At present, only 40% of the population has access to pit latrine facilities, the other 60% relying on 'hanging latrines' and open defecation which exacerbates pollution and public health problems and increases the likelihood of epidemic outbreaks of waterborne and water-related diseases. This programme aims to provide appropriate sanitation facilities for the whole rural population and raise and sustain service coverage at 100% by 2010.		

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

Finance					
	Costs	Private	Funding (%) GoB	Beneficiaries	Expected by Programme Year
Total Capital ³	31,622.00 MTk	80%	20%	0%	25
Ultimate Recurring	5,901.00 MTk/yr	n/a	0%	100%	26

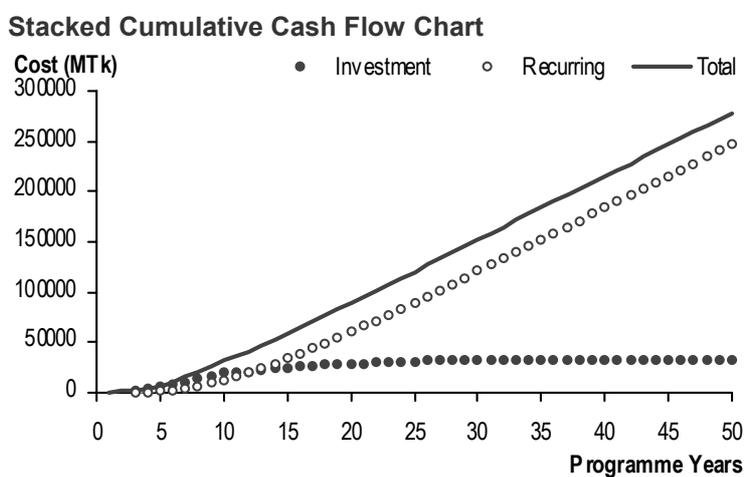
Date of Data : **31 07 01**
(dd) (mm) (yy)

Status : **Identified**

Financial Base Year: **mid-2000**

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

Actual Expenditure⁴ (to date) : **0** MTk



Monitoring

Objective	Indicator	Present Status ⁵
• Sustainable operation and maintenance of rural sanitation systems	• Frequency of service break downs • Response times	NYD
• Reduced environmental pollution	• Faecal coliform counts	NYD
• Improved public health	• Public health statistics	NYD
• 100% of rural populations have access to sanitation facilities	• Survey reports	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

Large and Small Town Flood Protection

Ref :

TR 007

Cluster :	Towns and Rural Areas	Region(s) :	All
Focus/Foci :	Flood Protection	Location :	Large and Small towns throughout the country
Start Year ¹ :	2003	Duration ² :	25 year(s)
		Agency(s) Responsible :	BWDB (Lead) None (Supporting)
Short Description :	§4.2.9.i of the NWPo states that "...critical areas such as district and Upazila towns, important commercial centres, and places of historical importance will be gradually provided reasonable degree of protection against flood". The low areas of many of the towns in Bangladesh are vulnerable to flooding during monsoon. Significant damage was caused during the 1988 and 1998 floods due either to absence of embankments, embankment failure or the inability of protected areas to drain during times of heavy rainfall because of high water levels outside. This programme will undertake measures such as: raising of existing embankment crest levels; repair of damaged embankments; and, provision of erosion protection works where necessary. New flood protection works will also be involved consisting mainly of constructing embankments on riverbanks with integral drainage sluices.		

MIS Links	Cost Calculation :	TR Programme costing.xls	Map :	TR 007 Map.jpg
	Disb't Schedule :	TR Programme costing.xls	Description :	TR 007 PgP.doc

Finance				Funding (%)		Expected by
	Costs	Private	GoB	Beneficiaries	ProgrammeYear	
Total Capital ³	14,460.00 MTk	0%	100%	0%		25
Ultimate Recurring	1,301.40 MTk/yr	n/a	50%	50%		26
Date of Data :	31 07 01	Stacked Cumulative Cash Flow Chart				
	(dd) (mm) (yy)					
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
• Flood protection programmes prepared and agreed	• Signed programme/project documents	NYD
• Flood protection programmes implemented	• Programme/project completion reports	NYD
• All large and small towns protected from 1: 100 year floods	• Physical evidence and hydrological data	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

Large and Small Town Stormwater Drainage

Ref :

TR 008

Cluster :	Towns and Rural Areas	Region(s) :	All
Focus/Foci :	Stormwater Drainage	Location :	Nationwide
Start Year ¹ :	2003	Duration ² :	25 year(s)
		Agency(s) Responsible :	Paurashavas (Lead) LGIs (Supporting)
Short Description :	§4.6 says that "Lack of proper sanitation and drainage facilities, are the primary causes of diseases in the urban areas". Storm water drainage is an increasing problem in urban areas, as the construction of buildings and paved areas has progressively increased run-off. At the same time, pressures on land has caused natural drainage channels to be filled in and built upon. Encroachment on watercourses and water bodies has progressively reduced natural drainage. No urban areas have adequate storm drainage at present. This programme provides resources for a nationwide installation/upgrading and maintenance of stormwater drainage facilities in large and small towns. These will most probably be gravity systems which although cost-effective, will require regular adequate maintenance.		

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

Finance			Funding (%)		Expected by
	Costs	Private	GoB	Beneficiaries	ProgrammeYear
Total Capital ³	64,000.00 MTk	0%	100%	0%	25
Ultimate Recurring	7,040.00 MTk/yr	n/a	50%	50%	26
Date of Data :	31 07 01	Stacked Cumulative Cash Flow Chart			
	(dd) (mm) (yy)				
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
• Stormwater drainage programme prepared and agree	• Signed programme/project documents	NYD
• Stormwater drainage programmes implemented	• Programme/project completion reports	NYD
• Stormwater drainage installed in all large and small towns	• Survey reports	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

Cyclone Shelters and Killas

Ref : **DM 001**

Cluster :	Disaster Management	Region(s) :	SC, SE, EH
Focus/Foci :	Cyclone Protection	Location :	SC, SE and EH Regions
Start Year ¹ :	2002	Duration ² :	15 year(s)
		Agency(s) Responsible :	LGED (Lead) None (Supporting)
Short Description :	This programme is for the cyclone risk areas and is relevant to the NWPo as it provides "flood proofing systems to manage natural disasters: (NWPo §4.2.o) and takes special account the particular needs of women and children (NWPo §3.b) while motivating the people themselves to develop different flood proofing measures. The programme will provide safe havens in the form of proven infrastructure comprising raised and covered cyclone shelters and killas (raised mounds) where both humans and livestock can take refuge. Short to medium term beneficiaries of the programme will comprise some 1.72 million people estimated to be at a risk of serious cyclone threat at least once every 30 years or less. In the long term the programme will be extended to cover lower risk areas corresponding to a maximum return return periods of 1:100 years and will be closely linked with programme DM 002 "Bari-level Cyclone Shelter".		

MIS Links	Cost Calculation :	DM Programme costing.xls	Map :	DM 001 Map.jpg
	Disb't Schedule :	DM Programme costing.xls	Description :	DM 001 PgP.doc

Finance			Funding (%)		Expected by
	Costs	Private	GoB	Beneficiaries	ProgrammeYear
Total Capital ³	9,894.60 MTk	0%	100%	0%	15
Ultimate Recurring	350.30 MTk/yr	n/a	85%	15%	16
Date of Data :	31 07 01	Stacked Cumulative Cash Flow Chart			
	(dd) (mm) (yy)				
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
• Pilot programme in progress	• Signed contracts/work orders • Progress reports	NYD
• Pilot programme evaluated	• Evaluation reports	NYD
• Modalities accepted	• Signed agreements	NYD
• 775 multi-purpose shelters and 1369 killas constructed in cyclone prone areas	• Actual numbers of shelters and killas	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

Bari-level Cyclone Shelters

Ref : **DM 002**

Cluster :	Disaster Management	Region(s) :	SC, SE, EH
Focus/Foci :	Cyclone Protection	Location :	SC, SE, EH
Start Year ¹ :	2003	Duration ² :	25 year(s)
		Agency(s) Responsible :	DMB (Lead) None (Supporting)
Short Description :	This programme is for the cyclone risk areas and is relevant to the NWPo as it provides "flood proofing systems to manage natural disasters: (NWPo §4.2.o) and takes special account the particular needs of women and children (NWPo §3.b) while motivating the people themselves to develop different flood proofing measures. Over three million people live or subsist in areas exposed to significant risk of destruction and loss of life due to cyclone strike. This programme is intended to provide safe havens in the form of 12m2 concrete framed buildings on raised 72m2 earth platforms, one in each bari in the coastal areas. A total of 43,768 bari-level-cyclone-shelters will be raised over 15 years, benefiting some 1.72 million people in the short/medium term.		

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

Finance				Funding (%)		Expected by
		Costs	Private	GoB	Beneficiaries	ProgrammeYear
Total Capital ³	1,747.90	MTk	0%	100%	0%	25
Ultimate Recurring	52.40	MTk/yr	n/a	0%	100%	26
Date of Data :	31	07	01	Stacked Cumulative Cash Flow Chart		
	(dd)	(mm)	(yy)			
Status :	Identified					
Financial Base Year:	mid-2000					
Planned Expenditure (to date) :	MTk					
Actual Expenditure ⁴ (to date) :	MTk					

Monitoring		
Objective	Indicator	Present Status⁵
• Pilot programme in progress	• Signed contracts/work orders	NYD
	• Progress reports	
• Pilot programme evaluated	• Evaluation reports	NYD
• Modalities accepted	• Signed agreements	NYD
• 43,776 bari-level cyclone shelters	• Actual numbers of bari-level cyclone shelters	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, Regional and Key Feeder Roads - Flood Proofing

Ref : **DM 004**

Cluster :	Disaster Management	Region(s) :	NW, NC, NE, SE, SC,SW
Focus/Foci :	Flood Proofing	Location :	Regions NW, NC, NE, SE, SC,SW
Start Year ¹ :	2001	Duration ² :	25 year(s)
		Agency(s) Responsible :	RHD (Lead) LGED (Supporting)
Short Description :	In line with Policy's call for coping with floods in relation to vital infrastructure (NWPo §4.2.p.ii), this programme targets the flood proofing needs of key portions of Bangladesh's highway network. As with current practice, the National Highways, Regional Roads and Type A Feeder Roads will be raised by the central Roads and Highways Department (RHD). Type B Feeder Roads and Rural Roads will be raised by the Local Government Engineering Departments (LGEDs). The programme also has collateral benefits since the raised embankments comprise safe havens while facilitating the movement of relief goods during flood emergencies. This is a long term programme with national coverage, however it has been assumed that embankment raising will be carried out when a particular road is due for major maintenance or re-surfacing, with priority given to high risk areas in the case of national and regional roads..		

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

Finance				Funding (%)		Expected by
	Costs	Private	GoB	Beneficiaries	Programme	Year
Total Capital ³	10,904.80 MTk	0%	100%	0%		25
Ultimate Recurring	436.20 MTk/yr	n/a	100%	0%		26
Date of Data :	31 07 01	Stacked Cumulative Cash Flow Chart				
	(dd) (mm) (yy)					
Status :	Identified					
Financial Base Year:	mid-2000					
Planned Expenditure (to date) :	428 MTk					
Actual Expenditure ⁴ (to date) :	MTk					

Monitoring

Objective	Indicator	Present Status ⁵
• Quantitative needs assessment	• Needs assessment reports	NYD
• Programme documents prepared	• Programme documents	NYD
• Programmes underway	• Signed contracts/work orders	NYD
• 100% of all national and feeder roads raised by 1m in high and .5m in low risk areas; 20% of feeder and rural roads raised by 1m in high risk areas	• Construction records • Site visits	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

Railway Flood Proofing

Ref : **DM 005**

Cluster :	Disaster Management	Region(s) :	SW, SC, NW, NC, NE, SE
Focus/Foci :	Flood Proofing	Location :	Regions SW, SC, NW, NC, NE, SE
Start Year ¹ :	2001	Duration ² :	25 year(s)
		Agency(s) Responsible :	BR (Lead) None (Supporting)
Short Description :	<p>In line with Policy's call for coping with floods in relation to vital infrastructure (NWPo §4.2.p.ii), this programme targets at the flood proofing needs of key portions of Bangladesh's railway network. The Railway Department will be responsible for implementation of this programme. The programme has collateral benefits since the raised embankments comprise safe havens while facilitating the movement of relief goods during flood emergencies. This is a long term programme with coverage in six hydrological regions and work is expected to proceed as part of the network upgrading programmes. However, a significant risk to this programme is that the disruption to services that is inevitable when line raising is in progress, may well persuade the railway operators that it is cheaper to lose income for a few hours or days each year than to incur expenditure raising lines while simultaneously losing revenues for that period.</p>		

MIS Links	Cost Calculation :	DM Programme costing.xls	Map :	DM 005 Map.jpg
	Disb't Schedule :	DM Programme costing.xls	Description :	DM 005 PgP.doc

Finance				Funding (%)		Expected by
	Costs	Private	GoB	Beneficiaries	Programme	Year
Total Capital ³	977.00 MTk	0%	100%	0%		25
Ultimate Recurring	39.10 MTk/yr	n/a	100%	0%		26
Date of Data :	31	07	01	Stacked Cumulative Cash Flow Chart		
	(dd)	(mm)	(yy)			
Status :	Identified					
Financial Base Year:	mid-2000					
Planned Expenditure (to date) :	33 MTk					
Actual Expenditure ⁴ (to date) :	MTk					

Monitoring		
Objective	Indicator	Present Status⁵
• Quantitative needs assessment	• Needs assessment reports	NYD
• Programme documents prepared	• Programme documents	NYD
• Programmes underway	• Signed contracts/work orders	NYD
• 100% of all high risk railways raised by 1m and 100% of low risk railway raised by .5m	• Construction records • Site visits	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

Supplementary Irrigation and Drought Proofing of Rural Water Supplies

Ref : **DM 006**

Cluster :	Disaster Management	Region(s) :	All
Focus/Foci :	Drought Proofing	Location :	Nationwide but emphasising NW, NC, SE, SW, SC
Start Year ¹ :	2002	Duration ² :	10 year(s)
Short Description :	This programme aims to promote supplementary irrigation during the drought-prone aman season, as well as including efforts to drought-proof rural water supplies.		
	Agency(s) Responsible :	DAE	(Lead)
		None	(Supporting)

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

Finance					
	Costs	Private	Funding (%)	Beneficiaries	Expected by Programme Year
Total Capital ³	1,041.40 MTk	0%	85%	15%	10
Ultimate Recurring	0.00 MTk/yr	n/a	n/a	n/a	n/a
Date of Data :	31 07 01	Stacked Cumulative Cash Flow Chart			
	(dd) (mm) (yy)				
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
• New Tara hand tubewells commissioned	• Physical number of new wells	NYD
• Increased area of aman rice under supplementary irrigation	• Areas planted	NYD
• Increased quality of life in target areas	• Return on family labour	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

Promotion of Expanded Minor Irrigation and Improved On-farm Water Management

Ref : **AW 001**

Cluster :	Agriculture and Water Management	Region(s) :	All
Focus/Foci :	Irrigation	Location :	Nationwide
Start Year ¹ :	2002	Duration ² :	15 year(s)
		Agency(s) Responsible :	DAE (Lead) None (Supporting)
Short Description :	It is the policy of the Government to "Encourage and promote continued development of minor irrigation" (NWPo §4.7.a) and to "Encourage future groundwater development for irrigation by both the public and the private sectors" (§4.7.b). With the ultimate goal of increased agricultural productivity, this programme involves the improvement of irrigation pumping efficiency, promotion of lower cost force-mode tubewell pumps, and a farmer education/training component to improve on-farm water management and the wise use of water		

MIS Links	Cost Calculation :	AW Programme costing.xls	Map :	AW 001 Map.jpg
	Disb't Schedule :	AW Programme costing.xls	Description :	AW 001 PgP.doc

Finance				Funding (%)		Expected by
	Costs	Private	GoB	Beneficiaries	Programme	Year
Total Capital ³	310.00 MTk	0%	85%	15%		15
Ultimate Recurring	7.20 MTk/yr	n/a	0%	100%		16
Date of Data :	31	07	01	Stacked Cumulative Cash Flow Chart		
	(dd)	(mm)	(yy)			
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
• Increased diesel pump engine efficiencies	• Sample tests	NYD
• Farmers adopt force mode pumpsets	• Farmer survey	NYD
• Irrigation water use efficiencies increased	• Sample tests	NYD
• Average return per unit of water increased in minor irrigation areas	• Household surveys and field measurements	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

Improved Performance of Existing Public Surface Water Irrigation Schemes Ref : **AW 002**

Cluster :	Agriculture and Water Management	Region(s) :	All
Focus/Foci :	Irrigation	Location :	Nationwide
Start Year ¹ :	2004	Duration ² :	20 year(s)
		Agency(s) Responsible :	BWDB (Lead) BMDA, CBOs, LGIs, NGOs, Private Sector (Supporting)
Short Description :	It is the policy of the government to "encourage future groundwater development for irrigation by both the public and private sectors" (NWPo §4.7.b). Even so experience confirms that current performance of existing public irrigation schemes is not satisfactory. This programme is intended to address both challenges by means of the following approaches: full participation of beneficiaries; command area development; conjunctive use of surface and groundwater; rehabilitation; improved O&M and appropriate beneficiary contributions to both capital and recurring costs.		

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

Finance					
	Costs	Private	Funding (%)	Expected by	
			GoB	Beneficiaries	ProgrammeYear
Total Capital ³	3,275.00 MTk	0%	85%	15%	20
Ultimate Recurring	98.30 MTk/yr	n/a	25%	75%	21

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

Status : **Identified**

Financial Base Year: **mid-2000**

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

Actual Expenditure⁴ (to date) : **0** MTk

Stacked Cumulative Cash Flow Chart

Monitoring		
Objective	Indicator	Present Status⁵
• Sustainable operation and maintenance	• User group records • Long term O&M expenditure trends	NYD
• Public irrigation schemes rehabilitated and upgraded	• Construction records • On site verification	NYD
• Increased returns per unit of water and labour on public irrigation areas	• Household surveys and field measurements	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

New Public Surface Water Irrigation Schemes

Ref : **AW 003**

Cluster :	Agriculture and Water Management	Region(s) :	All
Focus/Foci :	Irrigation	Location :	Nationwide
Start Year ¹ :	2005	Duration ² :	15 year(s)
		Agency(s) Responsible :	BWDB (Lead) LGED (Supporting)
Short Description :	The preamble NWPo §4.7 requires government to continue promoting the development of surface water irrigation where feasible and to focus where practical on the conjunctive use of groundwater and surface water. The overall objective of this programme is to increase agricultural production and reduce demand on groundwater abstraction by promoting and implementing new surface water irrigation schemes.		

MIS Links	Cost Calculation :	AW Programme costing.xls	Map :	AW 003 Map.jpg
	Disb't Schedule :	AW Programme costing.xls	Description :	AW 003 PgP.doc

Finance			Funding (%)		Expected by
	Costs	Private	GoB	Beneficiaries	ProgrammeYear
Total Capital ³	6,125.00 MTk	0%	85%	15%	15
Ultimate Recurring	306.30 MTk/yr	n/a	25%	75%	16
Date of Data :	31 07 01	Stacked Cumulative Cash Flow Chart			
	(dd) (mm) (yy)				
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
• Plans prepared	• Project documents	NYD
• Projects in progress	• Funding in place	NYD
	• Signed contracts/work orders	
• Increased area under public surface water irrigation	• Construction records	NYD
	• On site verification	

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

Improved Water Management at Local Government Level

Ref : **AW 005**

Cluster :	Agriculture and Water Management	Region(s) :	All
Focus/Foci :	Water Management	Location :	Nationwide
Start Year ¹ :	2001	Duration ² :	24 year(s)
		Agency(s) Responsible :	LGED (Lead) None (Supporting)
Short Description :	Implementation of the NWPO will result in a four tiered civil-administrative hierarchy for the water sector: central, regional, local and community. The BWDB will remain responsible for water management issues as they affect or occur in the main and regional rivers. Equally, management of certain schemes below 5000ha will become the responsibility of community based organisations. Water courses, whether natural or man-made, that will be the management responsibility of neither BWDB nor community organisations will become the responsibility of LGI's. Furthermore, actual ownership of all schemes except municipal water schemes will be transferred to the LGI's. This programme is intended to rehabilitate, upgrade and restore as appropriate, the water courses involved as well as to provide the LGI's with the necessary appurtenant equipment and facilities.		

MIS Links	Cost Calculation :	AW Programme costing.xls	Map :	AW 005 Map.jpg
	Disb't Schedule :	AW Programme costing.xls	Description :	AW 005 PgP.doc

Finance				Funding (%)	Expected by
	Costs	Private	GoB	Beneficiaries	ProgrammeYear
Total Capital ³	5,495.00 MTk	0%	85%	15%	24
Ultimate Recurring	156.00 MTk/yr	n/a	25%	75%	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
• Sustainable management and ownership models in place	• Reports • Legal instruments	NYD
• Local rivers, feeder canals and main drains transferred to LGI's for management/ownership as per policy	• Instruments of transfer ratified and promulgated • Title deeds	NYD
• Local rivers, feeders canals and main drains restored, rehabilitated, upgraded as appropriate	• Project completion reports • Physical surveys • Hydrological records	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

Improved Water Management at Community Level

Ref : **AW 006**

Cluster :	Agriculture and Water Management	Region(s) :	All
Focus/Foci :	Water Management	Location :	Nationwide
Start Year ¹ :	2001	Duration ² :	24 year(s)
		Agency(s) Responsible :	LGED (Lead) LGIs, DAE (Supporting)
Short Description :	Implementation of the NWPo will result in a four tiered civil-administrative hierarchy for the water sector: central, regional, local and community. The BWDB will remain responsible for water management issues as they affect or occur in the main and regional rivers. Local rivers and scheme delivery systems will become the management (and in some cases property) of LGI's while management of certain schemes below 5000ha will become the responsibility of community based organisations. This programme is intended to rehabilitate, upgrade and restore as appropriate, the water courses and field distribution/collection systems involved as well as to assist in providing with the necessary appurtenant equipment and facilities.		

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

Finance					
	Costs	Private	Funding (%)	Expected by	
			GoB	Beneficiaries	ProgrammeYear
Total Capital ³	865.00 MTk	0%	15%	85%	24
Ultimate Recurring	24.60 MTk/yr	n/a	0%	100%	26
Date of Data :	31	07	01	Stacked Cumulative Cash Flow Chart	
	(dd)	(mm)	(yy)		
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
• Effective community based water management organisations	• Field evaluations	NYD
• Khals re-excavated over 10,000ha	• Physical survey	NYD
• Sustainable sub-secondary water use efficiencies of 60% for paddy and 75% for dryfoot crops	• Field tests	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

Rationalisation of Existing FCD Infrastructure

Ref : **AW 007**

Cluster :	Agriculture and Water Management	Region(s) :	All
Focus/Foci :	Coastal Protection, AND Flood Control and Drainage	Location :	Nationwide
Start Year ¹ :	2007	Duration ² :	20 year(s)
		Agency(s) Responsible :	BWDB (Lead) LGED (Supporting)
Short Description :	The NWPo states that "Ownership of FCD and FCDI projects with command area of 1000 ha or less will gradually be transferred to the local governments, beginning with the ones that are being satisfactorily managed and operated by the beneficiary/ community organisations." (NWPo §4.4.f) and that is also the policy of the government to "Investigate thoroughly, important flood control and management issues, such as the efficacy of coastal polders, for guiding future policy on structural interventions" (NWPo §4.15.c). This programme will assess and rationalise all existing FCD schemes by specifying and implementing the appropriate course of action for each scheme according to the following options: a) continuation of the present situation; b) handover to beneficiaries or local govt.; c) rehabilitation and improvement; d) complete withdrawal.		

MIS Links	Cost Calculation :	AW Programme costing.xls	Map :	AW 007 Map.jpg
	Disb't Schedule :	AW Programme costing.xls	Description :	AW 007 PgP.doc

Finance			Funding (%)		Expected by
	Costs	Private	GoB	Beneficiaries	ProgrammeYear
Total Capital ³	21,471.70 MTk	0%	85%	15%	20
Ultimate Recurring	1,152.80 MTk/yr	n/a	50%	50%	21
Date of Data :	31 07 01	Stacked Cumulative Cash Flow Chart			
	(dd) (mm) (yy)				
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
• Sustainable operation and maintenance on 50% of all existing inland and coastal FCD/I schemes	• User group records • Long term O&M expenditure trends	NYD
• Inland and coastal FCD/I rehabilitated and upgraded on a participatory basis	• Participatory agreements • Project completion reports	NYD
• Increased returns per unit of water and labour in public irrigation areas	• Household surveys and field measurements	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

Land Reclamation, Coastal Protection and Afforestation

Ref :

AW 008

Cluster :	Agriculture and Water Management	Region(s) :	RE, SC, SE, EH
Focus/Foci :	Coastal Protection	Location :	Regions RE, SC, SE, EH
Start Year ¹ :	2001	Duration ² :	24 year(s)
		Agency(s) Responsible :	BWDB (Lead) DoForest (Supporting)
Short Description :	NWPo Article 4.2(r) states that the Government will "Plan and implement schemes for reclamation of land from the sea and rivers". In line with this Article, studies will be undertaken for reclamation of land from estuary region and sea. The NWPo also recognises the importance of coastal embankments/polders with the statement that it is the policy of the government to "Investigate thoroughly, important flood control and management issues, such as the efficacy of coastal polders, for guiding future policy on structural interventions." (NWPo §4.15.c). Another purpose of this programme is to embank and where necessary provide arborial protection to accreted land thereby protecting life/property/livelihoods from tides, or scend.		

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

Finance					
	Costs	Private	Funding (%)	Expected by	
			GoB	Beneficiaries	ProgrammeYear
Total Capital ³	5,866.90 MTk	0%	100%	0%	24
Ultimate Recurring	201.00 MTk/yr	n/a	15%	85%	26
Date of Data :	31 07 01	Stacked Cumulative Cash Flow Chart			
	(dd) (mm) (yy)				
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
• Coastal protection programme prepared and agreed	• The programme document • Formal agreements	NYD
• 1550km ² of new coastal land protected	• On site verification	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 Fish Pass Programme

Ref : **EA 005**

Cluster :	Environment and Aquatic Resources	Region(s) :	All
Focus/Foci :	Water Management for Fisheries	Location :	Nationwide
Start Year ¹ :	2003	Duration ² :	15 year(s)
		Agency(s) Responsible :	BWDB (Lead) DoFish (Supporting)
Short Description :	The NWPo requires that "Fisheries and wildlife will receive due emphasis in water resource planning in areas where their social impact is high" (NWPo §4.9.a); "Measures will be taken to minimise disruption to the natural aquatic environment in streams and water channels." (NWPo §4.9.b), and; "Water development plans will not interrupt fish movement and will make adequate provisions in control structures for allowing fish migration and breeding." (NWPo §4.9.e). Yet there has been a reduction in fish production in recent years due, at least in part, to structures that inhibit fish migration routes. As a response, this programme will screen all major existing FCD/I projects (>5000ha) and will prepare and implement a plan for mitigation works. Emphasis will be given to 'fish-friendly' structures rather than separate dedicated fish-pass structures.		

MIS Links	Cost Calculation :	EA Programme costing.xls	Map :	EA 005 Map.jpg
	Disb't Schedule :	EA Programme costing.xls	Description :	EA 005 PgP.doc

Finance				Funding (%)		Expected by
	Costs	Private	GoB	Beneficiaries	Programme	Year
Total Capital ³	3,000.00 MTk	0%	100%	0%		15
Ultimate Recurring	75.00 MTk/yr	n/a	50%	50%		16
Date of Data :	31 07 01	Stacked Cumulative Cash Flow Chart				
	(dd) (mm) (yy)					
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
• Appropriate fish-friendly measures routinely adopted in the design and operation of all relevant structures	• Number of conforming designs	NYD
• 90% of all feasible fish passes in place	• Design regulation	NYD
• Sustainable increase in floodplain fish catches, in terms of both numbers and diversity	• Number of operational fish passes	NYD
	• Fish catch statistics (provided that impact of water sector measures can be distinguished from other impacts)	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

Unspecified Regional Programmes

Ref : **EA 006**

Cluster :	Environment and Aquatic Resources	Region(s) :	All
Focus/Foci :	General Environmental Responsibilities	Location :	Nationwide
Start Year ¹ :	2005 Duration ² : 15 year(s)	Agency(s) Responsible :	WARPO (Lead) DoE, DoFish, DoForest, BWDB, LGED, RHD (Supporting)
Short Description :	The purpose of this programme is to ensure that provision is made for particular regional environmental concerns that are not well reflected in the other EA Programmes. This allows for comparatively small, but locally important issues to be dealt with according to regional priorities. This also implies regional (and down to village level) participation in identifying the concerns, which are therefore left non-specific at this stage.		

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

Finance					
	Costs	Private	Funding (%) GoB	Beneficiaries	Expected by ProgrammeYear
Total Capital ³	600.00 MTk	0%	100%	0%	15
Ultimate Recurring	19.30 MTk/yr	n/a	25%	75%	16

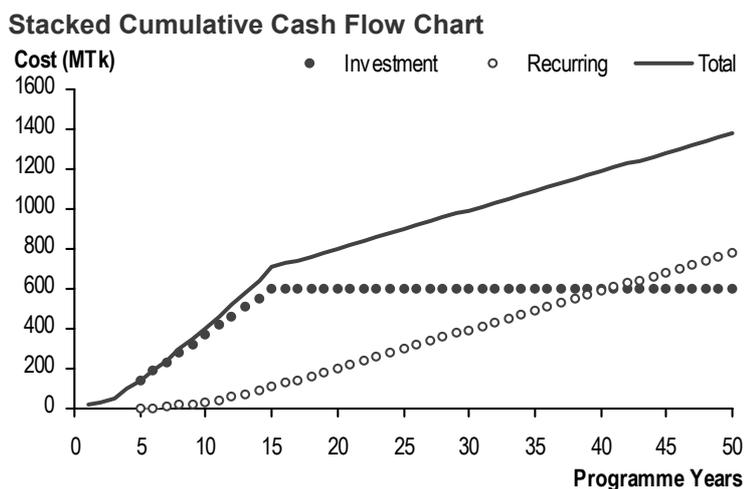
Date of Data : **31 07 01**
(dd) (mm) (yy)

Status : **Identified**

Financial Base Year: **mid-2000**

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

Actual Expenditure⁴ (to date) : **0** MTk



Monitoring

Objective	Indicator	Present Status ⁵
• 8 pilot projects (one per region) completed and evaluated	• Project evaluation reports	NYD
• Improvement in region-specific environmental characteristics	• Specific indicators and thresholds as appropriate	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

Environmentally Critical Areas and Integrated Wetland Management

Ref : **EA 008**

Cluster :	Environment and Aquatic Resources	Region(s) :	All
Focus/Foci :	Water Management for Eco-Sensitive Areas	Location :	Nationwide
Start Year ¹ :	2002	Duration ² :	23 year(s)
		Agency(s) Responsible :	DoE (Lead) WARPO, LGIs (Supporting)
Short Description :	The country's aquatic habitat is rapidly shrinking as a result of abstractions (especially for irrigation); flood control and agricultural encroachment. And deteriorating water quality exacerbates the problems. Supported by other measures, safeguarding the water resources of the nation's water bodies is necessary to arrest the trend and provide for both the human and the natural environments (eg health, nutrition, livelihoods, fish and broader biodiversity). This programme is intended to provide the necessary protection and sustainable use measures in the water sector as part of a wider integrated wetlands management (IWM) programme.		

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

Finance						
		Costs	Private	Funding (%) GoB	Beneficiaries	Expected by ProgrammeYear
Total Capital ³	800.00 MTk	0%	100%	0%	23	
Ultimate Recurring	15.00 MTk/yr	n/a	50%	50%	24	
Date of Data :	31	07	01	Stacked Cumulative Cash Flow Chart		
	(dd)	(mm)	(yy)			
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
• Water requirements defined and/or refined	• Thresholds • Status of indicator species	NYD
• Regulatory framework for environmentally critical areas	• The regulations • Number of voluntary agreements concluded • Number of prosecutions	NYD
• Integrated wetland management	• Status of indicator species • Extent and duration of wetlands	NYD
• Improved levels of protection extended to existing and new environmentally critical areas	• New regulations gazetted • Number of new environmentally critical areas gazetted	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

7 South East Region

7.1 *Regional Overview*

This is one of the smaller regions, with an area of about 10,300 km² and a population of 13.9M, of which only 11% is urban. Its main towns are Comilla (0.44M) and Brahmanbaria, Chandpur, Feni, Laxmipur and Noakhali, each with a population of 0.2–0.3M. Like SW and SC Regions, it has an inland zone and a coastal zone, with widespread STW irrigation in the former and a serious cyclone risk and drainage congestion and salinity intrusion problems in the latter. It is the region most seriously affected by arsenic contamination of groundwater with between two-thirds and three-quarters of its inhabitants at risk.

Whilst water shortage is generally not serious except in the very south, as is demonstrated by the substantial LLP irrigation development in most of the region. However, there are limitations on overall peak flow requirements and problems with gas in the aquifer, which inhibits tubewell abstraction in the north of the region. Given the high levels of arsenic concentration, it is the region most likely to be at risk to arsenic entering the food chain, and therefore, along with the Southwest, a region which requires very careful and urgent attention.

Bank erosion by the Meghna is serious around Chandpur and other areas, whereas there is major land accretion along the southern shores of the region. In addition to the coastal embankment system and some inland FCD schemes, the region has two major irrigation schemes, Chandpur and Meghna–Dhonagodha.

Apart from urban and rural water-related services, environmental management and pollution control, major issues to be tackled by the NWMP in SE Region include:

- The arsenic problem
- Gaseous aquifers
- Improved cyclone protection
- The existing coastal embankment system and its drainage congestion
- Protection of newly accreted lands against tidal flooding
- Remedial action for existing inland FCDI schemes.

7.2 *Programmes for South East Region*

Twenty six programmes will benefit the South East Region of which all are shared with other regions. They will address major river abstraction; rural and urban arsenic mitigation; cyclone protection; flood proofing of key infrastructure and coastal protection.

Institutions and agencies involved in the South East Programmes will include:

- BWDB
- DMB
- LGED
- BR
- LGI's
- RHD

Cost estimates for the South East Regional programmes are provided in Table 7.1

Table 7.1: Cost Estimates for the South East Regional Programmes

MIS Ref	Title	COSTS (Tk M mid 2000)				
		ST	MT	LT	Residual	TOTAL
Exclusive to Region						
	None					
Shared with other Regions						
ID 003	FCD and FCD/I Management Rationalisation	76.4	104.3	-	-	180.7
MR 006	Regional River Management and Improvement	95.0	186.2	468.2	60.6	810.0
MR 008	North East and South East Regional Surface Water Distribution Networks	-	-	1,674.4	-	1,674.4
TR 001	Urban Arsenic Mitigation	120.3	-	-	-	120.3
TR 002	Rural Arsenic Mitigation	181.7	143.1	-	-	324.8
TR 003	Large and Small Town Water Supply and Distribution Systems	280.1	1,512.6	2,919.3	224.1	4,936.1
TR 004	Rural Water Supply and Distribution Systems	1,252.6	3,955.4	4,250.0	329.6	9,787.6
TR 005	Large and Small Town Sanitation and Sewerage Systems	280.1	694.7	2,822.9	112.0	3,909.7
TR 006	Rural Sanitation	725.2	1,944.8	1,367.5	131.8	4,169.3
TR 007	Large and Small Town Flood Protection	270.0	594.1	654.8	101.3	1,620.2
TR 008	Large and Small Town Stormwater Drainage	672.3	2,016.8	3,809.5	672.3	7,170.9
DM 001	Cyclone Shelters and Killas	358.2	597.0	835.8	-	1,790.9
DM 002	Bari-level Cyclone Shelters	17.0	65.2	199.2	34.9	316.4
DM 004	National, Regional and Key Feeder Roads - Flood Proofing	240.8	301.0	902.9	60.2	1,504.9
DM 005	Railway Flood Proofing	19.4	24.2	72.7	4.8	121.1
DM 006	Supplementary Irrigation and Drought Proofing of Rural Water Supplies	21.9	21.4	3.6	-	46.9
AW 001	Promotion of Expanded Minor Irrigation and Improved On-farm Water Managem	4.1	4.9	5.0	-	14.0
AW 002	Improved Performance of Existing Public Surface Water Irrigation Schemes	20.1	100.5	281.4	-	402.0
AW 003	New Public Surface Water Irrigation Schemes	-	814.6	1,629.3	-	2,443.9
AW 005	Improved Water Management at Local Government Level	22.0	42.8	196.9	13.1	274.8
AW 006	Improved Water Management at Community Level	1.0	8.7	31.5	2.1	43.3
AW 007	Rationalisation of Existing FCD Infrastructure	-	127.2	1,900.8	956.6	2,984.6
AW 008	Land Reclamation, Coastal Protection and Afforestation	126.0	307.1	1,033.6	-	1,466.7
EA 005	National Fish Pass Programme	55.6	139.0	222.4	-	417.0
EA 006	Unspecified Regional Programmes	-	17.7	57.3	-	75.0
EA 008	Environmentally Critical Areas and Integrated Wetland Management	0.4	0.9	2.8	-	4.1
TOTAL		4,840.2	13,724.0	25,341.8	2,703.4	46,609.4

Programmes Shared with Other Region(s)

FCD and FCD/I Management Rationalisation

Ref : **ID 003**

Cluster :	Institutional Development	Region(s) :	All
Focus/Foci :	Bangladesh Water Development Board	Location :	Nationwide
Start Year ¹ :	2002	Duration ² :	6 year(s)
		Agency(s) Responsible :	BWDB (Lead) None (Supporting)
Short Description :	This programme is intended to facilitate the transfer of FCD/I scheme management as per policy. Three steps will be involved. In the short term BWDB will receive capacity building with respect to environmental and social issues, while in consultation with the stakeholders a range of transfer options will be identified and prepared. Finally these options will be pilot tested at selected locations during the short and medium term.		

MIS Links	Cost Calculation :	ID Programme costing.xls	Map :	ID 003 Map.jpg
	Disb't Schedule :	ID Programme costing.xls	Description :	ID 003 PgP.doc

Finance						
		Costs	Private	Funding (%)	Beneficiaries	Expected by ProgrammeYear
Total Capital ³	1,300.00	MTk	0%	85%	15%	6
Ultimate Recurring	25.20	MTk/yr	n/a	50%	50%	7
Date of Data :	31	07	01	Stacked Cumulative Cash Flow Chart		
	(dd)	(mm)	(yy)	Cost (MTk)	● Investment	○ Recurring
Status :	Identified					
Financial Base Year:	mid-2000					
Planned Expenditure (to date) :	MTk					
Actual Expenditure ⁴ (to date) :	MTk					

Monitoring

Objective	Indicator	Present Status ⁵
• Reduction in the number of schemes directly managed by BWDB	• Nationwide FCD(/I) statistics	NYD
• Increase in funds for O&M after turnover of scheme	• Scheme accounts	NYD
• 75% of decentralised FCD/I schemes considered sustainable within 10 years of transfer	• National FCD/I scheme statistics	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

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				Funding (%)	Expected by
	Costs	Private	GoB	Beneficiaries	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	Stacked Cumulative Cash Flow Chart			
	(dd) (mm) (yy)				
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
• Integrated river management plans	• Plan documents approved	NYD
• Sustainable river development and management works	• Physical progress	NYD
	• Effective operation and maintenance	
	• Independent surveys of end users	

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

North East and South East Regional Surface Water Distribution Networks

Ref : **MR 008**

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				Funding (%)		Expected by
	Costs	Private	GoB	Beneficiaries	Programme	Year
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	Stacked Cumulative Cash Flow Chart				
	(dd) (mm) (yy)					
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
• 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

Urban Arsenic Mitigation

Ref : **TR 001**

Cluster :	Towns and Rural Areas	Region(s) :	NW, NC, NE, SW, SC, SE, EH
Focus/Foci :	Arsenic Mitigation	Location :	NW, NC, NE, SW, SC, SE, & EH regions
Start Year ¹ :	2001 Duration ² : 4 year(s)	Agency(s) Responsible :	Paurashavas (Lead) CBOs (Supporting)
Short Description :	Arsenic contamination of groundwater water supplies has become a serious health hazard in Bangladesh affecting some 30 million people. This is recognised by NWPo §4.06a of the NWPo which requires the Government to “facilitate availability of safe...drinking water through various means”. This programme will provide short term arsenic mitigation measures for water supplies (such as arsenic filters and household removal facilities in all urban areas except those comprising the Statistical Metropolitan Areas (See the Major City cluster). More permanent measures will be introduced in the medium and long terms (see Programme TR 003).		

MIS Links	Cost Calculation :	TR Programme costing.xls	Map :	TR 001 Map.jpg
	Disb't Schedule :	TR Programme costing.xls	Description :	TR 001 PgP.doc

Finance				Funding (%)	Expected by
		Costs	Private	GoB	Beneficiaries
Total Capital ³	439.00 MTk	0%	85%	15%	4
Ultimate Recurring	216.90 MTk/yr	n/a	0%	100%	5
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
• Procurement and installation programmes prepared	• Signed programme/project documents	NYD
• Procurement and installation programmes complete	• Programme/Project completion reports	NYD
	• Household surveys	
• Arsenic free potable water available to 100% of large and small town populations	• Water quality	NYD
	• Community health records	

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

Rural Arsenic Mitigation

Ref : **TR 002**

Cluster :	Towns and Rural Areas	Region(s) :	NW, NC, NE, SW, SC, SE, EH
Focus/Foci :	Arsenic Mitigation	Location :	NW, NC, NE, SW, SC, SE, & EH regions
Start Year ¹ :	2001	Duration ² :	9 year(s)
		Agency(s) :	DPHE (Lead)
		Responsible :	CBOs (Supporting)
Short Description :	Arsenic contamination of groundwater water supplies has become a serious health hazard in Bangladesh affecting some 76 million people. This is recognised by NWPo §4.06a of the NWPo which requires the Government to “facilitate availability of safe...drinking water through various means”. This programme will provide short term and medium term arsenic mitigation measures for water supplies (such as arsenic filters and household removal facilities in all rural. More permanent measures will be introduced in the long term (See Programme TR 004) .		

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

Finance					
	Costs	Private	Funding (%)	Expected by	
			GoB	Beneficiaries	ProgrammeYear
Total Capital ³	1,185.00 MTk	0%	85%	15%	9
Ultimate Recurring	585.40 MTk/yr	n/a	0%	100%	10
Date of Data :	31 07 01	Stacked Cumulative Cash Flow Chart			
	(dd) (mm) (yy)				
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
• Procurement and installation programmes prepared	• Signed programme/project documents	NYD
• Procurement and installation programmes complete	• Programme/Project completion reports	NYD
	• Household/community surveys	
• Arsenic free potable water available to 100% of rural population	• Water quality	NYD
	• Community health records	

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

Large and Small Town Water Supply and Distribution Systems

Ref :

TR 003

Cluster :	Towns and Rural Areas	Region(s) :	All
Focus/Foci :	Water Supplies	Location :	Nationwide
Start Year ¹ :	2002	Duration ² :	25 year(s)
		Agency(s) Responsible :	DPHE (Lead) CBOs, Private Sector (Supporting)
Short Description :	The preamble to NWPo §4.6 of the NWPo highlights the water supply problems facing Bangladesh's urban areas (large and small). Water tables are receding due to heavy groundwater abstraction. Furthermore, saline intrusion in coastal aquifers and contamination elsewhere further compromises the drinking water supplies for urban inhabitants. In accordance with the Government's policy to "Facilitate availability of safe and affordable drinking water supplies." (NWPo §4.6.a), this programme is intended to provide resources for the implementation of piped water supply schemes fed from DTW or surface water sources in order to serve 100% of the population (of each town) with piped drinking water supplies by year 2010.		

MIS Links	Cost Calculation :	TR Programme costing.xls	Map :	TR 003 Map.jpg
	Disb't Schedule :	TR Programme costing.xls	Description :	TR 003 PgP.doc

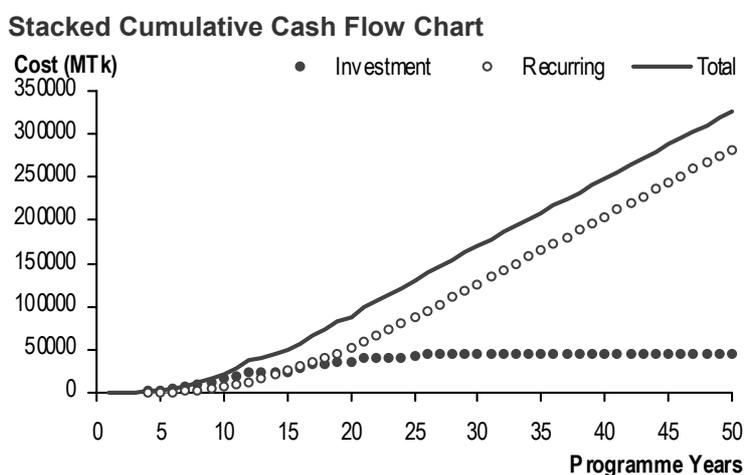
Finance					
	Costs	Private	Funding (%)	Expected by	
			GoB	Beneficiaries	ProgrammeYear
Total Capital ³	44,055.00 MTk	0%	100%	0%	25
Ultimate Recurring	7,820.80 MTk/yr	n/a	0%	100%	26

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

Status : **Identified**
Financial Base Year: **mid-2000**

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

Actual Expenditure⁴ (to date) : **0** MTk



Monitoring

Objective	Indicator	Present Status ⁵
• Town water supply programmes prepared	• Signed programme/project documents	NYD
• Sustainable operation and maintenance of town water supply systems	• Frequency of pipe breaks • Response times	NYD
• Town water supply programme completed	• Programme/project completion reports • Household, district surveys	NYD
• 100% of large and small town population have access to formal water supplies	• Survey reports	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

Rural Water Supply and Distribution Systems

Ref :

TR 004

Cluster :	Towns and Rural Areas	Region(s) :	All
Focus/Foci :	Water Supplies	Location :	Rural Areas Nationwide
Start Year ¹ :	2001	Duration ² :	25 year(s)
		Agency(s) Responsible :	DPHE (Lead) LGIs, DPHE, CBOs (Supporting)
Short Description :	<p>The preamble to NWPo §4.6 of the NWPo recognises that "The rural areas of Bangladesh suffer from a lack of quality drinking water". This situation is worsening due to heavy withdrawals of groundwater (the principle source for most of the rural areas) for irrigation a trend which is exacerbated by agro-chemical and saline pollution of groundwater. Although the rural population is expected to increase relatively slowly over the next 25 years, from 102 million in 2000 to 108 million in 2025, it is nonetheless the GoB's intention to "facilitate the availability of safe and affordable drinking water supplies through various means" (NWPo §4.6.a). It is estimated that 92% of the rural population normally have access to potable water, mainly through shallow HTWs. The thrust of this programme is therefore to improve the quality of water supply services (reliability and access) in areas already served as well as extending the coverage to 100% by 2005.</p>		

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

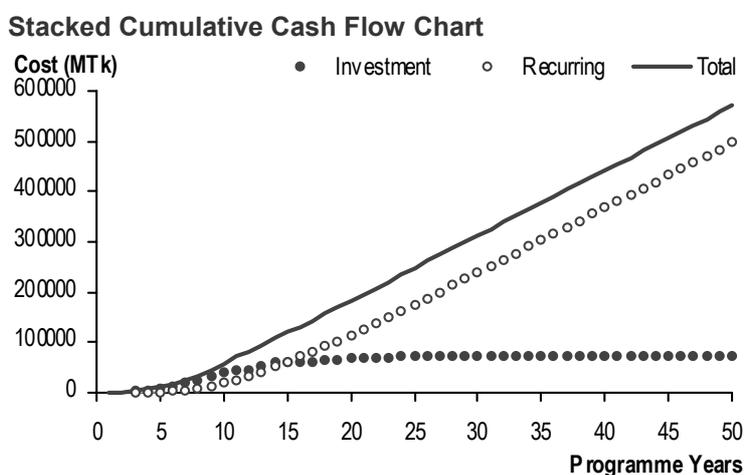
Finance					
	Costs	Private	Funding (%)	Expected by	
			GoB	Beneficiaries	ProgrammeYear
Total Capital ³	74,234.00 MTk	80%	20%	0%	25
Ultimate Recurring	12,884.30 MTk/yr	n/a	0%	100%	25

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

Status : **Identified**
Financial Base Year: **mid-2000**

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

Actual Expenditure⁴ (to date) : **0** MTk



Monitoring

Objective	Indicator	Present Status ⁵
• Rural water supply programmes prepared	• Signed programme/project documents	NYD
• Sustainable operation and maintenance of rural water supply systems	• Frequency of pipe breaks • Response times	NYD
• Rural water supply programmes completed	• Programme/project completion reports • Household, community surveys	NYD
• 100% of rural population has access to formal water supplies	• Survey reports	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

Large and Small Town Sanitation and Sewerage Systems

Ref : **TR 005**

Cluster :	Towns and Rural Areas	Region(s) :	All
Focus/Foci :	Sanitation	Location :	Nationwide
Start Year ¹ :	2002	Duration ² :	25 year(s)
		Agency(s) Responsible :	Paurashavas (Lead) LGIs, LGED, DPHE, CBOs (Supporting)
Short Description :	§4.6.c of the NWPo "mandates relevant public water and sewerage institutions to provide necessary drainage and sanitation, including treatment of domestic wastewater and sewage and replacement of open drains and construction of sewers, in the interest of public health." The population of large (>50,000) and small towns is expected to more than double over the next 25 years, from 14 million in 2000 to 36 million in 2025. At present, between 55% (small towns) and 65% (large towns) of the population is adequately served by sanitation facilities, mainly by pit latrines with/without septic tanks. In the poor areas and fringe communities, people are dependant on 'hanging latrines' and open defecation which exacerbates pollution and public health problems and increases the likelihood of epidemic outbreaks of waterborne and water-related diseases. This programme aims to provide appropriate sanitation facilities and raise and sustain service coverage at 100% by 2010.		

MIS Links	Cost Calculation :	TR Programme costing.xls	Map :	TR 005 Map.jpg
	Disb't Schedule :	TR Programme costing.xls	Description :	TR 005 PgP.doc

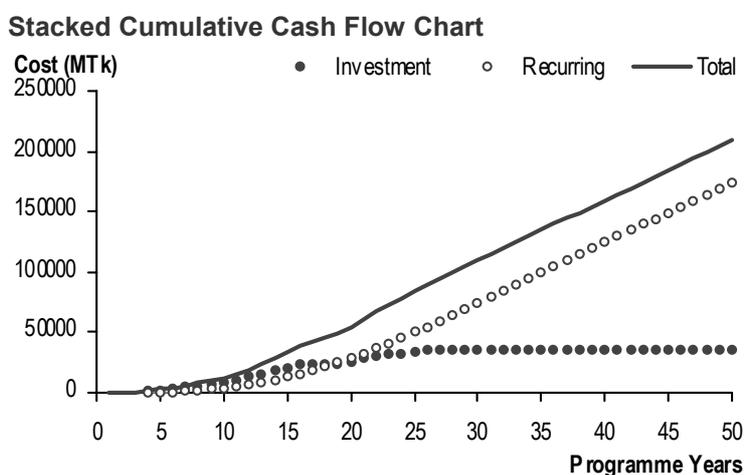
Finance			Funding (%)		Expected by
	Costs	Private	GoB	Beneficiaries	ProgrammeYear
Total Capital ³	34,894.00 MTk	0%	100%	0%	25
Ultimate Recurring	4,543.10 MTk/yr	n/a	0%	100%	26

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

Status : **Identified**
Financial Base Year: **mid-2000**

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

Actual Expenditure⁴ (to date) : **0** MTk



Monitoring

Objective	Indicator	Present Status ⁵
• Sustainable operation and maintenance of town sanitation systems	• Frequency of service break downs • Response times	NYD
• Reduced environmental pollution	• Faecal coliform counts	NYD
• Improved public health	• Public health statistics	NYD
• 100% of large and small town populations have access to sanitation facilities	• Survey reports	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

Rural Sanitation

Ref :

TR 006

Cluster :	Towns and Rural Areas	Region(s) :	All
Focus/Foci :	Sanitation	Location :	Rural Areas Nationwide
Start Year ¹ :	2001	Duration ² :	25 year(s)
		Agency(s) Responsible :	DPHE (Lead) CBOs, Private sector, LGIs (Supporting)
Short Description :	<p>§4.6.c of the NWPo "mandates relevant public water and sewerage institutions to provide necessary drainage and sanitation, including treatment of domestic wastewater and sewage and replacement of open drains and construction of sewers, in the interest of public health." The population of rural areas is expected to increase slightly over the next 25 years, from 102 million in 2000 to 108 million in 2025. At present, only 40% of the population has access to pit latrine facilities, the other 60% relying on 'hanging latrines' and open defecation which exacerbates pollution and public health problems and increases the likelihood of epidemic outbreaks of waterborne and water-related diseases. This programme aims to provide appropriate sanitation facilities for the whole rural population and raise and sustain service coverage at 100% by 2010.</p>		

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

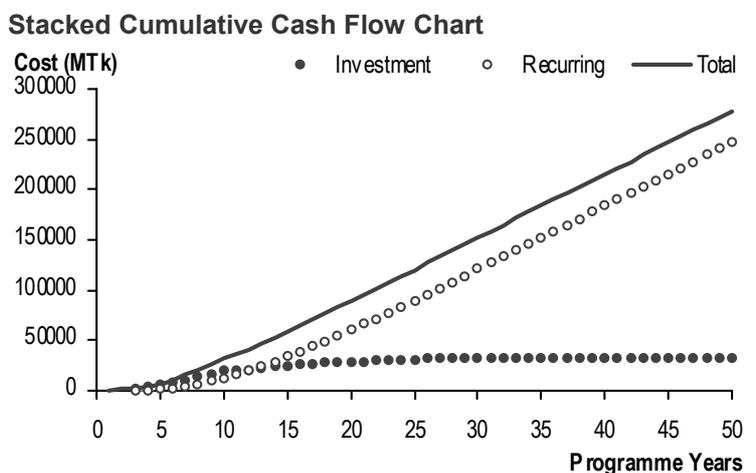
Finance			Funding (%)		Expected by
	Costs	Private	GoB	Beneficiaries	ProgrammeYear
Total Capital ³	31,622.00 MTk	80%	20%	0%	25
Ultimate Recurring	5,901.00 MTk/yr	n/a	0%	100%	26

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

Status : **Identified**
Financial Base Year: **mid-2000**

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

Actual Expenditure⁴ (to date) : **0** MTk



Monitoring

Objective	Indicator	Present Status ⁵
• Sustainable operation and maintenance of rural sanitation systems	• Frequency of service break downs • Response times	NYD
• Reduced environmental pollution	• Faecal coliform counts	NYD
• Improved public health	• Public health statistics	NYD
• 100% of rural populations have access to sanitation facilities	• Survey reports	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

Large and Small Town Flood Protection

Ref :

TR 007

Cluster :	Towns and Rural Areas	Region(s) :	All
Focus/Foci :	Flood Protection	Location :	Large and Small towns throughout the country
Start Year ¹ :	2003	Duration ² :	25 year(s)
		Agency(s) Responsible :	BWDB (Lead) None (Supporting)
Short Description :	§4.2.9.i of the NWPo states that "...critical areas such as district and Upazila towns, important commercial centres, and places of historical importance will be gradually provided reasonable degree of protection against flood". The low areas of many of the towns in Bangladesh are vulnerable to flooding during monsoon. Significant damage was caused during the 1988 and 1998 floods due either to absence of embankments, embankment failure or the inability of protected areas to drain during times of heavy rainfall because of high water levels outside. This programme will undertake measures such as: raising of existing embankment crest levels; repair of damaged embankments; and, provision of erosion protection works where necessary. New flood protection works will also be involved consisting mainly of constructing embankments on riverbanks with integral drainage sluices.		

MIS Links	Cost Calculation :	TR Programme costing.xls	Map :	TR 007 Map.jpg
	Disb't Schedule :	TR Programme costing.xls	Description :	TR 007 PgP.doc

Finance				Funding (%)		Expected by
	Costs	Private	GoB	Beneficiaries	ProgrammeYear	
Total Capital ³	14,460.00 MTk	0%	100%	0%		25
Ultimate Recurring	1,301.40 MTk/yr	n/a	50%	50%		26
Date of Data :	31 07 01	Stacked Cumulative Cash Flow Chart				
	(dd) (mm) (yy)					
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
• Flood protection programmes prepared and agreed	• Signed programme/project documents	NYD
• Flood protection programmes implemented	• Programme/project completion reports	NYD
• All large and small towns protected from 1: 100 year floods	• Physical evidence and hydrological data	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

Large and Small Town Stormwater Drainage

Ref :

TR 008

Cluster :	Towns and Rural Areas	Region(s) :	All
Focus/Foci :	Stormwater Drainage	Location :	Nationwide
Start Year ¹ :	2003	Duration ² :	25 year(s)
		Agency(s) Responsible :	Paurashavas (Lead) LGIs (Supporting)
Short Description :	§4.6 says that "Lack of proper sanitation and drainage facilities, are the primary causes of diseases in the urban areas". Storm water drainage is an increasing problem in urban areas, as the construction of buildings and paved areas has progressively increased run-off. At the same time, pressures on land has caused natural drainage channels to be filled in and built upon. Encroachment on watercourses and water bodies has progressively reduced natural drainage. No urban areas have adequate storm drainage at present. This programme provides resources for a nationwide installation/upgrading and maintenance of stormwater drainage facilities in large and small towns. These will most probably be gravity systems which although cost-effective, will require regular adequate maintenance.		

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

Finance				Funding (%)		Expected by
	Costs	Private	GoB	Beneficiaries	Programme	Year
Total Capital ³	64,000.00 MTk	0%	100%	0%		25
Ultimate Recurring	7,040.00 MTk/yr	n/a	50%	50%		26
Date of Data :	31	07	01	Stacked Cumulative Cash Flow Chart		
	(dd)	(mm)	(yy)			
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
• Stormwater drainage programme prepared and agree	• Signed programme/project documents	NYD
• Stormwater drainage programmes implemented	• Programme/project completion reports	NYD
• Stormwater drainage installed in all large and small towns	• Survey reports	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

Cyclone Shelters and Killas

Ref : **DM 001**

Cluster :	Disaster Management	Region(s) :	SC, SE, EH
Focus/Foci :	Cyclone Protection	Location :	SC, SE and EH Regions
Start Year ¹ :	2002	Duration ² :	15 year(s)
		Agency(s) Responsible :	LGED (Lead) None (Supporting)
Short Description :	This programme is for the cyclone risk areas and is relevant to the NWPo as it provides "flood proofing systems to manage natural disasters: (NWPo §4.2.o) and takes special account the particular needs of women and children (NWPo §3.b) while motivating the people themselves to develop different flood proofing measures. The programme will provide safe havens in the form of proven infrastructure comprising raised and covered cyclone shelters and killas (raised mounds) where both humans and livestock can take refuge. Short to medium term beneficiaries of the programme will comprise some 1.72 million people estimated to be at a risk of serious cyclone threat at least once every 30 years or less. In the long term the programme will be extended to cover lower risk areas corresponding to a maximum return return periods of 1:100 years and will be closely linked with programme DM 002 "Bari-level Cyclone Shelter".		

MIS Links	Cost Calculation :	DM Programme costing.xls	Map :	DM 001 Map.jpg
	Disb't Schedule :	DM Programme costing.xls	Description :	DM 001 PgP.doc

Finance			Funding (%)		Expected by
	Costs	Private	GoB	Beneficiaries	ProgrammeYear
Total Capital ³	9,894.60 MTk	0%	100%	0%	15
Ultimate Recurring	350.30 MTk/yr	n/a	85%	15%	16
Date of Data :	31 07 01	Stacked Cumulative Cash Flow Chart			
	(dd) (mm) (yy)				
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
• Pilot programme in progress	• Signed contracts/work orders	NYD
	• Progress reports	
• Pilot programme evaluated	• Evaluation reports	NYD
• Modalities accepted	• Signed agreements	NYD
• 775 multi-purpose shelters and 1369 killas constructed in cyclone prone areas	• Actual numbers of shelters and killas	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

Bari-level Cyclone Shelters

Ref : **DM 002**

Cluster :	Disaster Management	Region(s) :	SC, SE, EH
Focus/Foci :	Cyclone Protection	Location :	SC, SE, EH
Start Year ¹ :	2003	Duration ² :	25 year(s)
		Agency(s) Responsible :	DMB (Lead) None (Supporting)
Short Description :	This programme is for the cyclone risk areas and is relevant to the NWPo as it provides "flood proofing systems to manage natural disasters: (NWPo §4.2.o) and takes special account the particular needs of women and children (NWPo §3.b) while motivating the people themselves to develop different flood proofing measures. Over three million people live or subsist in areas exposed to significant risk of destruction and loss of life due to cyclone strike. This programme is intended to provide safe havens in the form of 12m2 concrete framed buildings on raised 72m2 earth platforms, one in each bari in the coastal areas. A total of 43,768 bari-level-cyclone-shelters will be raised over 15 years, benefiting some 1.72 million people in the short/medium term.		

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

Finance				Funding (%)		Expected by
		Costs	Private	GoB	Beneficiaries	ProgrammeYear
Total Capital ³	1,747.90	MTk	0%	100%	0%	25
Ultimate Recurring	52.40	MTk/yr	n/a	0%	100%	26
Date of Data :	31	07	01	Stacked Cumulative Cash Flow Chart		
	(dd)	(mm)	(yy)			
Status :	Identified					
Financial Base Year:	mid-2000					
Planned Expenditure (to date) :	MTk					
Actual Expenditure ⁴ (to date) :	MTk					

Monitoring		
Objective	Indicator	Present Status⁵
• Pilot programme in progress	• Signed contracts/work orders	NYD
	• Progress reports	
• Pilot programme evaluated	• Evaluation reports	NYD
• Modalities accepted	• Signed agreements	NYD
• 43,776 bari-level cyclone shelters	• Actual numbers of bari-level cyclone shelters	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, Regional and Key Feeder Roads - Flood Proofing

Ref : **DM 004**

Cluster :	Disaster Management	Region(s) :	NW, NC, NE, SE, SC,SW
Focus/Foci :	Flood Proofing	Location :	Regions NW, NC, NE, SE, SC,SW
Start Year ¹ :	2001	Duration ² :	25 year(s)
		Agency(s) Responsible :	RHD (Lead) LGED (Supporting)
Short Description :	In line with Policy's call for coping with floods in relation to vital infrastructure (NWPo §4.2.p.ii), this programme targets the flood proofing needs of key portions of Bangladesh's highway network. As with current practice, the National Highways, Regional Roads and Type A Feeder Roads will be raised by the central Roads and Highways Department (RHD). Type B Feeder Roads and Rural Roads will be raised by the Local Government Engineering Departments (LGEDs). The programme also has collateral benefits since the raised embankments comprise safe havens while facilitating the movement of relief goods during flood emergencies. This is a long term programme with national coverage, however it has been assumed that embankment raising will be carried out when a particular road is due for major maintenance or re-surfacing, with priority given to high risk areas in the case of national and regional roads..		

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

Finance				Funding (%)		Expected by
	Costs	Private	GoB	Beneficiaries	Programme	Year
Total Capital ³	10,904.80 MTk	0%	100%	0%		25
Ultimate Recurring	436.20 MTk/yr	n/a	100%	0%		26
Date of Data :	31 07 01	Stacked Cumulative Cash Flow Chart				
	(dd) (mm) (yy)					
Status :	Identified					
Financial Base Year:	mid-2000					
Planned Expenditure (to date) :	428 MTk					
Actual Expenditure ⁴ (to date) :	MTk					

Monitoring		
Objective	Indicator	Present Status⁵
• Quantitative needs assessment	• Needs assessment reports	NYD
• Programme documents prepared	• Programme documents	NYD
• Programmes underway	• Signed contracts/work orders	NYD
• 100% of all national and feeder roads raised by 1m in high and .5m in low risk areas; 20% of feeder and rural roads raised by 1m in high risk areas	• Construction records • Site visits	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

Railway Flood Proofing

Ref : **DM 005**

Cluster :	Disaster Management	Region(s) :	SW, SC, NW, NC, NE, SE
Focus/Foci :	Flood Proofing	Location :	Regions SW, SC, NW, NC, NE, SE
Start Year ¹ :	2001	Duration ² :	25 year(s)
		Agency(s) Responsible :	BR (Lead) None (Supporting)
Short Description :	<p>In line with Policy's call for coping with floods in relation to vital infrastructure (NWPo §4.2.p.ii), this programme targets at the flood proofing needs of key portions of Bangladesh's railway network. The Railway Department will be responsible for implementation of this programme. The programme has collateral benefits since the raised embankments comprise safe havens while facilitating the movement of relief goods during flood emergencies. This is a long term programme with coverage in six hydrological regions and work is expected to proceed as part of the network upgrading programmes. However, a significant risk to this programme is that the disruption to services that is inevitable when line raising is in progress, may well persuade the railway operators that it is cheaper to lose income for a few hours or days each year than to incur expenditure raising lines while simultaneously losing revenues for that period.</p>		

MIS Links	Cost Calculation :	DM Programme costing.xls	Map :	DM 005 Map.jpg
	Disb't Schedule :	DM Programme costing.xls	Description :	DM 005 PgP.doc

Finance				Funding (%)		Expected by
	Costs	Private	GoB	Beneficiaries	Programme	Year
Total Capital ³	977.00 MTk	0%	100%	0%		25
Ultimate Recurring	39.10 MTk/yr	n/a	100%	0%		26
Date of Data :	31 07 01	Stacked Cumulative Cash Flow Chart				
	(dd) (mm) (yy)					
Status :	Identified					
Financial Base Year:	mid-2000					
Planned Expenditure (to date) :	33 MTk					
Actual Expenditure ⁴ (to date) :	MTk					

Monitoring		
Objective	Indicator	Present Status⁵
• Quantitative needs assessment	• Needs assessment reports	NYD
• Programme documents prepared	• Programme documents	NYD
• Programmes underway	• Signed contracts/work orders	NYD
• 100% of all high risk railways raised by 1m and 100% of low risk railway raised by .5m	• Construction records • Site visits	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

Supplementary Irrigation and Drought Proofing of Rural Water Supplies

Ref :

DM 006

Cluster :	Disaster Management	Region(s) :	All
Focus/Foci :	Drought Proofing	Location :	Nationwide but emphasising NW, NC, SE, SW, SC
Start Year :	2002	Duration ² :	10 year(s)
		Agency(s) Responsible :	DAE (Lead) None (Supporting)
Short Description :	This programme aims to promote supplementary irrigation during the drought-prone aman season, as well as including efforts to drought-proof rural water supplies.		

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

Finance					
	Costs	Private	Funding (%)	Beneficiaries	Expected by Programme Year
Total Capital ³	1,041.40 MTk	0%	85%	15%	10
Ultimate Recurring	0.00 MTk/yr	n/a	n/a	n/a	n/a
Date of Data :	31	07	01	Stacked Cumulative Cash Flow Chart	
	(dd)	(mm)	(yy)		
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
• New Tara hand tubewells commissioned	• Physical number of new wells	NYD
• Increased area of aman rice under supplementary irrigation	• Areas planted	NYD
• Increased quality of life in target areas	• Return on family labour	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

Promotion of Expanded Minor Irrigation and Improved On-farm Water Management

Ref : **AW 001**

Cluster :	Agriculture and Water Management	Region(s) :	All
Focus/Foci :	Irrigation	Location :	Nationwide
Start Year ¹ :	2002	Duration ² :	15 year(s)
		Agency(s) Responsible :	DAE (Lead) None (Supporting)
Short Description :	It is the policy of the Government to "Encourage and promote continued development of minor irrigation" (NWPo §4.7.a) and to "Encourage future groundwater development for irrigation by both the public and the private sectors" (§4.7.b). With the ultimate goal of increased agricultural productivity, this programme involves the improvement of irrigation pumping efficiency, promotion of lower cost force-mode tubewell pumps, and a farmer education/training component to improve on-farm water management and the wise use of water		

MIS Links	Cost Calculation :	AW Programme costing.xls	Map :	AW 001 Map.jpg
	Disb't Schedule :	AW Programme costing.xls	Description :	AW 001 PgP.doc

Finance				Funding (%)		Expected by
	Costs	Private	GoB	Beneficiaries	ProgrammeYear	
Total Capital ³	310.00 MTk	0%	85%	15%		15
Ultimate Recurring	7.20 MTk/yr	n/a	0%	100%		16
Date of Data :	31	07	01	Stacked Cumulative Cash Flow Chart		
	(dd)	(mm)	(yy)			
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
• Increased diesel pump engine efficiencies	• Sample tests	NYD
• Farmers adopt force mode pumpsets	• Farmer survey	NYD
• Irrigation water use efficiencies increased	• Sample tests	NYD
• Average return per unit of water increased in minor irrigation areas	• Household surveys and field measurements	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

Improved Performance of Existing Public Surface Water Irrigation Schemes Ref : **AW 002**

Cluster :	Agriculture and Water Management	Region(s) :	All
Focus/Foci :	Irrigation	Location :	Nationwide
Start Year ¹ :	2004	Duration ² :	20 year(s)
		Agency(s) Responsible :	BWDB (Lead) BMDA, CBOs, LGIs, NGOs, Private Sector (Supporting)
Short Description :	It is the policy of the government to "encourage future groundwater development for irrigation by both the public and private sectors" (NWPo §4.7.b). Even so experience confirms that current performance of existing public irrigation schemes is not satisfactory. This programme is intended to address both challenges by means of the following approaches: full participation of beneficiaries; command area development; conjunctive use of surface and groundwater; rehabilitation; improved O&M and appropriate beneficiary contributions to both capital and recurring costs.		

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

Finance					
	Costs	Private	Funding (%)	Expected by	
			GoB	Beneficiaries	ProgrammeYear
Total Capital ³	3,275.00 MTk	0%	85%	15%	20
Ultimate Recurring	98.30 MTk/yr	n/a	25%	75%	21

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

Status : **Identified**

Financial Base Year: **mid-2000**

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

Actual Expenditure⁴ (to date) : **0** MTk

Stacked Cumulative Cash Flow Chart

Monitoring		
Objective	Indicator	Present Status⁵
• Sustainable operation and maintenance	• User group records • Long term O&M expenditure trends	NYD
• Public irrigation schemes rehabilitated and upgraded	• Construction records • On site verification	NYD
• Increased returns per unit of water and labour on public irrigation areas	• Household surveys and field measurements	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

New Public Surface Water Irrigation Schemes

Ref : **AW 003**

Cluster :	Agriculture and Water Management	Region(s) :	All
Focus/Foci :	Irrigation	Location :	Nationwide
Start Year ¹ :	2005	Duration ² :	15 year(s)
		Agency(s) Responsible :	BWDB (Lead) LGED (Supporting)
Short Description :	The preamble NWPo §4.7 requires government to continue promoting the development of surface water irrigation where feasible and to focus where practical on the conjunctive use of groundwater and surface water. The overall objective of this programme is to increase agricultural production and reduce demand on groundwater abstraction by promoting and implementing new surface water irrigation schemes.		

MIS Links	Cost Calculation :	AW Programme costing.xls	Map :	AW 003 Map.jpg
	Disb't Schedule :	AW Programme costing.xls	Description :	AW 003 PgP.doc

Finance			Funding (%)		Expected by
	Costs	Private	GoB	Beneficiaries	ProgrammeYear
Total Capital ³	6,125.00 MTk	0%	85%	15%	15
Ultimate Recurring	306.30 MTk/yr	n/a	25%	75%	16
Date of Data :	31 07 01	Stacked Cumulative Cash Flow Chart			
	(dd) (mm) (yy)				
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
• Plans prepared	• Project documents	NYD
• Projects in progress	• Funding in place	NYD
	• Signed contracts/work orders	
• Increased area under public surface water irrigation	• Construction records	NYD
	• On site verification	

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

Improved Water Management at Local Government Level

Ref : **AW 005**

Cluster :	Agriculture and Water Management	Region(s) :	All
Focus/Foci :	Water Management	Location :	Nationwide
Start Year ¹ :	2001	Duration ² :	24 year(s)
		Agency(s) Responsible :	LGED (Lead) None (Supporting)
Short Description :	Implementation of the NWPo will result in a four tiered civil-administrative hierarchy for the water sector: central, regional, local and community. The BWDB will remain responsible for water management issues as they affect or occur in the main and regional rivers. Equally, management of certain schemes below 5000ha will become the responsibility of community based organisations. Water courses, whether natural or man-made, that will be the management responsibility of neither BWDB nor community organisations will become the responsibility of LGI's. Furthermore, actual ownership of all schemes except municipal water schemes will be transferred to the LGI's. This programme is intended to rehabilitate, upgrade and restore as appropriate, the water courses involved as well as to provide the LGI's with the necessary appurtenant equipment and facilities.		

MIS Links	Cost Calculation :	AW Programme costing.xls	Map :	AW 005 Map.jpg
	Disb't Schedule :	AW Programme costing.xls	Description :	AW 005 PgP.doc

Finance				Funding (%)	Expected by
	Costs	Private	GoB	Beneficiaries	ProgrammeYear
Total Capital ³	5,495.00 MTk	0%	85%	15%	24
Ultimate Recurring	156.00 MTk/yr	n/a	25%	75%	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
• Sustainable management and ownership models in place	• Reports • Legal instruments	NYD
• Local rivers, feeder canals and main drains transferred to LGI's for management/ownership as per policy	• Instruments of transfer ratified and promulgated • Title deeds	NYD
• Local rivers, feeders canals and main drains restored, rehabilitated, upgraded as appropriate	• Project completion reports • Physical surveys • Hydrological records	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

Improved Water Management at Community Level

Ref : **AW 006**

Cluster :	Agriculture and Water Management	Region(s) :	All
Focus/Foci :	Water Management	Location :	Nationwide
Start Year ¹ :	2001	Duration ² :	24 year(s)
		Agency(s) Responsible :	LGED (Lead) LGIs, DAE (Supporting)
Short Description :	Implementation of the NWPo will result in a four tiered civil-administrative hierarchy for the water sector: central, regional, local and community. The BWDB will remain responsible for water management issues as they affect or occur in the main and regional rivers. Local rivers and scheme delivery systems will become the management (and in some cases property) of LGI's while management of certain schemes below 5000ha will become the responsibility of community based organisations. This programme is intended to rehabilitate, upgrade and restore as appropriate, the water courses and field distribution/collection systems involved as well as to assist in providing with the necessary appurtenant equipment and facilities.		

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

Finance				Funding (%)		Expected by
	Costs	Private	GoB	Beneficiaries	Programme	Year
Total Capital ³	865.00 MTk	0%	15%	85%		24
Ultimate Recurring	24.60 MTk/yr	n/a	0%	100%		26
Date of Data :	31	07	01	Stacked Cumulative Cash Flow Chart		
	(dd)	(mm)	(yy)			
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
• Effective community based water management organisations	• Field evaluations	NYD
• Khals re-excavated over 10,000ha	• Physical survey	NYD
• Sustainable sub-secondary water use efficiencies of 60% for paddy and 75% for dryfoot crops	• Field tests	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

Rationalisation of Existing FCD Infrastructure

Ref : **AW 007**

Cluster :	Agriculture and Water Management	Region(s) :	All
Focus/Foci :	Coastal Protection, AND Flood Control and Drainage	Location :	Nationwide
Start Year ¹ :	2007	Duration ² :	20 year(s)
		Agency(s) Responsible :	BWDB (Lead) LGED (Supporting)
Short Description :	The NWPo states that "Ownership of FCD and FCDI projects with command area of 1000 ha or less will gradually be transferred to the local governments, beginning with the ones that are being satisfactorily managed and operated by the beneficiary/ community organisations." (NWPo §4.4.f) and that is also the policy of the government to "Investigate thoroughly, important flood control and management issues, such as the efficacy of coastal polders, for guiding future policy on structural interventions" (NWPo §4.15.c). This programme will assess and rationalise all existing FCD schemes by specifying and implementing the appropriate course of action for each scheme according to the following options: a) continuation of the present situation; b) handover to beneficiaries or local govt.; c) rehabilitation and improvement; d) complete withdrawal.		

MIS Links	Cost Calculation :	AW Programme costing.xls	Map :	AW 007 Map.jpg
	Disb't Schedule :	AW Programme costing.xls	Description :	AW 007 PgP.doc

Finance			Funding (%)		Expected by
	Costs	Private	GoB	Beneficiaries	ProgrammeYear
Total Capital ³	21,471.70 MTk	0%	85%	15%	20
Ultimate Recurring	1,152.80 MTk/yr	n/a	50%	50%	21
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
• Sustainable operation and maintenance on 50% of all existing inland and coastal FCD/I schemes	• User group records • Long term O&M expenditure trends	NYD
• Inland and coastal FCD/I rehabilitated and upgraded on a participatory basis	• Participatory agreements • Project completion reports	NYD
• Increased returns per unit of water and labour in public irrigation areas	• Household surveys and field measurements	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

Land Reclamation, Coastal Protection and Afforestation

Ref : **AW 008**

Cluster :	Agriculture and Water Management	Region(s) :	RE, SC, SE, EH
Focus/Foci :	Coastal Protection	Location :	Regions RE, SC, SE, EH
Start Year ¹ :	2001	Duration ² :	24 year(s)
		Agency(s) Responsible :	BWDB (Lead) DoForest (Supporting)
Short Description :	NWPo Article 4.2(r) states that the Government will "Plan and implement schemes for reclamation of land from the sea and rivers". In line with this Article, studies will be undertaken for reclamation of land from estuary region and sea. The NWPo also recognises the importance of coastal embankments/polders with the statement that it is the policy of the government to "Investigate thoroughly, important flood control and management issues, such as the efficacy of coastal polders, for guiding future policy on structural interventions." (NWPo §4.15.c). Another purpose of this programme is to embank and where necessary provide arborial protection to accreted land thereby protecting life/property/livelihoods from tides, or scend.		

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

Finance			Funding (%)		Expected by
	Costs	Private	GoB	Beneficiaries	ProgrammeYear
Total Capital ³	5,866.90 MTk	0%	100%	0%	24
Ultimate Recurring	201.00 MTk/yr	n/a	15%	85%	26

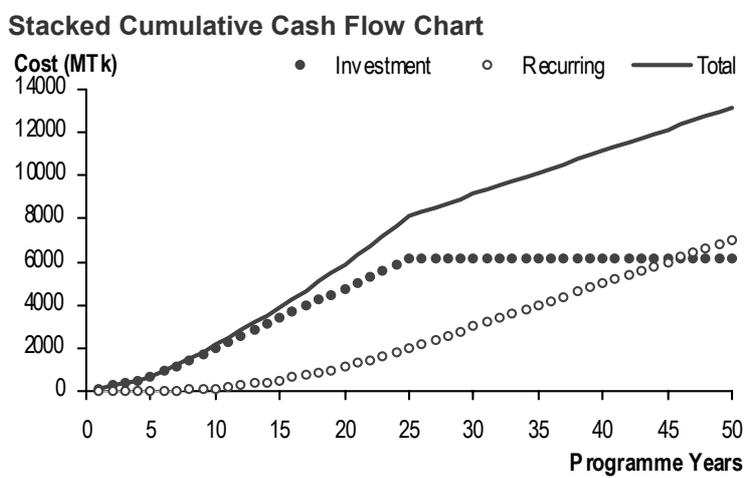
Date of Data : **31 07 01**
(dd) (mm) (yy)

Status : **Identified**

Financial Base Year: **mid-2000**

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

Actual Expenditure⁴ (to date) : **0** MTk



Monitoring		
Objective	Indicator	Present Status⁵
• Coastal protection programme prepared and agreed	• The programme document • Formal agreements	NYD
• 1550km ² of new coastal land protected	• On site verification	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 Fish Pass Programme

Ref : **EA 005**

Cluster :	Environment and Aquatic Resources	Region(s) :	All
Focus/Foci :	Water Management for Fisheries	Location :	Nationwide
Start Year ¹ :	2003	Duration ² :	15 year(s)
		Agency(s) Responsible :	BWDB (Lead) DoFish (Supporting)
Short Description :	The NWPo requires that "Fisheries and wildlife will receive due emphasis in water resource planning in areas where their social impact is high" (NWPo §4.9.a); "Measures will be taken to minimise disruption to the natural aquatic environment in streams and water channels." (NWPo §4.9.b), and; "Water development plans will not interrupt fish movement and will make adequate provisions in control structures for allowing fish migration and breeding." (NWPo §4.9.e). Yet there has been a reduction in fish production in recent years due, at least in part, to structures that inhibit fish migration routes. As a response, this programme will screen all major existing FCD/I projects (>5000ha) and will prepare and implement a plan for mitigation works. Emphasis will be given to 'fish-friendly' structures rather than separate dedicated fish-pass structures.		

MIS Links	Cost Calculation :	EA Programme costing.xls	Map :	EA 005 Map.jpg
	Disb't Schedule :	EA Programme costing.xls	Description :	EA 005 PgP.doc

Finance						
	Costs	Private	Funding (%)	Beneficiaries	Expected by	
			GoB		ProgrammeYear	
Total Capital ³	3,000.00 MTk	0%	100%	0%		15
Ultimate Recurring	75.00 MTk/yr	n/a	50%	50%		16
Date of Data :	31	07	Stacked Cumulative Cash Flow Chart			
	(dd)	(mm)	(yy)			
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
• Appropriate fish-friendly measures routinely adopted in the design and operation of all relevant structures	• Number of conforming designs	NYD
• 90% of all feasible fish passes in place	• Design regulation	NYD
• Sustainable increase in floodplain fish catches, in terms of both numbers and diversity	• Number of operational fish passes	NYD
	• Fish catch statistics (provided that impact of water sector measures can be distinguished from other impacts)	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

Unspecified Regional Programmes

Ref : **EA 006**

Cluster :	Environment and Aquatic Resources	Region(s) :	All
Focus/Foci :	General Environmental Responsibilities	Location :	Nationwide
Start Year ¹ :	2005 Duration ² : 15 year(s)	Agency(s) Responsible :	WARPO (Lead) DoE, DoFish, DoForest, BWDB, LGED, RHD (Supporting)
Short Description :	The purpose of this programme is to ensure that provision is made for particular regional environmental concerns that are not well reflected in the other EA Programmes. This allows for comparatively small, but locally important issues to be dealt with according to regional priorities. This also implies regional (and down to village level) participation in identifying the concerns, which are therefore left non-specific at this stage.		

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

Finance					
	Costs	Private	Funding (%) GoB	Beneficiaries	Expected by ProgrammeYear
Total Capital ³	600.00 MTk	0%	100%	0%	15
Ultimate Recurring	19.30 MTk/yr	n/a	25%	75%	16

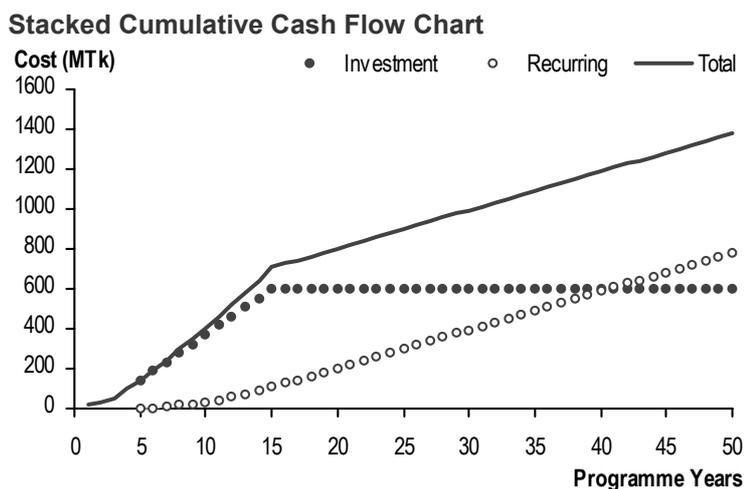
Date of Data : **31 07 01**
(dd) (mm) (yy)

Status : **Identified**

Financial Base Year: **mid-2000**

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

Actual Expenditure⁴ (to date) : **0** MTk



Monitoring

Objective	Indicator	Present Status ⁵
• 8 pilot projects (one per region) completed and evaluated	• Project evaluation reports	NYD
• Improvement in region-specific environmental characteristics	• Specific indicators and thresholds as appropriate	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

Environmentally Critical Areas and Integrated Wetland Management

Ref : **EA 008**

Cluster :	Environment and Aquatic Resources	Region(s) :	All
Focus/Foci :	Water Management for Eco-Sensitive Areas	Location :	Nationwide
Start Year ¹ :	2002	Duration ² :	23 year(s)
		Agency(s) Responsible :	DoE (Lead) WARPO, LGIs (Supporting)
Short Description :	The country's aquatic habitat is rapidly shrinking as a result of abstractions (especially for irrigation); flood control and agricultural encroachment. And deteriorating water quality exacerbates the problems. Supported by other measures, safeguarding the water resources of the nation's water bodies is necessary to arrest the trend and provide for both the human and the natural environments (eg health, nutrition, livelihoods, fish and broader biodiversity). This programme is intended to provide the necessary protection and sustainable use measures in the water sector as part of a wider integrated wetlands management (IWM) programme.		

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

Finance				Funding (%)	Expected by
	Costs	Private	GoB	Beneficiaries	ProgrammeYear
Total Capital ³	800.00 MTk	0%	100%	0%	23
Ultimate Recurring	15.00 MTk/yr	n/a	50%	50%	24
Date of Data :	31	07	01	Stacked Cumulative Cash Flow Chart	
	(dd)	(mm)	(yy)		
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
• Water requirements defined and/or refined	• Thresholds • Status of indicator species	NYD
• Regulatory framework for environmentally critical areas	• The regulations • Number of voluntary agreements concluded • Number of prosecutions	NYD
• Integrated wetland management	• Status of indicator species • Extent and duration of wetlands	NYD
• Improved levels of protection extended to existing and new environmentally critical areas	• New regulations gazetted • Number of new environmentally critical areas gazetted	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

8 Rivers and Estuaries

8.1 *Regional Overview*

This is a new region that was previously not included in either the MPO (Master Plan Organisation) or FAP studies. Its 8,600km² cover the floodplains of the three major rivers and the Meghna Estuary. Its 5.8M population lead a precarious existence in these highly active floodplains, where heavy flooding is an annual event. Living standards are low. Erosion along the banks of the major rivers is a major problem, and attempts to train the rivers have often proved difficult and expensive. Low cost solutions have been piloted under FAP, and the results of these need to be taken into account in formulating future strategies.

Bridges have been constructed across the Ganges (Hardinge) and the Brahmaputra (Bangabandhu), and much valuable experience has been gained from these. A second bridge on the Ganges at Paksey is about to be constructed, and one across the Padma is under study.

Cyclone risks are high in the islands of the Meghna Estuary, and land erosion and accretion are widespread there. Apart from the improvement of water supply and sanitation and the wider consideration of long-term sharing arrangements of these transboundary rivers, the main issues in the RE Region to be tackled in the NWMP are:

- An affordable long-term strategy for erosion protection of the main rivers
- An affordable long-term strategy for regional augmentation from the main rivers
- Flood proofing in the Brahmaputra, Ganges and Padma river charlands
- Improved cyclone protection in the Meghna Estuary
- Flood protection on newly accreted lands in the Meghna Estuary, where these have had long enough to build up sufficient height through alluvial deposition.
- The arsenic problem, although this is less severe than in adjoining mainland areas along the rivers.

8.2 *Programmes for the Rivers and Estuaries*

Seventeen programmes will involve the rivers and estuaries. They will address major river abstraction; hydropower development and upgrading; flood proofing and coastal protection.

Institutions and agencies involved in the North West Programmes will include:

- BWDB
- LGED
- WARPO
- PDB
- Newly created agencies
- DMB

Cost estimates for the Rivers and Estuary programmes are provided in Table 8.1

Table 8.1: Cost Estimates for the Rivers and Estuary Programmes

MIS Ref	Title	COSTS (Tk M mid 2000)				
		ST	MT	LT	Residual	TOTAL
Exclusive to Region						
MR 002	Main Rivers Abstraction Projects	448.0	2,240.0	1,792.0	-	4,480.0
MR 003	Ganges Barrage and Ancillary Works	4,900.0	-	45,958.0	-	50,858.0
MR 004	Meghna Barrage and Ancillary Works	-	-	15,728.0	-	15,728.0
MR 005	Brahmaputra Barrage and Ancillary Works	-	-	51,473.1	35,499.9	86,973.0
MR 010	Main Rivers Erosion Control at Selected Locations	-	3,440.0	12,900.0	-	16,340.0
MR 011	River Dredging for Navigation	177.0	975.0	390.0	-	1,542.0
Shared with other Regions						
MR 006	Regional River Management and Improvement	91.2	178.8	449.5	58.1	777.6
TR 001	Urban Arsenic Mitigation	27.9	-	-	-	27.9
TR 002	Rural Arsenic Mitigation	42.1	33.2	-	-	75.3
DM 003	Flood Proofing in the Charlands and Haor Basin	346.8	866.9	520.1	-	1,733.8
DM 006	Supplementary Irrigation and Drought Proofing of Rural Water Supplies	30.2	29.4	5.0	-	64.6
AW 001	Promotion of Expanded Minor Irrigation and Improved On-farm Water Managem	5.6	6.7	6.9	-	19.2
AW 005	Improved Water Management at Local Government Level	21.1	41.0	189.0	12.6	263.8
AW 006	Improved Water Management at Community Level	1.0	8.3	30.2	2.0	41.5
AW 008	Land Reclamation, Coastal Protection and Afforestation	50.4	122.9	413.4	-	586.7
EA 006	Unspecified Regional Programmes	-	17.7	57.3	-	75.0
EA 008	Environmentally Critical Areas and Integrated Wetland Management	1.0	2.0	6.1	-	9.1
TOTAL		6,142.1	7,961.9	129,918.7	35,572.6	179,595.4

Programmes Exclusive to the Region

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				Funding (%)	Expected by
	Costs	Private	GoB	Beneficiaries	ProgrammeYear
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 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 (to date) :	0 MTk				

Monitoring		
Objective	Indicator	Present Status⁵
• 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

Ganges Barrage and Ancillary Works

Ref : **MR 003**

Cluster :	Main Rivers	Region(s) :	SW, NW, SC and RE
Focus/Foci :	Major River Barrages	Location :	On the Ganges River, Western B'desh
Start Year ¹ :	2002	Duration ² :	15 year(s)
		Agency(s) Responsible :	BWDB (Lead) None (Supporting)
Short Description :	This Programme comprises the investment portion the diversion works associated with the integrated development of the water resource system in the GDA. Other aspects of the GDA development in Bangladesh are covered in other programmes under MR, AW, EA and ID. It has three main construction elements: (i) dredging and training works at the Gorai offtake to provide immediate additional flows for environmental purposes; (ii) a barrage across the Ganges to control dry season Ganges flows and provide substantially greater flows for multi-purpose use; and (iii) a Gorai headworks structure to control wet and dry season flows entering the GDA, enabling planned and manageable development to take place.		

MIS Links	Cost Calculation :	MR Programme costing.xls	Map :	MR 003 Map.jpg
	Disb't Schedule :	MR Programme costing.xls	Description :	MR 003 PgP.doc

Finance			Funding (%)		Expected by
	Costs	Private	GoB	Beneficiaries	ProgrammeYear
Total Capital ³	50,858.00 MTk	0%	100%	0%	15
Ultimate Recurring	1,394.00 MTk/yr	n/a	100%	0%	16
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				

Monitoring

Objective	Indicator	Present Status⁵
• Gorai river system restored	• Physical progress of capital works • Year round flows in the Gorai river	NYD
• Ganges barrage and Gorai offtake in place	• Physical progress of capital works • Year round flows in the Gorai river	NYD
• Increased dry season water availability in the GDA	• 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

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) Responsible :	BWDB (Lead) 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 (%)	Beneficiaries	Expected by ProgrammeYear
Total Capital ³	15,728.00	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
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
• 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

Brahmaputra Barrage and Ancillary Works

Ref : **MR 005**

Cluster :	Main Rivers	Region(s) :	NW, NC, NE, RE
Focus/Foci :	Major River Barrages	Location :	Barrage on Brahmaputra River
Start Year ¹ :	2016	Duration ² :	12 year(s)
		Agency(s) Responsible :	BWDB (Lead) None (Supporting)
Short Description :	The outcome of the study in MR 001 will determine a course of action for further development of the main river systems of the country. On the assumption that this leads to a decision to build a barrage to harness the Brahmaputra waters to meet national needs, this programme makes provision for a feasibility study of the identified option(s), detailed engineering and for the necessary investment in a barrage, headworks and ancillary works. Other programmes to develop the distribution systems and management capacity would complement this programme.		

MIS Links	Cost Calculation :	MR Programme costing.xls	Map :	MR 005 Map.jpg
	Disb't Schedule :	MR Programme costing.xls	Description :	MR 005 PgP.doc

Finance			Funding (%)		Expected by
	Costs	Private	GoB	Beneficiaries	ProgrammeYear
Total Capital ³	86,973.00 MTk	0%	100%	0%	12
Ultimate Recurring	2,078.80 MTk/yr	n/a	100%	0%	13
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
• Barrage and offtake in place	• Physical progress of capital works	NYD
• Increased dry season water availability in the NW and NC regions (and potentially the NE and SW)	• 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

Main Rivers Erosion Control at Selected Locations

Ref : **MR 010**

Cluster :	Main Rivers	Region(s) :	NW, NC, SE
Focus/Foci :	Erosion Control	Location :	NW, NC and SE Regions
Start Year ¹ :	2006	Duration ² :	25 year(s)
		Agency(s) Responsible :	BWDB (Lead) NGOs (Supporting)
Short Description :	River bank erosion is a major problem in all the main rivers. A review will be conducted under MR 001 to assess the experience gained in implementing river training works over the last decade since preparation of a Master Plan under FAP1. This review will look at all possibilities of minimising the socio-economic impacts of erosion and will formulate an updated strategy for dealing with the problem. This programme MR 010 provides for the subsequent investments to be determined by that strategy.		

MIS Links	Cost Calculation :	MR Programme costing.xls	Map :	MR 010 Map.jpg
	Disb't Schedule :	MR Programme costing.xls	Description :	MR 010 PgP.doc

Finance						
	Costs	Private	Funding (%)	Beneficiaries	Expected by	
			GoB		ProgrammeYear	
Total Capital ³	21,500.00 MTk	0%	100%	0%		25
Ultimate Recurring	1,075.00 MTk/yr	n/a	75%	25%		26
Date of Data :	31	07	01	Stacked Cumulative Cash Flow Chart		
	(dd)	(mm)	(yy)			
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
• Impacts of river erosion mitigated in the main rivers	• Project reports • Visual evidence	NYD
• Socio-economic impacts of erosion minimised	• Independent surveys	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

River Dredging for Navigation

Ref : **MR 011**

Cluster :	Main Rivers	Region(s) :	All
Focus/Foci :	In-stream Interests	Location :	Selected locations on the major rivers
Start Year ¹ :	2002	Duration ² :	10 year(s)
		Agency(s) Responsible :	IWTA (Lead) BWDB (Supporting)
Short Description :	This Programme seeks to restore the IWT waterways in a cost-effective manner, with a structured approach recognising both the technical and management issues that have to be overcome. A comprehensive national dredging management plan would be prepared covering short to long-term dredging requirements, as well as dredger operations and the role of the private sector. The programme also makes provision for both capital dredging of the major rivers, much of it being deferred maintenance, and maintenance dredging thereafter. Dredging of other waterways is included in MR 006.		

MIS Links	Cost Calculation :	MR Programme costing.xls	Map :	MR 011 Map.jpg
	Disb't Schedule :	MR Programme costing.xls	Description :	MR 011 PgP.doc

Finance				Funding (%)	Expected by	
		Costs	Private	GoB	Beneficiaries	ProgrammeYear
Total Capital ³	1,542.00	MTk	0%	100%	0%	10
Ultimate Recurring	116.70	MTk/yr	n/a	75%	25%	11
Date of Data :	31	07	01	Stacked Cumulative Cash Flow Chart		
	(dd)	(mm)	(yy)			
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
• Comprehensive management plan for physical works and institutional measures	• Physical programmes agreed with BWDB • Report agreed by GoB	NYD
• Achievement of capital and annual maintenance plans	• Audited reports • Evaluation reports	NYD
• Cost effective maintenance of navigation routes	• Records of length, draft and duration maintained vs expenditure	NYD
• Navigation traffic enabled	• Surveys and revenues	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

Programmes Shared with Other Region(s)

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				Funding (%)	Expected by
	Costs	Private	GoB	Beneficiaries	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	Stacked Cumulative Cash Flow Chart			
	(dd) (mm) (yy)				
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
• Integrated river management plans	• Plan documents approved	NYD
• Sustainable river development and management works	• Physical progress	NYD
	• Effective operation and maintenance	
	• Independent surveys of end users	

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

Urban Arsenic Mitigation

Ref : **TR 001**

Cluster :	Towns and Rural Areas	Region(s) :	NW, NC, NE, SW, SC, SE, EH
Focus/Foci :	Arsenic Mitigation	Location :	NW, NC, NE, SW, SC, SE, & EH regions
Start Year ¹ :	2001 Duration ² : 4 year(s)	Agency(s) Responsible :	Paurashavas (Lead) CBOs (Supporting)
Short Description :	Arsenic contamination of groundwater water supplies has become a serious health hazard in Bangladesh affecting some 30 million people. This is recognised by NWPo §4.06a of the NWPo which requires the Government to “facilitate availability of safe...drinking water through various means”. This programme will provide short term arsenic mitigation measures for water supplies (such as arsenic filters and household removal facilities in all urban areas except those comprising the Statistical Metropolitan Areas (See the Major City cluster). More permanent measures will be introduced in the medium and long terms (see Programme TR 003).		

MIS Links	Cost Calculation :	TR Programme costing.xls	Map :	TR 001 Map.jpg
	Disb't Schedule :	TR Programme costing.xls	Description :	TR 001 PgP.doc

Finance					
	Costs	Private	Funding (%) GoB	Beneficiaries	Expected by ProgrammeYear
Total Capital ³	439.00 MTk	0%	85%	15%	4
Ultimate Recurring	216.90 MTk/yr	n/a	0%	100%	5
Date of Data :	31 07 01	Stacked Cumulative Cash Flow Chart			
	(dd) (mm) (yy)				
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
• Procurement and installation programmes prepared	• Signed programme/project documents	NYD
• Procurement and installation programmes complete	• Programme/Project completion reports	NYD
	• Household surveys	
• Arsenic free potable water available to 100% of large and small town populations	• Water quality	NYD
	• Community health records	

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

Rural Arsenic Mitigation

Ref : **TR 002**

Cluster :	Towns and Rural Areas	Region(s) :	NW, NC, NE, SW, SC, SE, EH
Focus/Foci :	Arsenic Mitigation	Location :	NW, NC, NE, SW, SC, SE, & EH regions
Start Year ¹ :	2001	Duration ² :	9 year(s)
		Agency(s) :	DPHE (Lead)
		Responsible :	CBOs (Supporting)
Short Description :	Arsenic contamination of groundwater water supplies has become a serious health hazard in Bangladesh affecting some 76 million people. This is recognised by NWPo §4.06a of the NWPo which requires the Government to “facilitate availability of safe...drinking water through various means”. This programme will provide short term and medium term arsenic mitigation measures for water supplies (such as arsenic filters and household removal facilities in all rural. More permanent measures will be introduced in the long term (See Programme TR 004) .		

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

Finance					
	Costs	Private	Funding (%) GoB	Beneficiaries	Expected by ProgrammeYear
Total Capital ³	1,185.00 MTk	0%	85%	15%	9
Ultimate Recurring	585.40 MTk/yr	n/a	0%	100%	10
Date of Data :	31 07 01	Stacked Cumulative Cash Flow Chart			
	(dd) (mm) (yy)				
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
• Procurement and installation programmes prepared	• Signed programme/project documents	NYD
• Procurement and installation programmes complete	• Programme/Project completion reports	NYD
	• Household/community surveys	
• Arsenic free potable water available to 100% of rural population	• Water quality	NYD
	• Community health records	

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

Flood Proofing in the Charlands and Haor Basin

Ref : **DM 003**

Cluster :	Disaster Management	Region(s) :	NW, NE, RE
Focus/Foci :	Flood Proofing	Location :	NW, NE, & RE regions
Start Year ¹ :	2003	Duration ² :	10 year(s)
		Agency(s) Responsible :	NGOs (Lead) LGED (Supporting)
Short Description :	§4.2.o of the NWPo requires the Government, through it's responsible agencies, to develop flood proofing systems to manage natural disasters, and clause p of the same section requires that appropriate measures are provided, in designated flood risk zones, to protect life, property and vital infrastructure etc. This programme is concerned with providing proven cost effective technologies for flood proofing such as encouraging raised dwellings and the construction of communal flood shelters.		

MIS Links	Cost Calculation :	DM Programme costing.xls	Map :	DM 003 Map.jpg
	Disb't Schedule :	DM Programme costing.xls	Description :	DM 003 PgP.doc

Finance					
	Costs	Private	Funding (%)	Expected by	
			GoB	Beneficiaries	ProgrammeYear
Total Capital ³	2,599.40 MTk	0%	100%	0%	10
Ultimate Recurring	130.00 MTk/yr	n/a	0%	100%	11
Date of Data :	31	07	01	Stacked Cumulative Cash Flow Chart	
	(dd)	(mm)	(yy)		
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
• Quantitative needs assessment	• Needs assessment reports	NYD
• Modalities accepted	• Signed agreements	NYD
• Programme documents prepared	• Programme documents	NYD
• Programmes underway	• Signed contracts/work orders	NYD
• 3,500,000 charland and haor basin inhabitants in flood proofed dwellings	• Actual number of charland and haor basin inhabitants in flood proofed dwellings	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

Supplementary Irrigation and Drought Proofing of Rural Water Supplies

Ref : **DM 006**

Cluster :	Disaster Management	Region(s) :	All
Focus/Foci :	Drought Proofing	Location :	Nationwide but emphasising NW, NC, SE, SW, SC
Start Year : ¹	2002	Duration ² :	10 year(s)
Short Description :	This programme aims to promote supplementary irrigation during the drought-prone aman season, as well as including efforts to drought-proof rural water supplies.		
	Agency(s) Responsible :	DAE	(Lead)
		None	(Supporting)

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

Finance				Funding (%)		Expected by
	Costs	Private	GoB	Beneficiaries	Programme	Year
Total Capital ³	1,041.40 MTk	0%	85%	15%		10
Ultimate Recurring	0.00 MTk/yr	n/a	n/a	n/a		n/a
Date of Data :	31	07	01	Stacked Cumulative Cash Flow Chart		
	(dd)	(mm)	(yy)			
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
• New Tara hand tubewells commissioned	• Physical number of new wells	NYD
• Increased area of aman rice under supplementary irrigation	• Areas planted	NYD
• Increased quality of life in target areas	• Return on family labour	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

Promotion of Expanded Minor Irrigation and Improved On-farm Water Management

Ref : **AW 001**

Cluster :	Agriculture and Water Management	Region(s) :	All
Focus/Foci :	Irrigation	Location :	Nationwide
Start Year ¹ :	2002	Duration ² :	15 year(s)
		Agency(s) Responsible :	DAE (Lead) None (Supporting)
Short Description :	It is the policy of the Government to "Encourage and promote continued development of minor irrigation" (NWPo §4.7.a) and to "Encourage future groundwater development for irrigation by both the public and the private sectors" (§4.7.b). With the ultimate goal of increased agricultural productivity, this programme involves the improvement of irrigation pumping efficiency, promotion of lower cost force-mode tubewell pumps, and a farmer education/training component to improve on-farm water management and the wise use of water		

MIS Links	Cost Calculation :	AW Programme costing.xls	Map :	AW 001 Map.jpg
	Disb't Schedule :	AW Programme costing.xls	Description :	AW 001 PgP.doc

Finance						
		Costs	Private	Funding (%)	Beneficiaries	Expected by ProgrammeYear
Total Capital ³	310.00	MTk	0%	85%	15%	15
Ultimate Recurring	7.20	MTk/yr	n/a	0%	100%	16
Date of Data :	31	07	01	Stacked Cumulative Cash Flow Chart		
	(dd)	(mm)	(yy)			
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
• Increased diesel pump engine efficiencies	• Sample tests	NYD
• Farmers adopt force mode pumpsets	• Farmer survey	NYD
• Irrigation water use efficiencies increased	• Sample tests	NYD
• Average return per unit of water increased in minor irrigation areas	• Household surveys and field measurements	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

Improved Water Management at Local Government Level

Ref : **AW 005**

Cluster :	Agriculture and Water Management	Region(s) :	All
Focus/Foci :	Water Management	Location :	Nationwide
Start Year ¹ :	2001	Duration ² :	24 year(s)
		Agency(s) Responsible :	LGED (Lead) None (Supporting)
Short Description :	Implementation of the NWPo will result in a four tiered civil-administrative hierarchy for the water sector: central, regional, local and community. The BWDB will remain responsible for water management issues as they affect or occur in the main and regional rivers. Equally, management of certain schemes below 5000ha will become the responsibility of community based organisations. Water courses, whether natural or man-made, that will be the management responsibility of neither BWDB nor community organisations will become the responsibility of LGI's. Furthermore, actual ownership of all schemes except municipal water schemes will be transferred to the LGI's. This programme is intended to rehabilitate, upgrade and restore as appropriate, the water courses involved as well as to provide the LGI's with the necessary appurtenant equipment and facilities.		

MIS Links	Cost Calculation :	AW Programme costing.xls	Map :	AW 005 Map.jpg
	Disb't Schedule :	AW Programme costing.xls	Description :	AW 005 PgP.doc

Finance				Funding (%)	Expected by
	Costs	Private	GoB	Beneficiaries	ProgrammeYear
Total Capital ³	5,495.00 MTk	0%	85%	15%	24
Ultimate Recurring	156.00 MTk/yr	n/a	25%	75%	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 Status ⁵
• Sustainable management and ownership models in place	• Reports • Legal instruments	NYD
• Local rivers, feeder canals and main drains transferred to LGI's for management/ownership as per policy	• Instruments of transfer ratified and promulgated • Title deeds	NYD
• Local rivers, feeders canals and main drains restored, rehabilitated, upgraded as appropriate	• Project completion reports • Physical surveys • Hydrological records	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

Improved Water Management at Community Level

Ref : **AW 006**

Cluster :	Agriculture and Water Management	Region(s) :	All
Focus/Foci :	Water Management	Location :	Nationwide
Start Year ¹ :	2001	Duration ² :	24 year(s)
		Agency(s) Responsible :	LGED (Lead) LGIs, DAE (Supporting)
Short Description :	Implementation of the NWPo will result in a four tiered civil-administrative hierarchy for the water sector: central, regional, local and community. The BWDB will remain responsible for water management issues as they affect or occur in the main and regional rivers. Local rivers and scheme delivery systems will become the management (and in some cases property) of LGI's while management of certain schemes below 5000ha will become the responsibility of community based organisations. This programme is intended to rehabilitate, upgrade and restore as appropriate, the water courses and field distribution/collection systems involved as well as to assist in providing with the necessary appurtenant equipment and facilities.		

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

Finance				Funding (%)	Expected by
	Costs	Private	GoB	Beneficiaries	ProgrammeYear
Total Capital ³	865.00 MTk	0%	15%	85%	24
Ultimate Recurring	24.60 MTk/yr	n/a	0%	100%	26
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				

Monitoring

Objective	Indicator	Present Status ⁵
• Effective community based water management organisations	• Field evaluations	NYD
• Khals re-excavated over 10,000ha	• Physical survey	NYD
• Sustainable sub-secondary water use efficiencies of 60% for paddy and 75% for dryfoot crops	• Field tests	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

Land Reclamation, Coastal Protection and Afforestation

Ref :

AW 008

Cluster :	Agriculture and Water Management	Region(s) :	RE, SC, SE, EH
Focus/Foci :	Coastal Protection	Location :	Regions RE, SC, SE, EH
Start Year ¹ :	2001	Duration ² :	24 year(s)
		Agency(s) Responsible :	BWDB (Lead) DoForest (Supporting)
Short Description :	NWPo Article 4.2(r) states that the Government will "Plan and implement schemes for reclamation of land from the sea and rivers". In line with this Article, studies will be undertaken for reclamation of land from estuary region and sea. The NWPo also recognises the importance of coastal embankments/polders with the statement that it is the policy of the government to "Investigate thoroughly, important flood control and management issues, such as the efficacy of coastal polders, for guiding future policy on structural interventions." (§4.15.c). Another purpose of this programme is to embank and where necessary provide arborial protection to accreted land thereby protecting life/property/livelihoods from tides, or scend.		

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

Finance				Funding (%)	Expected by
	Costs	Private	GoB	Beneficiaries	ProgrammeYear
Total Capital ³	5,866.90 MTk	0%	100%	0%	24
Ultimate Recurring	201.00 MTk/yr	n/a	15%	85%	26
Date of Data :	31	07	01	Stacked Cumulative Cash Flow Chart	
	(dd)	(mm)	(yy)		
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
• Coastal protection programme prepared and agreed	• The programme document • Formal agreements	NYD
• 1550km ² of new coastal land protected	• On site verification	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

Unspecified Regional Programmes

Ref : **EA 006**

Cluster :	Environment and Aquatic Resources	Region(s) :	All
Focus/Foci :	General Environmental Responsibilities	Location :	Nationwide
Start Year ¹ :	2005 Duration ² : 15 year(s)	Agency(s) Responsible :	WARPO (Lead) DoE, DoFish, DoForest, BWDB, LGED, RHD (Supporting)
Short Description :	The purpose of this programme is to ensure that provision is made for particular regional environmental concerns that are not well reflected in the other EA Programmes. This allows for comparatively small, but locally important issues to be dealt with according to regional priorities. This also implies regional (and down to village level) participation in identifying the concerns, which are therefore left non-specific at this stage.		

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

Finance					
	Costs	Private	Funding (%) GoB	Beneficiaries	Expected by ProgrammeYear
Total Capital ³	600.00 MTk	0%	100%	0%	15
Ultimate Recurring	19.30 MTk/yr	n/a	25%	75%	16

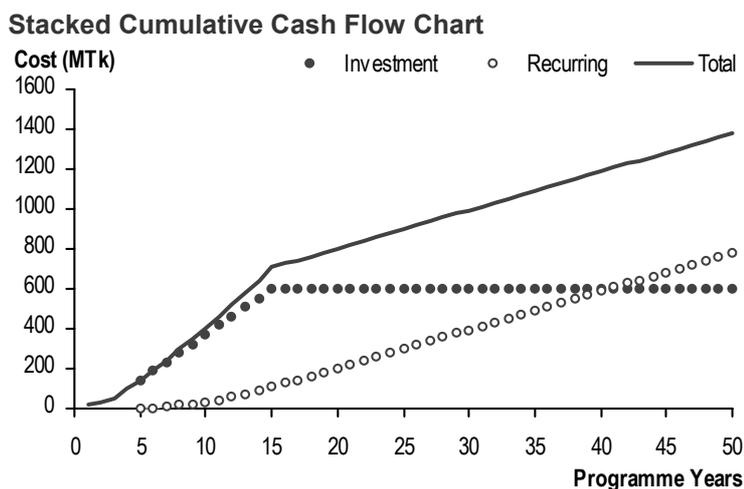
Date of Data : **31 07 01**
(dd) (mm) (yy)

Status : **Identified**

Financial Base Year: **mid-2000**

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

Actual Expenditure⁴ (to date) : **0** MTk



Monitoring

Objective	Indicator	Present Status ⁵
• 8 pilot projects (one per region) completed and evaluated	• Project evaluation reports	NYD
• Improvement in region-specific environmental characteristics	• Specific indicators and thresholds as appropriate	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

Environmentally Critical Areas and Integrated Wetland Management

Ref : **EA 008**

Cluster :	Environment and Aquatic Resources	Region(s) :	All
Focus/Foci :	Water Management for Eco-Sensitive Areas	Location :	Nationwide
Start Year ¹ :	2002	Duration ² :	23 year(s)
		Agency(s) Responsible :	DoE (Lead) WARPO, LGIs (Supporting)
Short Description :	The country's aquatic habitat is rapidly shrinking as a result of abstractions (especially for irrigation); flood control and agricultural encroachment. And deteriorating water quality exacerbates the problems. Supported by other measures, safeguarding the water resources of the nation's water bodies is necessary to arrest the trend and provide for both the human and the natural environments (eg health, nutrition, livelihoods, fish and broader biodiversity). This programme is intended to provide the necessary protection and sustainable use measures in the water sector as part of a wider integrated wetlands management (IWM) programme.		

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

Finance				Funding (%)	Expected by
	Costs	Private	GoB	Beneficiaries	ProgrammeYear
Total Capital ³	800.00 MTk	0%	100%	0%	23
Ultimate Recurring	15.00 MTk/yr	n/a	50%	50%	24
Date of Data :	31	07	01	Stacked Cumulative Cash Flow Chart	
	(dd)	(mm)	(yy)		
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
• Water requirements defined and/or refined	• Thresholds • Status of indicator species	NYD
• Regulatory framework for environmentally critical areas	• The regulations • Number of voluntary agreements concluded • Number of prosecutions	NYD
• Integrated wetland management	• Status of indicator species • Extent and duration of wetlands	NYD
• Improved levels of protection extended to existing and new environmentally critical areas	• New regulations gazetted • Number of new environmentally critical areas gazetted	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

9 Eastern Hills Region

9.1 *Regional Overview*

The Eastern Hills Region was not covered by the FAP studies. With an area of about 19,950km² and a population of 8.9M, it comprises two distinct sub-regions, the Chittagong Coastal Plain and the Chittagong Hill Tracts (CHT). Total NCA is 0.48Mha and average annual rainfall is about 2,400mm.

The CHT has no flooding problems and has some potential for small developments of drip irrigation for high value crops. There are also opportunities for mini-hydropower development. The prospects for large-scale hydropower are limited by environmental and social concerns. Other important issues in the CHT concern the improvement of rural and urban water supplies and sanitation and other water-related urban services in the small number of existing towns.

In the Chittagong Coastal Plain (CCP), the Chittagong conurbation (population 3M) has serious water supply, sanitation, pollution and other water-related problems. Cox's Bazar (0.25M) is the other main urban centre. The whole CCP is protected by an existing coastal embankment system (there is little other existing FCD infrastructure) and there is a thriving bagda shrimp and salt industry. Cyclone risks are high. This was the worst hit region in the 1991 cyclone. Irrigation is mainly by LLPs, STW irrigation being limited by groundwater salinity. There are some arsenic problems in the northern parts of the CCP, but these are less serious than in the neighbouring SE Region. Most of the CCP is water-short, especially with the general lack of useable groundwater. The scope for substantially increasing irrigation water availability is limited by the low dry season flows out of the CHT.

Apart from water-related services and pollution, major issues to be addressed in the NWMP include:

- Small-scale irrigation development in the CHT
- Mini-hydropower development in the CHT
- Improved cyclone protection in the CCP
- Maintenance of the existing coastal embankment system in the CCP

9.2 *Programmes for the Eastern Hills*

Twenty eight programmes will benefit the Eastern Hill Region of which twenty three are shared with other regions. Exclusive programmes will address Chittagong's pressing need for water supply, sanitation, sewerage, flood protection and stormwater drainage. Shared programmes will address hydropower development and upgrading; urban and rural arsenic mitigation; cyclone protection and coastal protection.

Institutions and agencies involved in the Eastern Hills Programmes will include:

- PDB
- LGI's
- CWASA
- BWDB
- CCC
- CDA
- LGED
- DMB

Cost estimates for the Eastern Hills Regional programmes are provided in Table 9.1

Table 9.1: Cost Estimates for the Eastern Hills Programmes

MIS Ref	Title	COSTS (Tk M mid 2000)				
		ST	MT	LT	Residual	TOTAL
Exclusive to Region						
MR 012	Hydropower Development and Upgrading	411.6	1,807.7	2,530.8	-	4,750.0
MC 003	Chittagong Bulk Water Supply and Distribution Systems	1,100.0	6,000.0	15,917.0	1,000.0	24,017.0
MC 007	Chittagong Sanitation and Sewerage Systems	450.0	3,550.0	9,479.0	500.0	13,979.0
MC 012	Chittagong Flood Protection	438.5	438.5	-	-	877.0
MC 013	Chittagong Stormwater Drainage	-	7,600.0	4,400.0	-	12,000.0
Shared with other Regions						
ID 003	FCD and FCD/I Management Rationalisation	5.5	7.5	-	-	13.0
MR 006	Regional River Management and Improvement	85.5	167.6	421.4	54.5	729.0
TR 001	Urban Arsenic Mitigation	4.7	-	-	-	4.7
TR 002	Rural Arsenic Mitigation	7.0	5.5	-	-	12.6
TR 003	Large and Small Town Water Supply and Distribution Systems	224.1	1,210.1	2,335.5	179.3	3,948.9
TR 004	Rural Water Supply and Distribution Systems	529.2	1,671.3	1,795.8	139.3	4,135.6
TR 005	Large and Small Town Sanitation and Sewerage Systems	224.1	555.7	2,258.3	89.6	3,127.8
TR 006	Rural Sanitation	306.4	821.7	577.8	55.7	1,761.7
TR 007	Large and Small Town Flood Protection	216.0	475.2	523.9	81.0	1,296.1
TR 008	Large and Small Town Stormwater Drainage	537.8	1,613.4	3,047.6	537.8	5,736.7
DM 001	Cyclone Shelters and Killas	556.1	926.8	1,297.5	-	2,780.4
DM 002	Bari-level Cyclone Shelters	26.4	101.3	309.3	54.2	491.2
DM 006	Supplementary Irrigation and Drought Proofing of Rural Water Supplies	16.1	15.7	2.6	-	34.4
AW 001	Promotion of Expanded Minor Irrigation and Improved On-farm Water Managem	3.0	3.6	3.7	-	10.2
AW 002	Improved Performance of Existing Public Surface Water Irrigation Schemes	5.1	25.5	71.4	-	102.0
AW 003	New Public Surface Water Irrigation Schemes	-	326.7	653.3	-	980.0
AW 005	Improved Water Management at Local Government Level	19.8	38.5	177.2	11.8	247.3
AW 006	Improved Water Management at Community Level	0.9	7.8	28.4	1.9	38.9
AW 007	Rationalisation of Existing FCD Infrastructure	-	9.1	136.8	68.8	214.7
AW 008	Land Reclamation, Coastal Protection and Afforestation	75.6	184.3	620.2	-	880.0
EA 005	National Fish Pass Programme	4.0	10.0	16.0	-	30.0
EA 006	Unspecified Regional Programmes	-	17.7	57.3	-	75.0
EA 008	Environmentally Critical Areas and Integrated Wetland Management	24.9	51.9	155.7	-	232.5
TOTAL		5,272.3	27,643.2	46,816.3	2,774.0	82,505.7

Programmes Exclusive to the Region

Hydropower Development and Upgrading

Ref : **MR 012**

Cluster :	Main Rivers	Region(s) :	EH, NE, NW
Focus/Foci :	Hydropower	Location :	EH, NE, and NW regions
Start Year ¹ :	2002	Duration ² :	15 year(s)
		Agency(s) Responsible :	PDB (Lead) Private Sector (Supporting)
Short Description :	The purpose of this programme is to review in detail the potential for further investment in HEP, identify suitable modalities of development and provide for the necessary downstream investment. The study would focus on: expansion of Kaptai generation capacity; integrated development of the Sangu and Matamuhuri rivers for hydropower generation and other uses; power generation at barrages; and micro-HEP schemes. Micro-HEP appears particularly worthy of pursuit, especially in more remote areas, such as in the CHT, where early exploitation of local resources of power generation could bring high social benefit.		

MIS Links	Cost Calculation :	MR Programme costing.xls	Map :	MR 012 Map.jpg
	Disb't Schedule :	MR Programme costing.xls	Description :	MR 012 PgP.doc

Finance				Funding (%)	Expected by
	Costs	Private	GoB	Beneficiaries	ProgrammeYear
Total Capital ³	4,750.00 MTk	0%	100%	0%	15
Ultimate Recurring	235.00 MTk/yr	n/a	0%	100%	16
Date of Data :	31	07	01	Stacked Cumulative Cash Flow Chart	
	(dd)	(mm)	(yy)		
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
• Comprehensive management plan for physical works and institutional measures	• Physical programmes agreed with BWDB • Report agreed by GoB	NYD
• Cost-effective project implementation	• Project reports • Audit reports	NYD
• Profitable hydropower generation	• Project records • Audit reports	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

Chittagong Bulk Water Supply and Distribution Systems

Ref :

MC 003

Cluster :	Major Cities	Region(s) :	EH
Focus/Foci :	Water Supplies	Location :	Chittagong City
Start Year ¹ :	2002	Duration ² :	24 year(s)
		Agency(s) Responsible :	CWASA (Lead) None (Supporting)
Short Description :	Water allocation for domestic and municipal use is the first priority under the NWPo. This programme, which responds to both the NWPo and the National Policy for Safe Water Supply and Sanitation (NPSWSS), aims to address the need for "...safe and affordable drinking water supplies through various means..." for all inhabitants, especially the urban poor (NWPo §4.6.a). The population of Chittagong is expected to more than double over the next 25 years, from 2.5 million in 2000 to 6.1 million in 2025. At present, only 55% of the population is served by the main public water supply system, the rest being dependant on unreliable and increasingly polluted local sources. This programme deals with the massive task of rehabilitation, improvement and extension of the city's water supply systems in order to raise coverage levels to 95% by 2010, and then to sustain it at 100% beyond that date. It will be accomplished through the development of new water sources, improvement and expansion of the existing DTW-fed system, and the introduction of safe hand-pumps fed by small		

MIS Links	Cost Calculation :	MC Programme costing.xls	Map :	MC 003 Map.jpg
	Disb't Schedule :	MC Programme costing.xls	Description :	MC 003 PgP.doc

Finance				Funding (%)	Expected by	
		Costs	Private	GoB	Beneficiaries	ProgrammeYear
Total Capital ³	24,017.00	MTk	30%	65%	5%	24
Ultimate Recurring	3,059.20	MTk/yr	n/a	50%	50%	26
Date of Data :	31	07	01	Stacked Cumulative Cash Flow Chart		
	(dd)	(mm)	(yy)	Cost (MTk)	● Investment	○ Recurring
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
• Uncollected water fees reduced to 10% of due	• CWASA records	NYD
• Sustainable operation and maintenance of city water supply systems	• Frequency of service breaks • Response times	NYD
• Reduced incidence of water borne or water related disease	• Public health records • Water quality	NYD
• 100% of Chittagong's population have access to formal water supplies	• Survey Reports	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

Chittagong Sanitation and Sewerage Systems

Ref : **MC 007**

Cluster :	Major Cities	Region(s) :	EH
Focus/Foci :	Sanitation	Location :	Chittagong City
Start Year ¹ :	2002	Duration ² :	24 year(s)
		Agency(s) Responsible :	CWASA (Lead) None (Supporting)
Short Description :	The NWPo "mandates relevant public water and sewerage institutions to provide necessary drainage and sanitation, including treatment of domestic wastewater and sewage and replacement of open drains and construction of sewers, in the interest of public health." (§4.6.c). The population of Chittagong is expected to more than double over the next 25 years, from 2.5 million in 2000 to 6.1 million in 2025. At present, about 52% of the population is adequately served by sanitation facilities, mainly by pit latrines with/without septic tanks. Only one part of the city is served by a smallbore sewerage system which is in poor condition. There is no conventional waterborne sewerage system. In the slums and other disadvantaged areas, more than 95% are dependant on 'hanging latrines' and open defecation which exacerbates pollution and public health problems and increases the likelihood of epidemic outbreaks of waterborne and water-related diseases. This programme aims to raise and sustain appropriate service coverage to 100% of Chittagong inhabitants by 2010.		

MIS Links	Cost Calculation :	MC Programme costing.xls	Map :	MC 007 Map.jpg
	Disb't Schedule :	MC Programme costing.xls	Description :	MC 007 PgP.doc

Finance				Funding (%)	Expected by
	Costs	Private	GoB	Beneficiaries	ProgrammeYear
Total Capital ³	13,979.00 MTk	20%	75%	5%	24
Ultimate Recurring	1,331.30 MTk/yr	n/a	50%	50%	26
Date of Data :	31 07 01	Stacked Cumulative Cash Flow Chart			
	(dd) (mm) (yy)				
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
• Sustainable operation and maintenance of town sanitation systems	• Frequency of service break downs • Response times	NYD
• Reduced environmental pollution	• Faecal coliform counts	NYD
• Improved public health	• Public health statistics	NYD
• 100% of Chittagong's population have access to sanitation facilities	• Survey reports	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

Chittagong Flood Protection

Ref : **MC 012**

Cluster :	Major Cities	Region(s) :	EH
Focus/Foci :	Flood Protection	Location :	Chittagong City
Start Year ¹ :	2003	Duration ² :	4 year(s)
		Agency(s) Responsible :	BWDB (Lead) CWASA, CCC (Supporting)
Short Description :	NWPo states that "Regions of economic importance such as metropolitan areas,...will be fully protected against floods as a matter of first priority" (§4.2.p.i). The low areas of Chittagong city are vulnerable to flooding during cyclones and spring tides. Local flooding is also caused by heavy rainfall and poor internal drainage. This programme is to provide an embankment or flood wall on the Karnaphuli River banks, proper maintenance of the existing sea dyke along with construction of new wave protection works, drainage sluices etc. In addition, this programme provides for the installation of pumps for selected areas and maintenance of internal drains. The short to medium term beneficiaries of the programme will comprise some 3.1 million estimated to be at risk of the cyclone threat once every forty years or less.		

MIS Links	Cost Calculation :	MC Programme costing.xls	Map :	MC 012 Map.jpg
	Disb't Schedule :	MC Programme costing.xls	Description :	MC 012 PgP.doc

Finance				Funding (%)	Expected by	
		Costs	Private	GoB	Beneficiaries	ProgrammeYear
Total Capital ³	877.00	MTk	0%	100%	0%	4
Ultimate Recurring	78.90	MTk/yr	n/a	85%	15%	5
Date of Data :	31	07	01	Stacked Cumulative Cash Flow Chart		
	(dd)	(mm)	(yy)	Cost (MTk)	● Investment	○ Recurring
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
• Chittagong Flood protection programme prepared and agreed	• Signed programme/project documents	NYD
• Chittagong Flood protection programme implemented	• Programme/project completion reports	NYD
• Chittagong protected from 1:100 year flood	• Physical evidence and hydrological data	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

Chittagong Stormwater Drainage

Ref : **MC 013**

Cluster :	Major Cities	Region(s) :	EH
Focus/Foci :	Stormwater Drainage	Location :	Chittagong City
Start Year ¹ :	2005	Duration ² :	15 year(s)
		Agency(s) Responsible :	CWASA (Lead) None (Supporting)
Short Description :	NWPo states that "Regions of economic importance such as metropolitan areas,...will be fully protected against floods as a matter of first priority" (§4.2.p.i) The progressive expansion and urbanization of Chittagong City increases the need for storm drainage as the increase in paved surfaces hastens runoff rates and reduces infiltration thereby causing urban flooding. Each heavy rainstorm causes inconvenience and sometimes major damage and disruption as a result of ineffective or inadequate drainage. This programme will mitigate Chittagongs' stormwater drainage problem by providing a properly planned, comprehensive drainage system ranging from collection of water at local street level to disposal of accumulated drainage water at pump stations.		

MIS Links	Cost Calculation :	MC Programme costing.xls	Map :	MC 013 Map.jpg
	Disb't Schedule :	MC Programme costing.xls	Description :	MC 013 PgP.doc

Finance			Funding (%)		Expected by
	Costs	Private	GoB	Beneficiaries	ProgrammeYear
Total Capital ³	12,000.00 MTk	0%	100%	0%	15
Ultimate Recurring	1,200.00 MTk/yr	n/a	85%	15%	16
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				

Monitoring

Objective	Indicator	Present Status ⁵
• Chittagong Stormwater drainage programme prepared and agreed	• Signed programme/project documents	NYD
• Chittagong Stormwater drainage programme implemented	• Programme/project completion reports	NYD
• Chittagong served by stormwater drainage facilities	• Survey reports	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

Programmes Shared with Other Region(s)

FCD and FCD/I Management Rationalisation

Ref : **ID 003**

Cluster :	Institutional Development	Region(s) :	All
Focus/Foci :	Bangladesh Water Development Board	Location :	Nationwide
Start Year ¹ :	2002	Duration ² :	6 year(s)
		Agency(s) Responsible :	BWDB (Lead) None (Supporting)
Short Description :	This programme is intended to facilitate the transfer of FCD/I scheme management as per policy. Three steps will be involved. In the short term BWDB will receive capacity building with respect to environmental and social issues, while in consultation with the stakeholders a range of transfer options will be identified and prepared. Finally these options will be pilot tested at selected locations during the short and medium term.		

MIS Links	Cost Calculation :	ID Programme costing.xls	Map :	ID 003 Map.jpg
	Disb't Schedule :	ID Programme costing.xls	Description :	ID 003 PgP.doc

Finance						
		Costs	Private	Funding (%)	Beneficiaries	Expected by ProgrammeYear
Total Capital ³	1,300.00	MTk	0%	85%	15%	6
Ultimate Recurring	25.20	MTk/yr	n/a	50%	50%	7
Date of Data :	31	07	01	Stacked Cumulative Cash Flow Chart		
	(dd)	(mm)	(yy)	Cost (MTk)	● Investment	○ Recurring
Status :	Identified					
Financial Base Year:	mid-2000					
Planned Expenditure (to date) :	MTk					
Actual Expenditure ⁴ (to date) :	MTk					

Monitoring

Objective	Indicator	Present Status ⁵
• Reduction in the number of schemes directly managed by BWDB	• Nationwide FCD(/I) statistics	NYD
• Increase in funds for O&M after turnover of scheme	• Scheme accounts	NYD
• 75% of decentralised FCD/I schemes considered sustainable within 10 years of transfer	• National FCD/I scheme statistics	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

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				Funding (%)	Expected by
	Costs	Private	GoB	Beneficiaries	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	Stacked Cumulative Cash Flow Chart			
	(dd) (mm) (yy)				
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
• Integrated river management plans	• Plan documents approved	NYD
• Sustainable river development and management works	• Physical progress	NYD
	• Effective operation and maintenance	
	• Independent surveys of end users	

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

Urban Arsenic Mitigation

Ref : **TR 001**

Cluster :	Towns and Rural Areas	Region(s) :	NW, NC, NE, SW, SC, SE, EH
Focus/Foci :	Arsenic Mitigation	Location :	NW, NC, NE, SW, SC, SE, & EH regions
Start Year ¹ :	2001 Duration ² : 4 year(s)	Agency(s) Responsible :	Paurashavas (Lead) CBOs (Supporting)
Short Description :	Arsenic contamination of groundwater water supplies has become a serious health hazard in Bangladesh affecting some 30 million people. This is recognised by NWPo §4.06a of the NWPo which requires the Government to “facilitate availability of safe...drinking water through various means”. This programme will provide short term arsenic mitigation measures for water supplies (such as arsenic filters and household removal facilities in all urban areas except those comprising the Statistical Metropolitan Areas (See the Major City cluster). More permanent measures will be introduced in the medium and long terms (see Programme TR 003).		

MIS Links	Cost Calculation :	TR Programme costing.xls	Map :	TR 001 Map.jpg
	Disb't Schedule :	TR Programme costing.xls	Description :	TR 001 PgP.doc

Finance					
	Costs	Private	Funding (%) GoB	Beneficiaries	Expected by ProgrammeYear
Total Capital ³	439.00 MTk	0%	85%	15%	4
Ultimate Recurring	216.90 MTk/yr	n/a	0%	100%	5
Date of Data :	31 07 01	Stacked Cumulative Cash Flow Chart			
	(dd) (mm) (yy)				
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
• Procurement and installation programmes prepared	• Signed programme/project documents	NYD
• Procurement and installation programmes complete	• Programme/Project completion reports	NYD
	• Household surveys	
• Arsenic free potable water available to 100% of large and small town populations	• Water quality	NYD
	• Community health records	

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

Rural Arsenic Mitigation

Ref : **TR 002**

Cluster :	Towns and Rural Areas	Region(s) :	NW, NC, NE, SW, SC, SE, EH
Focus/Foci :	Arsenic Mitigation	Location :	NW, NC, NE, SW, SC, SE, & EH regions
Start Year ¹ :	2001	Duration ² :	9 year(s)
		Agency(s) :	DPHE (Lead)
		Responsible :	CBOs (Supporting)
Short Description :	Arsenic contamination of groundwater water supplies has become a serious health hazard in Bangladesh affecting some 76 million people. This is recognised by NWPo §4.06a of the NWPo which requires the Government to “facilitate availability of safe...drinking water through various means”. This programme will provide short term and medium term arsenic mitigation measures for water supplies (such as arsenic filters and household removal facilities in all rural. More permanent measures will be introduced in the long term (See Programme TR 004) .		

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

Finance					
	Costs	Private	Funding (%)	Expected by	
			GoB	Beneficiaries	ProgrammeYear
Total Capital ³	1,185.00 MTk	0%	85%	15%	9
Ultimate Recurring	585.40 MTk/yr	n/a	0%	100%	10
Date of Data :	31 07 01	Stacked Cumulative Cash Flow Chart			
	(dd) (mm) (yy)				
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
• Procurement and installation programmes prepared	• Signed programme/project documents	NYD
• Procurement and installation programmes complete	• Programme/Project completion reports	NYD
	• Household/community surveys	
• Arsenic free potable water available to 100% of rural population	• Water quality	NYD
	• Community health records	

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

Large and Small Town Water Supply and Distribution Systems

Ref :

TR 003

Cluster :	Towns and Rural Areas	Region(s) :	All
Focus/Foci :	Water Supplies	Location :	Nationwide
Start Year ¹ :	2002	Duration ² :	25 year(s)
		Agency(s) Responsible :	DPHE (Lead) CBOs, Private Sector (Supporting)
Short Description :	The preamble to NWPo §4.6 of the NWPo highlights the water supply problems facing Bangladesh's urban areas (large and small). Water tables are receding due to heavy groundwater abstraction. Furthermore, saline intrusion in coastal aquifers and contamination elsewhere further compromises the drinking water supplies for urban inhabitants. In accordance with the Government's policy to "Facilitate availability of safe and affordable drinking water supplies." (NWPo §4.6.a), this programme is intended to provide resources for the implementation of piped water supply schemes fed from DTW or surface water sources in order to serve 100% of the population (of each town) with piped drinking water supplies by year 2010.		

MIS Links	Cost Calculation :	TR Programme costing.xls	Map :	TR 003 Map.jpg
	Disb't Schedule :	TR Programme costing.xls	Description :	TR 003 PgP.doc

Finance					
	Costs	Private	Funding (%)	Expected by	
			GoB	Beneficiaries	ProgrammeYear
Total Capital ³	44,055.00 MTk	0%	100%	0%	25
Ultimate Recurring	7,820.80 MTk/yr	n/a	0%	100%	26

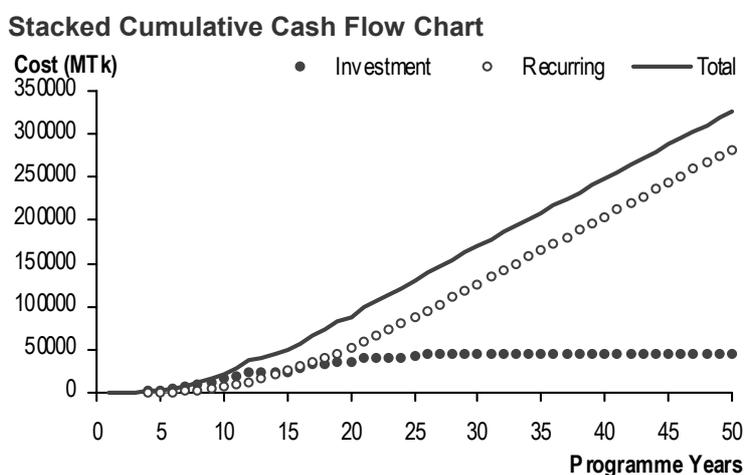
Date of Data : **31 07 01**
(dd) (mm) (yy)

Status : **Identified**

Financial Base Year: **mid-2000**

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

Actual Expenditure⁴ (to date) : **0** MTk



Monitoring

Objective	Indicator	Present Status ⁵
• Town water supply programmes prepared	• Signed programme/project documents	NYD
• Sustainable operation and maintenance of town water supply systems	• Frequency of pipe breaks • Response times	NYD
• Town water supply programme completed	• Programme/project completion reports • Household, district surveys	NYD
• 100% of large and small town population have access to formal water supplies	• Survey reports	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

Rural Water Supply and Distribution Systems

Ref :

TR 004

Cluster :	Towns and Rural Areas	Region(s) :	All
Focus/Foci :	Water Supplies	Location :	Rural Areas Nationwide
Start Year ¹ :	2001	Duration ² :	25 year(s)
		Agency(s) Responsible :	DPHE (Lead) LGIs, DPHE, CBOs (Supporting)
Short Description :	<p>The preamble to NWPo §4.6 of the NWPo recognises that "The rural areas of Bangladesh suffer from a lack of quality drinking water". This situation is worsening due to heavy withdrawals of groundwater (the principle source for most of the rural areas) for irrigation a trend which is exacerbated by agro-chemical and saline pollution of groundwater. Although the rural population is expected to increase relatively slowly over the next 25 years, from 102 million in 2000 to 108 million in 2025, it is nonetheless the GoB's intention to "facilitate the availability of safe and affordable drinking water supplies through various means" (NWPo §4.6.a). It is estimated that 92% of the rural population normally have access to potable water, mainly through shallow HTWs. The thrust of this programme is therefore to improve the quality of water supply services (reliability and access) in areas already served as well as extending the coverage to 100% by 2005.</p>		

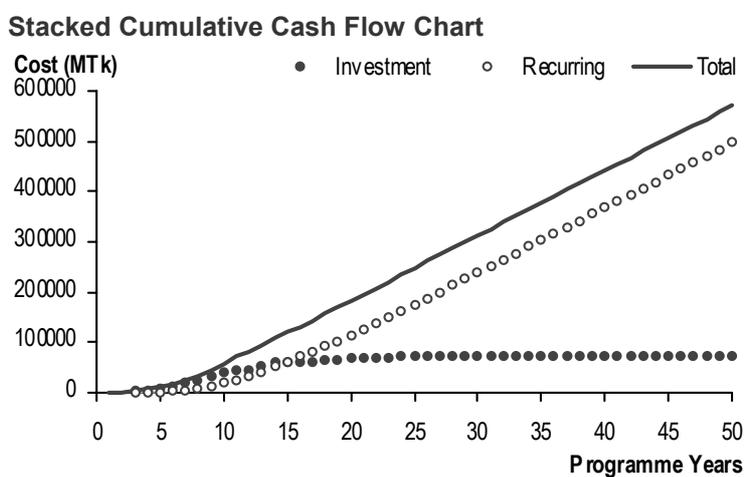
MIS Links	Cost Calculation :	TR Programme costing.xls	Map :	TR 004 Map.jpg
	Disb't Schedule :	TR Programme costing.xls	Description :	TR 004 PgP.doc

Finance					
	Costs	Private	Funding (%)	Expected by	
			GoB	Beneficiaries	ProgrammeYear
Total Capital ³	74,234.00 MTk	80%	20%	0%	25
Ultimate Recurring	12,884.30 MTk/yr	n/a	0%	100%	25

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

Status : **Identified**
Financial Base Year: **mid-2000**

Planned Expenditure (to date) : **0** MTk
Actual Expenditure⁴ (to date) : **0** MTk



Monitoring

Objective	Indicator	Present Status ⁵
• Rural water supply programmes prepared	• Signed programme/project documents	NYD
• Sustainable operation and maintenance of rural water supply systems	• Frequency of pipe breaks • Response times	NYD
• Rural water supply programmes completed	• Programme/project completion reports • Household, community surveys	NYD
• 100% of rural population has access to formal water supplies	• Survey reports	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

Large and Small Town Sanitation and Sewerage Systems

Ref : **TR 005**

Cluster :	Towns and Rural Areas	Region(s) :	All
Focus/Foci :	Sanitation	Location :	Nationwide
Start Year ¹ :	2002	Duration ² :	25 year(s)
		Agency(s) Responsible :	Paurashavas (Lead) LGIs, LGED, DPHE, CBOs (Supporting)
Short Description :	§4.6.c of the NWPo "mandates relevant public water and sewerage institutions to provide necessary drainage and sanitation, including treatment of domestic wastewater and sewage and replacement of open drains and construction of sewers, in the interest of public health." The population of large (>50,000) and small towns is expected to more than double over the next 25 years, from 14 million in 2000 to 36 million in 2025. At present, between 55% (small towns) and 65% (large towns) of the population is adequately served by sanitation facilities, mainly by pit latrines with/without septic tanks. In the poor areas and fringe communities, people are dependant on 'hanging latrines' and open defecation which exacerbates pollution and public health problems and increases the likelihood of epidemic outbreaks of waterborne and water-related diseases. This programme aims to provide appropriate sanitation facilities and raise and sustain service coverage at 100% by 2010.		

MIS Links	Cost Calculation :	TR Programme costing.xls	Map :	TR 005 Map.jpg
	Disb't Schedule :	TR Programme costing.xls	Description :	TR 005 PgP.doc

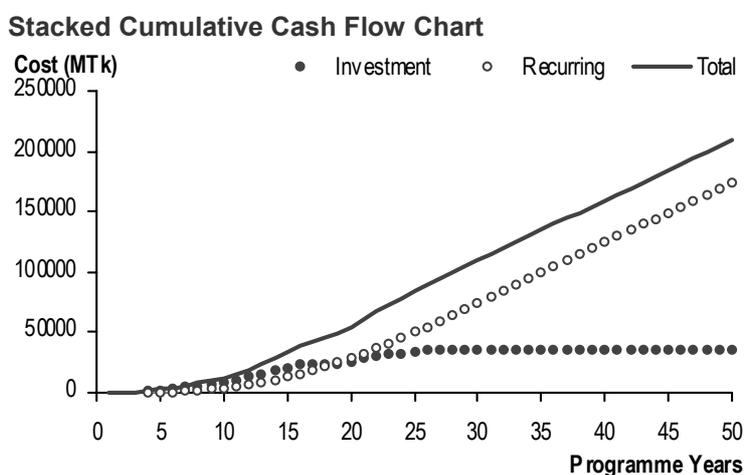
Finance			Funding (%)		Expected by
	Costs	Private	GoB	Beneficiaries	ProgrammeYear
Total Capital ³	34,894.00 MTk	0%	100%	0%	25
Ultimate Recurring	4,543.10 MTk/yr	n/a	0%	100%	26

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

Status : **Identified**
Financial Base Year: **mid-2000**

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

Actual Expenditure⁴ (to date) : **0** MTk



Monitoring

Objective	Indicator	Present Status ⁵
• Sustainable operation and maintenance of town sanitation systems	• Frequency of service break downs • Response times	NYD
• Reduced environmental pollution	• Faecal coliform counts	NYD
• Improved public health	• Public health statistics	NYD
• 100% of large and small town populations have access to sanitation facilities	• Survey reports	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

Rural Sanitation

Ref :

TR 006

Cluster :	Towns and Rural Areas	Region(s) :	All
Focus/Foci :	Sanitation	Location :	Rural Areas Nationwide
Start Year ¹ :	2001	Duration ² :	25 year(s)
		Agency(s) Responsible :	DPHE (Lead) CBOs, Private sector, LGIs (Supporting)
Short Description :	§4.6.c of the NWPo "mandates relevant public water and sewerage institutions to provide necessary drainage and sanitation, including treatment of domestic wastewater and sewage and replacement of open drains and construction of sewers, in the interest of public health." The population of rural areas is expected to increase slightly over the next 25 years, from 102 million in 2000 to 108 million in 2025. At present, only 40% of the population has access to pit latrine facilities, the other 60% relying on 'hanging latrines' and open defecation which exacerbates pollution and public health problems and increases the likelihood of epidemic outbreaks of waterborne and water-related diseases. This programme aims to provide appropriate sanitation facilities for the whole rural population and raise and sustain service coverage at 100% by 2010.		

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

Finance					
	Costs	Private	Funding (%) GoB	Beneficiaries	Expected by Programme Year
Total Capital ³	31,622.00 MTk	80%	20%	0%	25
Ultimate Recurring	5,901.00 MTk/yr	n/a	0%	100%	26

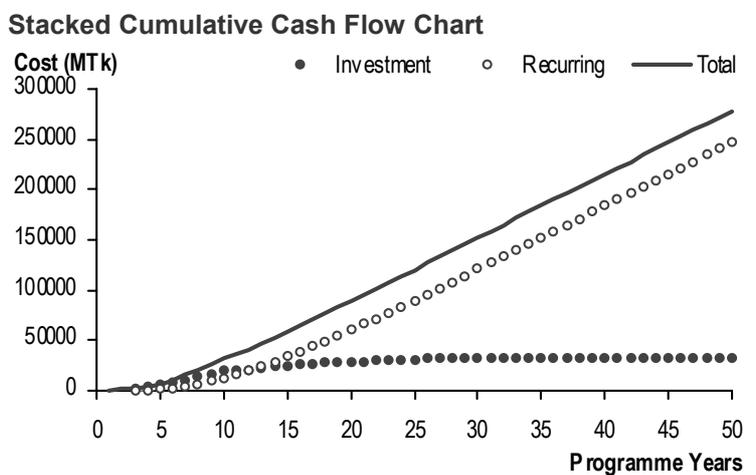
Date of Data : **31 07 01**
(dd) (mm) (yy)

Status : **Identified**

Financial Base Year: **mid-2000**

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

Actual Expenditure⁴ (to date) : **0** MTk



Monitoring

Objective	Indicator	Present Status ⁵
• Sustainable operation and maintenance of rural sanitation systems	• Frequency of service break downs • Response times	NYD
• Reduced environmental pollution	• Faecal coliform counts	NYD
• Improved public health	• Public health statistics	NYD
• 100% of rural populations have access to sanitation facilities	• Survey reports	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

Large and Small Town Flood Protection

Ref :

TR 007

Cluster :	Towns and Rural Areas	Region(s) :	All
Focus/Foci :	Flood Protection	Location :	Large and Small towns throughout the country
Start Year ¹ :	2003	Duration ² :	25 year(s)
		Agency(s) Responsible :	BWDB (Lead) None (Supporting)
Short Description :	§4.2.9.i of the NWPo states that "...critical areas such as district and Upazila towns, important commercial centres, and places of historical importance will be gradually provided reasonable degree of protection against flood". The low areas of many of the towns in Bangladesh are vulnerable to flooding during monsoon. Significant damage was caused during the 1988 and 1998 floods due either to absence of embankments, embankment failure or the inability of protected areas to drain during times of heavy rainfall because of high water levels outside. This programme will undertake measures such as: raising of existing embankment crest levels; repair of damaged embankments; and, provision of erosion protection works where necessary. New flood protection works will also be involved consisting mainly of constructing embankments on riverbanks with integral drainage sluices.		

MIS Links	Cost Calculation :	TR Programme costing.xls	Map :	TR 007 Map.jpg
	Disb't Schedule :	TR Programme costing.xls	Description :	TR 007 PgP.doc

Finance				Funding (%)		Expected by
	Costs	Private	GoB	Beneficiaries	Programme	Year
Total Capital ³	14,460.00 MTk	0%	100%	0%		25
Ultimate Recurring	1,301.40 MTk/yr	n/a	50%	50%		26
Date of Data :	31 07 01	Stacked Cumulative Cash Flow Chart				
	(dd) (mm) (yy)					
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
• Flood protection programmes prepared and agreed	• Signed programme/project documents	NYD
• Flood protection programmes implemented	• Programme/project completion reports	NYD
• All large and small towns protected from 1: 100 year floods	• Physical evidence and hydrological data	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

Large and Small Town Stormwater Drainage

Ref :

TR 008

Cluster :	Towns and Rural Areas	Region(s) :	All
Focus/Foci :	Stormwater Drainage	Location :	Nationwide
Start Year ¹ :	2003	Duration ² :	25 year(s)
		Agency(s) Responsible :	Paurashavas (Lead) LGIs (Supporting)
Short Description :	§4.6 says that "Lack of proper sanitation and drainage facilities, are the primary causes of diseases in the urban areas". Storm water drainage is an increasing problem in urban areas, as the construction of buildings and paved areas has progressively increased run-off. At the same time, pressures on land has caused natural drainage channels to be filled in and built upon. Encroachment on watercourses and water bodies has progressively reduced natural drainage. No urban areas have adequate storm drainage at present. This programme provides resources for a nationwide installation/upgrading and maintenance of stormwater drainage facilities in large and small towns. These will most probably be gravity systems which although cost-effective, will require regular adequate maintenance.		

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

Finance			Funding (%)		Expected by
	Costs	Private	GoB	Beneficiaries	ProgrammeYear
Total Capital ³	64,000.00 MTk	0%	100%	0%	25
Ultimate Recurring	7,040.00 MTk/yr	n/a	50%	50%	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 Status ⁵
• Stormwater drainage programme prepared and agree	• Signed programme/project documents	NYD
• Stormwater drainage programmes implemented	• Programme/project completion reports	NYD
• Stormwater drainage installed in all large and small towns	• Survey reports	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

Cyclone Shelters and Killas

Ref : **DM 001**

Cluster :	Disaster Management	Region(s) :	SC, SE, EH
Focus/Foci :	Cyclone Protection	Location :	SC, SE and EH Regions
Start Year ¹ :	2002	Duration ² :	15 year(s)
		Agency(s) Responsible :	LGED (Lead) None (Supporting)
Short Description :	This programme is for the cyclone risk areas and is relevant to the NWPo as it provides "flood proofing systems to manage natural disasters: (§4.2.o) and takes special account the particular needs of women and children (§3.b) while motivating the people themselves to develop different flood proofing measures. The programme will provide safe havens in the form of proven infrastructure comprising raised and covered cyclone shelters and killas (raised mounds) where both humans and livestock can take refuge. Short to medium term beneficiaries of the programme will comprise some 1.72 million people estimated to be at a risk of serious cyclone threat at least once every 30 years or less. In the long term the programme will be extended to cover lower risk areas corresponding to a maximum return return periods of 1:100 years and will be closely linked with programme DM 002 "Bari-level Cyclone Shelter".		

MIS Links	Cost Calculation :	DM Programme costing.xls	Map :	DM 001 Map.jpg
	Disb't Schedule :	DM Programme costing.xls	Description :	DM 001 PgP.doc

Finance				Funding (%)	Expected by
	Costs	Private	GoB	Beneficiaries	ProgrammeYear
Total Capital ³	9,894.60 MTk	0%	100%	0%	15
Ultimate Recurring	350.30 MTk/yr	n/a	85%	15%	16
Date of Data :	31	07	01	Stacked Cumulative Cash Flow Chart	
	(dd)	(mm)	(yy)		
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
• Pilot programme in progress	• Signed contracts/work orders • Progress reports	NYD
• Pilot programme evaluated	• Evaluation reports	NYD
• Modalities accepted	• Signed agreements	NYD
• 775 multi-purpose shelters and 1369 killas constructed in cyclone prone areas	• Actual numbers of shelters and killas	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

Bari-level Cyclone Shelters

Ref : **DM 002**

Cluster :	Disaster Management	Region(s) :	SC, SE, EH
Focus/Foci :	Cyclone Protection	Location :	SC, SE, EH
Start Year ¹ :	2003	Duration ² :	25 year(s)
		Agency(s) Responsible :	DMB (Lead) None (Supporting)
Short Description :	This programme is for the cyclone risk areas and is relevant to the NWPo as it provides “flood proofing systems to manage natural disasters: (§4.2.o) and takes special account the particular needs of women and children (§3.b) while motivating the people themselves to develop different flood proofing measures. Over three million people live or subsist in areas exposed to significant risk of destruction and loss of life due to cyclone strike. This programme is intended to provide safe havens in the form of 12m2 concrete framed buildings on raised 72m2 earth platforms, one in each bari in the coastal areas. A total of 43,768 bari-level-cyclone-shelters will be raised over 15 years, benefiting some 1.72 million people in the short/medium term.		

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

Finance				Funding (%)	Expected by
	Costs	Private	GoB	Beneficiaries	ProgrammeYear
Total Capital ³	1,747.90 MTk	0%	100%	0%	25
Ultimate Recurring	52.40 MTk/yr	n/a	0%	100%	26
Date of Data :	31 07 01	Stacked Cumulative Cash Flow Chart			
	(dd) (mm) (yy)				
Status :	Identified				
Financial Base Year:	mid-2000				
Planned Expenditure (to date) :	MTk				
Actual Expenditure ⁴ (to date) :	MTk				

Monitoring

Objective	Indicator	Present Status ⁵
• Pilot programme in progress	• Signed contracts/work orders • Progress reports	NYD
• Pilot programme evaluated	• Evaluation reports	NYD
• Modalities accepted	• Signed agreements	NYD
• 43,776 bari-level cyclone shelters	• Actual numbers of bari-level cyclone shelters	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

Supplementary Irrigation and Drought Proofing of Rural Water Supplies

Ref : **DM 006**

Cluster :	Disaster Management	Region(s) :	All
Focus/Foci :	Drought Proofing	Location :	Nationwide but emphasising NW, NC, SE, SW, SC
Start Year : ¹	2002	Duration ² :	10 year(s)
Short Description :	This programme aims to promote supplementary irrigation during the drought-prone aman season, as well as including efforts to drought-proof rural water supplies.		
	Agency(s) Responsible :	DAE	(Lead)
		None	(Supporting)

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

Finance				Funding (%)		Expected by
	Costs	Private	GoB	Beneficiaries	Programme	Year
Total Capital ³	1,041.40 MTk	0%	85%	15%		10
Ultimate Recurring	0.00 MTk/yr	n/a	n/a	n/a		n/a
Date of Data :	31	07	01	Stacked Cumulative Cash Flow Chart		
	(dd)	(mm)	(yy)			
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
• New Tara hand tubewells commissioned	• Physical number of new wells	NYD
• Increased area of aman rice under supplementary irrigation	• Areas planted	NYD
• Increased quality of life in target areas	• Return on family labour	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

Promotion of Expanded Minor Irrigation and Improved On-farm Water Management

Ref : **AW 001**

Cluster :	Agriculture and Water Management	Region(s) :	All
Focus/Foci :	Irrigation	Location :	Nationwide
Start Year ¹ :	2002	Duration ² :	15 year(s)
		Agency(s) Responsible :	DAE (Lead) None (Supporting)
Short Description :	It is the policy of the Government to "Encourage and promote continued development of minor irrigation" (NWPo §4.7.a) and to "Encourage future groundwater development for irrigation by both the public and the private sectors" (§4.7.b). With the ultimate goal of increased agricultural productivity, this programme involves the improvement of irrigation pumping efficiency, promotion of lower cost force-mode tubewell pumps, and a farmer education/training component to improve on-farm water management and the wise use of water		

MIS Links	Cost Calculation :	AW Programme costing.xls	Map :	AW 001 Map.jpg
	Disb't Schedule :	AW Programme costing.xls	Description :	AW 001 PgP.doc

Finance				Funding (%)		Expected by
	Costs	Private	GoB	Beneficiaries	Programme	Year
Total Capital ³	310.00 MTk	0%	85%	15%		15
Ultimate Recurring	7.20 MTk/yr	n/a	0%	100%		16
Date of Data :	31	07	01	Stacked Cumulative Cash Flow Chart		
	(dd)	(mm)	(yy)			
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
• Increased diesel pump engine efficiencies	• Sample tests	NYD
• Farmers adopt force mode pumpsets	• Farmer survey	NYD
• Irrigation water use efficiencies increased	• Sample tests	NYD
• Average return per unit of water increased in minor irrigation areas	• Household surveys and field measurements	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

Improved Performance of Existing Public Surface Water Irrigation Schemes

Ref : **AW 002**

Cluster :	Agriculture and Water Management	Region(s) :	All
Focus/Foci :	Irrigation	Location :	Nationwide
Start Year ¹ :	2004	Duration ² :	20 year(s)
		Agency(s) Responsible :	BWDB (Lead) BMDA, CBOs, LGIs, NGOs, Private Sector (Supporting)
Short Description :	It is the policy of the government to "encourage future groundwater development for irrigation by both the public and private sectors" (NWPo §4.7.b). Even so experience confirms that current performance of existing public irrigation schemes is not satisfactory. This programme is intended to address both challenges by means of the following approaches: full participation of beneficiaries; command area development; conjunctive use of surface and groundwater; rehabilitation; improved O&M and appropriate beneficiary contributions to both capital and recurring costs.		

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

Finance					
	Costs	Private	Funding (%)	Expected by	
			GoB	Beneficiaries	ProgrammeYear
Total Capital ³	3,275.00 MTk	0%	85%	15%	20
Ultimate Recurring	98.30 MTk/yr	n/a	25%	75%	21

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

Status : **Identified**

Financial Base Year: **mid-2000**

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

Actual Expenditure⁴ (to date) : **0** MTk

Stacked Cumulative Cash Flow Chart

Monitoring		
Objective	Indicator	Present Status⁵
• Sustainable operation and maintenance	• User group records • Long term O&M expenditure trends	NYD
• Public irrigation schemes rehabilitated and upgraded	• Construction records • On site verification	NYD
• Increased returns per unit of water and labour on public irrigation areas	• Household surveys and field measurements	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

New Public Surface Water Irrigation Schemes

Ref : **AW 003**

Cluster :	Agriculture and Water Management	Region(s) :	All
Focus/Foci :	Irrigation	Location :	Nationwide
Start Year ¹ :	2005	Duration ² :	15 year(s)
		Agency(s) Responsible :	BWDB (Lead) LGED (Supporting)
Short Description :	The preamble NWPo §4.7 requires government to continue promoting the development of surface water irrigation where feasible and to focus where practical on the conjunctive use of groundwater and surface water. The overall objective of this programme is to increase agricultural production and reduce demand on groundwater abstraction by promoting and implementing new surface water irrigation schemes.		

MIS Links	Cost Calculation :	AW Programme costing.xls	Map :	AW 003 Map.jpg
	Disb't Schedule :	AW Programme costing.xls	Description :	AW 003 PgP.doc

Finance			Funding (%)		Expected by
	Costs	Private	GoB	Beneficiaries	ProgrammeYear
Total Capital ³	6,125.00 MTk	0%	85%	15%	15
Ultimate Recurring	306.30 MTk/yr	n/a	25%	75%	16
Date of Data :	31 07 01	Stacked Cumulative Cash Flow Chart			
	(dd) (mm) (yy)				
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
• Plans prepared	• Project documents	NYD
• Projects in progress	• Funding in place	NYD
	• Signed contracts/work orders	
• Increased area under public surface water irrigation	• Construction records	NYD
	• On site verification	

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

Improved Water Management at Local Government Level

Ref : **AW 005**

Cluster :	Agriculture and Water Management	Region(s) :	All
Focus/Foci :	Water Management	Location :	Nationwide
Start Year ¹ :	2001	Duration ² :	24 year(s)
		Agency(s) Responsible :	LGED (Lead) None (Supporting)
Short Description :	Implementation of the NWPO will result in a four tiered civil-administrative hierarchy for the water sector: central, regional, local and community. The BWDB will remain responsible for water management issues as they affect or occur in the main and regional rivers. Equally, management of certain schemes below 5000ha will become the responsibility of community based organisations. Water courses, whether natural or man-made, that will be the management responsibility of neither BWDB nor community organisations will become the responsibility of LGI's. Furthermore, actual ownership of all schemes except municipal water schemes will be transferred to the LGI's. This programme is intended to rehabilitate, upgrade and restore as appropriate, the water courses involved as well as to provide the LGI's with the necessary appurtenant equipment and facilities.		

MIS Links	Cost Calculation :	AW Programme costing.xls	Map :	AW 005 Map.jpg
	Disb't Schedule :	AW Programme costing.xls	Description :	AW 005 PgP.doc

Finance					
	Costs	Private	Funding (%) GoB	Beneficiaries	Expected by ProgrammeYear
Total Capital ³	5,495.00 MTk	0%	85%	15%	24
Ultimate Recurring	156.00 MTk/yr	n/a	25%	75%	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
• Sustainable management and ownership models in place	• Reports • Legal instruments	NYD
• Local rivers, feeder canals and main drains transferred to LGI's for management/ownership as per policy	• Instruments of transfer ratified and promulgated • Title deeds	NYD
• Local rivers, feeders canals and main drains restored, rehabilitated, upgraded as appropriate	• Project completion reports • Physical surveys • Hydrological records	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

Improved Water Management at Community Level

Ref :

AW 006

Cluster :	Agriculture and Water Management	Region(s) :	All
Focus/Foci :	Water Management	Location :	Nationwide
Start Year ¹ :	2001	Duration ² :	24 year(s)
		Agency(s) Responsible :	LGED (Lead) LGIs, DAE (Supporting)
Short Description :	Implementation of the NWPo will result in a four tiered civil-administrative hierarchy for the water sector: central, regional, local and community. The BWDB will remain responsible for water management issues as they affect or occur in the main and regional rivers. Local rivers and scheme delivery systems will become the management (and in some cases property) of LGI's while management of certain schemes below 5000ha will become the responsibility of community based organisations. This programme is intended to rehabilitate, upgrade and restore as appropriate, the water courses and field distribution/collection systems involved as well as to assist in providing with the necessary appurtenant equipment and facilities.		

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

Finance				Funding (%)		Expected by
	Costs	Private	GoB	Beneficiaries	Programme	Year
Total Capital ³	865.00 MTk	0%	15%	85%		24
Ultimate Recurring	24.60 MTk/yr	n/a	0%	100%		26
Date of Data :	31	07	01	Stacked Cumulative Cash Flow Chart		
	(dd)	(mm)	(yy)			
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
• Effective community based water management organisations	• Field evaluations	NYD
• Khals re-excavated over 10,000ha	• Physical survey	NYD
• Sustainable sub-secondary water use efficiencies of 60% for paddy and 75% for dryfoot crops	• Field tests	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

Rationalisation of Existing FCD Infrastructure

Ref : **AW 007**

Cluster :	Agriculture and Water Management	Region(s) :	All
Focus/Foci :	Coastal Protection, AND Flood Control and Drainage	Location :	Nationwide
Start Year ¹ :	2007	Duration ² :	20 year(s)
		Agency(s) Responsible :	BWDB (Lead) LGED (Supporting)
Short Description :	The NWPo states that "Ownership of FCD and FCDI projects with command area of 1000 ha or less will gradually be transferred to the local governments, beginning with the ones that are being satisfactorily managed and operated by the beneficiary/ community organisations." (NWPo §4.4.f) and that is also the policy of the government to "Investigate thoroughly, important flood control and management issues, such as the efficacy of coastal polders, for guiding future policy on structural interventions" (NWPo §4.15.c). This programme will assess and rationalise all existing FCD schemes by specifying and implementing the appropriate course of action for each scheme according to the following options: a) continuation of the present situation; b) handover to beneficiaries or local govt.; c) rehabilitation and improvement; d) complete withdrawal.		

MIS Links	Cost Calculation :	AW Programme costing.xls	Map :	AW 007 Map.jpg
	Disb't Schedule :	AW Programme costing.xls	Description :	AW 007 PgP.doc

Finance					
	Costs	Private	Funding (%)	Expected by	
			GoB	Beneficiaries	ProgrammeYear
Total Capital ³	21,471.70 MTk	0%	85%	15%	20
Ultimate Recurring	1,152.80 MTk/yr	n/a	50%	50%	21
Date of Data :	31 07 01	Stacked Cumulative Cash Flow Chart			
	(dd) (mm) (yy)				
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
• Sustainable operation and maintenance on 50% of all existing inland and coastal FCD/I schemes	• User group records • Long term O&M expenditure trends	NYD
• Inland and coastal FCD/I rehabilitated and upgraded on a participatory basis	• Participatory agreements • Project completion reports	NYD
• Increased returns per unit of water and labour in public irrigation areas	• Household surveys and field measurements	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

Land Reclamation, Coastal Protection and Afforestation

Ref :

AW 008

Cluster :	Agriculture and Water Management	Region(s) :	RE, SC, SE, EH
Focus/Foci :	Coastal Protection	Location :	Regions RE, SC, SE, EH
Start Year ¹ :	2001	Duration ² :	24 year(s)
		Agency(s) Responsible :	BWDB (Lead) DoForest (Supporting)
Short Description :	NWPo Article 4.2(r) states that the Government will "Plan and implement schemes for reclamation of land from the sea and rivers". In line with this Article, studies will be undertaken for reclamation of land from estuary region and sea. The NWPo also recognises the importance of coastal embankments/polders with the statement that it is the policy of the government to "Investigate thoroughly, important flood control and management issues, such as the efficacy of coastal polders, for guiding future policy on structural interventions." (NWPo §4.15.c). Another purpose of this programme is to embank and where necessary provide arborial protection to accreted land thereby protecting life/property/livelihoods from tides, or scend.		

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

Finance					
	Costs	Private	Funding (%) GoB	Beneficiaries	Expected by ProgrammeYear
Total Capital ³	5,866.90 MTk	0%	100%	0%	24
Ultimate Recurring	201.00 MTk/yr	n/a	15%	85%	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
• Coastal protection programme prepared and agreed	• The programme document • Formal agreements	NYD
• 1550km ² of new coastal land protected	• On site verification	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 Fish Pass Programme

Ref :

EA 005

Cluster :	Environment and Aquatic Resources	Region(s) :	All
Focus/Foci :	Water Management for Fisheries	Location :	Nationwide
Start Year ¹ :	2003	Duration ² :	15 year(s)
		Agency(s) Responsible :	BWDB (Lead) DoFish (Supporting)
Short Description :	The NWPo requires that "Fisheries and wildlife will receive due emphasis in water resource planning in areas where their social impact is high" (NWPo §4.9.a); "Measures will be taken to minimise disruption to the natural aquatic environment in streams and water channels." (NWPo §4.9.b), and; "Water development plans will not interrupt fish movement and will make adequate provisions in control structures for allowing fish migration and breeding." (NWPo §4.9.e). Yet there has been a reduction in fish production in recent years due, at least in part, to structures that inhibit fish migration routes. As a response, this programme will screen all major existing FCD/I projects (>5000ha) and will prepare and implement a plan for mitigation works. Emphasis will be given to 'fish-friendly' structures rather than separate dedicated fish-pass structures.		

MIS Links	Cost Calculation :	EA Programme costing.xls	Map :	EA 005 Map.jpg
	Disb't Schedule :	EA Programme costing.xls	Description :	EA 005 PgP.doc

Finance				Funding (%)		Expected by
	Costs	Private	GoB	Beneficiaries	ProgrammeYear	
Total Capital ³	3,000.00 MTk	0%	100%	0%		15
Ultimate Recurring	75.00 MTk/yr	n/a	50%	50%		16
Date of Data :	31 07 01	Stacked Cumulative Cash Flow Chart				
	(dd) (mm) (yy)					
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
• Appropriate fish-friendly measures routinely adopted in the design and operation of all relevant structures	• Number of conforming designs	NYD
• 90% of all feasible fish passes in place	• Design regulation	NYD
• Sustainable increase in floodplain fish catches, in terms of both numbers and diversity	• Number of operational fish passes	NYD
	• Fish catch statistics (provided that impact of water sector measures can be distinguished from other impacts)	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

Unspecified Regional Programmes

Ref : **EA 006**

Cluster :	Environment and Aquatic Resources	Region(s) :	All
Focus/Foci :	General Environmental Responsibilities	Location :	Nationwide
Start Year ¹ :	2005 Duration ² : 15 year(s)	Agency(s) Responsible :	WARPO (Lead) DoE, DoFish, DoForest, BWDB, LGED, RHD (Supporting)
Short Description :	The purpose of this programme is to ensure that provision is made for particular regional environmental concerns that are not well reflected in the other EA Programmes. This allows for comparatively small, but locally important issues to be dealt with according to regional priorities. This also implies regional (and down to village level) participation in identifying the concerns, which are therefore left non-specific at this stage.		

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

Finance					
	Costs	Private	Funding (%) GoB	Beneficiaries	Expected by ProgrammeYear
Total Capital ³	600.00 MTk	0%	100%	0%	15
Ultimate Recurring	19.30 MTk/yr	n/a	25%	75%	16

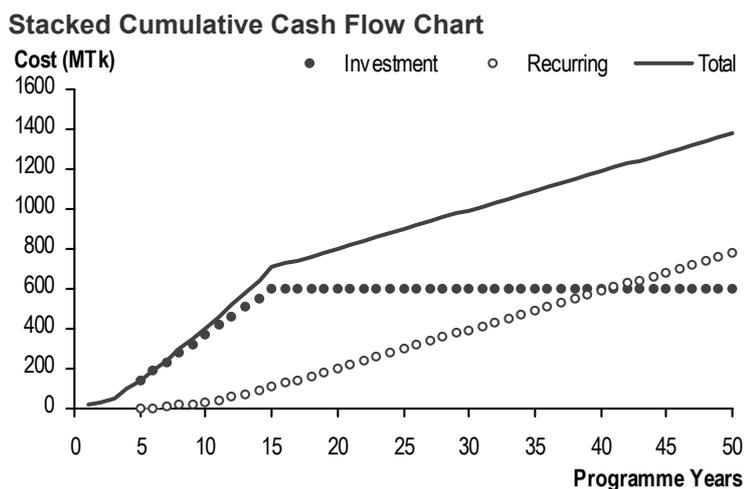
Date of Data : **31 07 01**
(dd) (mm) (yy)

Status : **Identified**

Financial Base Year: **mid-2000**

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

Actual Expenditure⁴ (to date) : **0** MTk



Monitoring

Objective	Indicator	Present Status ⁵
• 8 pilot projects (one per region) completed and evaluated	• Project evaluation reports	NYD
• Improvement in region-specific environmental characteristics	• Specific indicators and thresholds as appropriate	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

Environmentally Critical Areas and Integrated Wetland Management

Ref : **EA 008**

Cluster :	Environment and Aquatic Resources	Region(s) :	All
Focus/Foci :	Water Management for Eco-Sensitive Areas	Location :	Nationwide
Start Year ¹ :	2002	Duration ² :	23 year(s)
		Agency(s) Responsible :	DoE (Lead) WARPO, LGIs (Supporting)
Short Description :	The country's aquatic habitat is rapidly shrinking as a result of abstractions (especially for irrigation); flood control and agricultural encroachment. And deteriorating water quality exacerbates the problems. Supported by other measures, safeguarding the water resources of the nation's water bodies is necessary to arrest the trend and provide for both the human and the natural environments (eg health, nutrition, livelihoods, fish and broader biodiversity). This programme is intended to provide the necessary protection and sustainable use measures in the water sector as part of a wider integrated wetlands management (IWM) programme.		

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

Finance						
	Costs	Private	Funding (%)	Beneficiaries	Expected by	
			GoB		ProgrammeYear	
Total Capital ³	800.00 MTk	0%	100%	0%		23
Ultimate Recurring	15.00 MTk/yr	n/a	50%	50%		24
Date of Data :	31	07	Stacked Cumulative Cash Flow Chart			
	(dd)	(mm)	(yy)			
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
• Water requirements defined and/or refined	• Thresholds • Status of indicator species	NYD
• Regulatory framework for environmentally critical areas	• The regulations • Number of voluntary agreements concluded • Number of prosecutions	NYD
• Integrated wetland management	• Status of indicator species • Extent and duration of wetlands	NYD
• Improved levels of protection extended to existing and new environmentally critical areas	• New regulations gazetted • Number of new environmentally critical areas gazetted	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

10 Programmes of National Significance

Summary sheets of the National Programmes are presented on the following pages.

Cost estimates for the nationally significant programmes are provided in Table 10.1.

Table 10.1: Cost Estimates for the National Programmes

MIS Ref	Title	COSTS (Tk M mid 2000)				
		ST	MT	LT	Residual	TOTAL
ID 001	Local Government Needs Assessment for Water Management	170.0	-	-	-	170.0
ID 002	Independent Regulatory Bodies for Water Supply and Sanitation Service Sector	75.0	1,200.0	-	-	1,275.0
ID 004	BWDB Regional and Sub-regional Management Strengthening	178.8	71.2	-	-	250.0
ID 005	Local Government Capacity Building for Water Management	968.0	2,420.0	7,260.0	1,452.0	12,100.0
ID 006	WARPO Capacity Building	405.0	255.0	-	-	660.0
ID 007	Department of Environment Capacity Building	292.0	73.0	-	-	365.0
ID 008	Disaster Management Bureau Capacity Building	660.0	1,100.0	440.0	-	2,200.0
ID 009	Capacity Building for Other Organisations	150.0	150.0	-	-	300.0
ID 010	BWDB Capacity Building	331.3	703.3	281.3	-	1,316.0
EE 001	Support to the Preparation of New Legislation	12.5	-	-	-	12.5
EE 002	Field Testing of Participatory Management Models	40.0	60.0	-	-	100.0
EE 003	Water Resources Legislation - Preparation of Supporting Ordinances	12.0	30.0	78.0	-	120.0
EE 004	Project Preparation Procedures - Guidelines and Manuals	16.1	55.4	88.6	-	160.0
EE 005	Regulatory and Economic Instruments	152.0	-	-	-	152.0
EE 006	Field Testing and Finalisation of the Guidelines for Participatory Water Managen	7.0	35.0	28.0	-	70.0
EE 007	NWRD Improved Data Collection and Processing Facilities	15.0	-	-	-	15.0
EE 008	Water Resources Management Research and Development Studies	400.0	400.0	-	-	800.0
EE 009	Water Resources Management Long Term Research and Development	-	100.0	1,500.0	-	1,600.0
EE 010	Raising Public Awareness in the Wise Use and Management of Water	54.0	90.0	36.0	-	180.0
EE 011	Private Sector Participation in Water Management	35.0	-	-	-	35.0
EE 012	Water and Environment Funds	26.7	13.3	-	-	40.0
EE 013	Alternative Financing Methods for Water Management	71.3	156.3	62.5	-	290.0
MR 001	Main Rivers Studies and Research Programmes	600.0	1,000.0	400.0	-	2,000.0
MC 001	Inventory and Asset Management Plan of Water Supply & Sanitation Sector	12.5	-	-	-	12.5
EA 001	National Pollution Control Plan	300.0	380.0	420.0	-	1,100.0
EA 002	National Clean-up of Existing Industrial Pollution	360.0	1,800.0	2,100.0	-	4,260.0
EA 003	National Water Quality Monitoring	1,304.3	1,334.7	3,362.2	-	6,001.2
EA 004	National Fisheries Master Plan	300.0	-	-	-	300.0
EA 010	Public Awareness Raising and Empowerment in respect of Environmental Issue	111.8	204.5	613.6	-	930.0
TOTAL		7,060.3	11,631.7	16,670.2	1,452.0	36,814.3

Local Government Needs Assessment for Water Management

Ref : **ID 001**

Cluster :	Institutional Development	Region(s) :	All
Focus/Foci :	Local Government Institutions	Location :	Nationwide
Start Year ¹ :	2002	Duration ² :	2 year(s)
		Agency(s) Responsible :	LGD (Lead) None (Supporting)
Short Description :	The NWPo creates new roles for and places new responsibilities on Local Government Institutions. In particular NWPo §4.2.e requires LGI's to implement FCD/I projects having a command area less than or equal to 1000ha, while NWPo §4.2.f calls upon LGI's to coordinate stakeholder participation at all stages of water sector project cycles. Furthermore, as a result of NWPo §4.4.d LGI's will become progressively responsible for the management of all FCD schemes up to 5000ha, as well as for the raising of operation and maintenance tariffs through local resources. This programme assesses the implications of these challenges in terms of the institutional framework and human resource requirements and presents them in the form of a institutional capacity building and human resource development programme document.		

MIS Links	Cost Calculation :	ID Programme costing.xls	Map :	ID 001 Map.jpg
	Disb't Schedule :	ID Programme costing.xls	Description :	ID 001 PgP.doc

Finance						
		Costs	Private	Funding (%) GoB	Beneficiaries	Expected by ProgrammeYear
Total Capital ³	170.00 MTk	0%	100%	0%	2	
Ultimate Recurring	0.00 MTk/yr	n/a	n/a	n/a	n/a	
Date of Data :	31 (dd)	07 (mm)	01 (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
• Outline management structure, procedures and human resource requirements for local water sector development and management by LGI's agreed by all stakeholders	• Formal agreement of stakeholder agencies	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

Independent Regulatory Bodies for Water Supply and Sanitation Service Sector

Ref : **ID 002**

Cluster :	Institutional Development	Region(s) :	All
Focus/Foci :	New Regulatory Bodies	Location :	Nationwide
Start Year ¹ :	2003 Duration ² : 7 year(s)	Agency(s) Responsible :	LGD (Lead) MoFinance, New agencies (Supporting)
Short Description :	Initially, this programme will begin by studying options for the establishment of a regulatory framework for water supply and sanitation as well as the institutional demands thereof. This preliminary stage will be followed by the establishment and mandating of the institutions themselves. It is anticipated that existing institutions will be able to accept some of the responsibility; even so a clear need for new, specialist agencies is foreseen.		

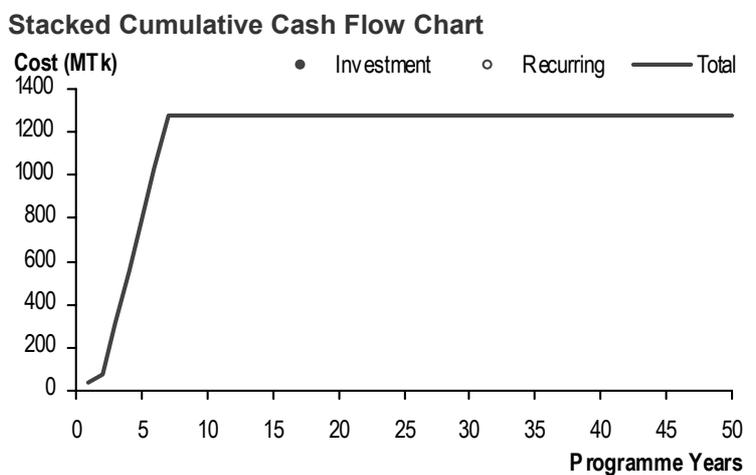
MIS Links	Cost Calculation :	ID Programme costing.xls	Map :	ID 002 Map.jpg
	Disb't Schedule :	ID Programme costing.xls	Description :	ID 002 PgP.doc

Finance					
	Costs	Private	Funding (%)	Beneficiaries	Expected by
Total Capital ³	1,275.00 MTk	0%	100%	0%	7
Ultimate Recurring	0.00 MTk/yr	n/a	n/a	n/a	n/a

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

Status : **Identified**
Financial Base Year: **mid-2000**

Planned Expenditure (to date) : **0** MTk
Actual Expenditure⁴ (to date) : **0** MTk



Monitoring

Objective	Indicator	Present Status ⁵
• Regulatory Framework agreed by Government Stakeholders	• The framework	NYD
• Regulatory manual completed and agreed	• The manual • The agreement	NYD
• Independent regulatory bodies for water supply and sanitation services established and fully functional	• Operational charters of the regulatory bodies • Legal status of the regulatory bodies	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

BWDB Regional and Sub-regional Management Strengthening

Ref : **ID 004**

Cluster :	Institutional Development	Region(s) :	All
Focus/Foci :	Bangladesh Water Development Board	Location :	Nationwide
Start Year ¹ :	2002	Duration ² :	6 year(s)
		Agency(s) Responsible :	BWDB (Lead) None (Supporting)
Short Description :	According to its Act, BWDB is responsibility for controlling the flow of water in all rivers and aquifers. To this end it is the strategy of GoB to prepare integrated river improvement initiatives which give due importance to all stakeholders. This programme is intended to provide the necessary support to BWDB to enable it to prepare such initiatives at regional and sub-regional levels consistent with the GoB strategy.		

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

Finance				Funding (%)		Expected by
	Costs	Private	GoB	Beneficiaries	Programme	Year
Total Capital ³	250.00 MTk	0%	100%	0%		6
Ultimate Recurring	3.60 MTk/yr	n/a	100%	0%		7
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
• Establishment of river inventory with demarcation of BWDB responsibility	• Reports issued and approved by GoB	NYD
• BWDB internal organisation structured to plan, develop and manage river improvement programmes with established capacity	• Reports issued and approved by GoB and implemented by BWDB • River improvement plans produced at an acceptable quality	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

Local Government Capacity Building for Water Management

Ref :

ID 005

Cluster :	Institutional Development	Region(s) :	All
Focus/Foci :	Local Government Institutions	Location :	Nationwide
Start Year ¹ :	2003	Duration ² :	25 year(s)
		Agency(s) Responsible :	LGIs (Lead) None (Supporting)
Short Description :	The NWPo creates new roles for and places new responsibilities on Local Government Institutions. In particular NWPo §4.2.e requires LGI's to implement FCD/I projects having a command area less than or equal to 1000ha, while NWPo §4.2.f calls upon LGI's to coordinate stakeholder participation at all stages of water sector project cycles. Furthermore, as a result of NWPo §4.4.d LGI's will become progressively responsible for the management of all FCD schemes up to 5000ha, as well as for the raising of operation and maintenance tariffs through local resources. This programme is intended to deliver the necessary capacity building and human resource development in response to the needs assessments carried out under Programme ID 001 (Local Government Needs Assessment for Water Management). The programme will begin with the establishment of a Central Training Unit and thereafter comprise a long and sustained effort beginning in the short term of the NWMP and continuing throughout the remainder of its 25 years. The programme will include training for both LGED		

MIS Links	Cost Calculation :	ID Programme costing.xls	Map :	ID 005 Map.jpg
	Disb't Schedule :	ID Programme costing.xls	Description :	ID 005 PgP.doc

Finance					
	Costs	Private	Funding (%)	Expected by	
			GoB	Beneficiaries	ProgrammeYear
Total Capital ³	12,100.00 MTk	0%	100%	0%	25
Ultimate Recurring	771.90 MTk/yr	n/a	100%	0%	26
Date of Data :	31 07 01	Stacked Cumulative Cash Flow Chart			
	(dd) (mm) (yy)				
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
• Programme document for LGI capacity building for local water sector management and development by LGI's	• Signed project document	NYD
• Central Training Unit established at the Ministry of Local Government and Rural Development	• Operational charter of the Central Training Unit • Legal status of the Central Training Unit	NYD
• LGI water management operational capacity consistent with the needs of decentralised water management in Bangladesh	• Regular (5 yearly) management reviews	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

WARPO Capacity Building

Ref :

ID 006

Cluster :	Institutional Development	Region(s) :	All
Focus/Foci :	WARPO	Location :	Nationwide
Start Year ¹ :	2001	Duration ² :	5 year(s)
		Agency(s) Responsible :	WARPO (Lead) None (Supporting)
Short Description :	WARPO has suffered considerably in the past from a lack of permanence, with adequate funding support being provided only during national plan preparations and little in-between. Furthermore, prevailing employment conditions then, make the appointment and retention of suitable staff difficult. This programme intends to render WARPO sustainable while building its capacity such that it becomes a centre of excellence characterized by committed high calibre staff. This will be achieved by revision of WARPO's legal establishment, restructuring of WARPO staffing, relocation to a permanent suitable office and various capacity building programmes.		

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

Finance						
	Costs	Private	Funding (%)	Beneficiaries	Expected by	
	GoB				ProgrammeYear	
Total Capital ³	660.00 MTk	0%	100%	0%	5	
Ultimate Recurring	0.00 MTk/yr	n/a	n/a	n/a	n/a	
Date of Data :	31 07 01	Stacked Cumulative Cash Flow Chart				
	(dd) (mm) (yy)					
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
• WARPO mandate and establishment in line with NWPo and NWMP requirements	• Gazetted Act and approved establishment	NYD
• WARPO housed in a purpose built fully equipped high tech facility	• Registered address of WARPO	NYD
• WARPO capacity building training programme	• Signed Project Document	NYD
• WARPO established as a centre of excellence	• Donor confidence	NYD
	• Investor confidence	
	• Correlation between plans and actualities in the water sector	

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

Department of Environment Capacity Building

Ref :

ID 007

Cluster :	Institutional Development	Region(s) :	All
Focus/Foci :	Department of Environment	Location :	Nationwide
Start Year ¹ :	2001	Duration ² :	5 year(s)
		Agency(s) Responsible :	DoE (Lead) None (Supporting)
Short Description :	As far as aquatic resources are concerned, DoE is mandated to protect water quality and ensure efficiency of use and in particular to monitor (and establish standards of) effluent disposal to prevent water pollution. This programme allows for institutional capacity building of DoE including the establishment of representational offices down to District level.		

MIS Links	Cost Calculation :	ID Programme costing.xls	Map :	ID 007 Map.jpg
	Disb't Schedule :	ID Programme costing.xls	Description :	ID 007 PgP.doc

Finance				Funding (%)		Expected by
	Costs	Private	GoB	Beneficiaries	Programme	Year
Total Capital ³	365.00 MTk	0%	100%	0%		5
Ultimate Recurring	0.00 MTk/yr	n/a	n/a	n/a		n/a
Date of Data :	31	07	01	Stacked Cumulative Cash Flow Chart		
	(dd)	(mm)	(yy)			
Status :	Preparation					
Financial Base Year:	mid-2000					
Planned Expenditure (to date) :	0 MTk					
Actual Expenditure ⁴ (to date) :	0 MTk					

Monitoring		
Objective	Indicator	Present Status⁵
• Department of Environment capacity building programme agreed by DoE and WARPO	• Signed Project Document	NYD
• Department of Environment capacity building programme completed	• Ex-post evaluation • Programme complete report	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

Disaster Management Bureau Capacity Building

Ref :

ID 008

Cluster :	Institutional Development	Region(s) :	All
Focus/Foci :	Disaster Management Bureau	Location :	Nationwide
Start Year ¹ :	2002	Duration ² :	10 year(s)
		Agency(s) Responsible :	DMB (Lead) None (Supporting)
Short Description :	This programme will provide the resources necessary to continue ongoing capacity building activities throughout the short and medium terms in order that the DMB can address its mandate in an increasingly effective fashion.		

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

Finance				Funding (%)		Expected by
	Costs	Private	GoB	Beneficiaries	Programme	Year
Total Capital ³	2,200.00 MTk	0%	100%	0%		10
Ultimate Recurring	116.00 MTk/yr	n/a	100%	0%		11
Date of Data :	31	07	01	Stacked Cumulative Cash Flow Chart		
	(dd)	(mm)	(yy)			
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
• Disaster Management Bureau capacity building programme agreed by the DMB and WARPO	• Signed Project Document	NYD
• Disaster Management Bureau capacity building programme completed	• Ex-post evaluation • Programme complete report	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

Capacity Building for Other Organisations

Ref :

ID 009

Cluster :	Institutional Development	Region(s) :	All
Focus/Foci :	Other Agencies	Location :	Nationwide
Start Year ¹ :	2003 Duration ² : 4 year(s)	Agency(s) Responsible :	BMD, RRI, (Lead) BHWDB (Supporting) None
Short Description :	The NWPo §4.02(o) requires the GoB or its responsible agencies to undertake comprehensive and integrated analysis of relevant hydrological factors across all related water-using sectors for the purpose of managing the river systems and providing early warning systems of natural disasters like flood and drought. NWPo §4.13 also requires water bodies like haors, baors and beels are preserved for maintaining the aquatic environment and facilitating drainage. This programme provides for capacity building of three key agencies involved in these activities, namely: Bangladesh Meteorological Department, River Research Institute and Bangladesh Haor and Wetland Development Board.		

MIS Links	Cost Calculation :	ID Programme costing.xls	Map :	ID 009 Map.jpg
	Disb't Schedule :	ID Programme costing.xls	Description :	ID 009 PgP.doc

Finance			Funding (%)		Expected by
	Costs	Private	GoB	Beneficiaries	ProgrammeYear
Total Capital ³	300.00 MTk	0%	100%	0%	4
Ultimate Recurring	22.50 MTk/yr	n/a	100%	0%	5

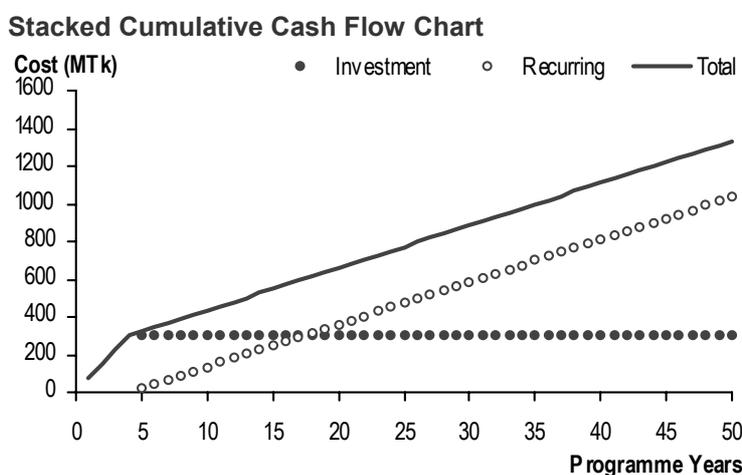
Date of Data : **31 07 01**
(dd) (mm) (yy)

Status : **Identified**

Financial Base Year: **mid-2000**

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

Actual Expenditure⁴ (to date) : **0** MTk



Monitoring

Objective	Indicator	Present Status ⁵
• Capacity building programmes agreed for DoM, RRI and BHWDB	• Signed Project Documents	NYD
• State of the art climate forecasting facilities available to the BMD	• Equipment inventory	NYD
• Reliable predictions of extreme climatic events (both short and long term), and morphological changes; and effective wetland management procedures	• Annual performance reviews	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

BWDB Capacity Building

Ref :

ID 010

Cluster :	Institutional Development	Region(s) :	All
Focus/Foci :	Bangladesh Water Development Board	Location :	Nationwide
Start Year ¹ :	2002	Duration ² :	10 year(s)
		Agency(s) Responsible :	BWDB (Lead) None (Supporting)
Short Description :	This programme is intended to strengthen BWDB in several ways: improved flood forecasting and warning; strengthened surface and groundwater monitoring and dissemination; support for erosion and accretion forecasting; support for drought forecasting; re-orientation programmes especially with regard to the social and environmental dimensions of water resources management, MIS, HRD and other related fields of BWDB; a new central office and upgraded regional centres.		

MIS Links	Cost Calculation :	ID Programme costing.xls	Map :	ID 010 Map.jpg
	Disb't Schedule :	ID Programme costing.xls	Description :	ID 010 PgP.doc

Finance				Funding (%)		Expected by
	Costs	Private	GoB	Beneficiaries	Programme	Year
Total Capital ³	1,316.00 MTk	0%	100%	0%		10
Ultimate Recurring	65.70 MTk/yr	n/a	100%	0%		11
Date of Data :	31	07	01	Stacked Cumulative Cash Flow Chart		
	(dd)	(mm)	(yy)			
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
• BWDB long term needs assessed	• Needs Assessment Report	NYD
• Future roles and responsibilities of BWDB agreed	• Acceptance of the Needs Assessment Report	NYD
• BWDB capacity building programme agreed	• Signed Project Document	NYD
• BWDB capacity building programme completed	• Ex-post evaluation • Programme complete report	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

Support to the Preparation of New Legislation

Ref :

EE 001

Cluster :	Enabling Environment	Region(s) :	All
Focus/Foci :	Legislation	Location :	Nationwide
Start Year ¹ :	2001	Duration ² :	2 year(s)
		Agency(s) Responsible :	WARPO (Lead) None (Supporting)
Short Description :	As acknowledged by the NWPo and other sources, the existing legal framework does not reflect the decentralized participatory characteristics intended for the water sector. As such it needs revision and supplementation in a number of key areas. This programme is intended to provide support in the form of technical assistance and study that will i) assist in identifying where and how legislation needs to be revised or augmented; ii) facilitate the preparation of a Water Resources Act and iii) result in an appropriate registration process for the community based organisations.		

MIS Links	Cost Calculation :	EE Programme costing.xls	Map :	EE 001 Map.jpg
	Disb't Schedule :	EE Programme costing.xls	Description :	EE 001 PgP.doc

Finance					
	Costs	Private	Funding (%) GoB	Beneficiaries	Expected by ProgrammeYear
Total Capital ³	12.50 MTk	0%	100%	0%	2
Ultimate Recurring	0.00 MTk/yr	n/a	n/a	n/a	n/a
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
• Water Policy Advisory Group Review	• Review accepted	NYD
• Outline Code endorsed by ECNWRC	• ECNWRC official minutes	NYD
• Final Draft National Water Code establishing GoB's obligation to manage water as a public good while facilitating the participation of equitable, well regulated, community based organisations presented to Parliament	• The Draft Water Code • Parliamentary proceedings	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

Field Testing of Participatory Management Models

Ref :

EE 002

Cluster :	Enabling Environment	Region(s) :	All
Focus/Foci :	Participatory Management Models	Location :	Nationwide
Start Year ¹ :	2003	Duration ² :	5 year(s)
		Agency(s) Responsible :	BWDB (Lead) LGED, LGIs, CBOs (Supporting)
Short Description :	The NWPo calls for the decentralisation and/or devolution of the water sector. Various models have already been proposed, most of which are prescribed by the size of scheme involved. The programme is intended to test the efficacy of the models proposed to date as well as other potential options to be identified on the basis of comprehensive stakeholder consultation.		

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

Finance						
	Costs	Private	Funding (%)	Beneficiaries	Expected by	
			GoB		ProgrammeYear	
Total Capital ³	100.00 MTk	0%	100%	0%		5
Ultimate Recurring	0.00 MTk/yr	n/a	n/a	n/a		n/a
Date of Data :	31	07	01	Stacked Cumulative Cash Flow Chart		
	(dd)	(mm)	(yy)			
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
• Long list of potential institutional models agreed by GoB	• Formal agreement of GOB	NYD
• Shortlist of potential institutional models agreed by GoB	• Formal agreement of GoB	NYD
• Field test programme formulated	• Programme document	NYD
• Field test completed	• Programme reports	NYD
• A range of appropriate and replicable institutional models for decentralised water management in Bangladesh	• Required document prepared and approved	NYD
	• Stakeholder consent verified	

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

Water Resources Legislation - Preparation of Supporting Ordinances

Ref : **EE 003**

Cluster :	Enabling Environment	Region(s) :	All
Focus/Foci :	Regulations, Guidelines and Manuals	Location :	Nationwide
Start Year ¹ :	2003	Duration ² :	20 year(s)
		Agency(s) Responsible :	MoLJP (Lead) NWC, WARPO (Supporting)
Short Description :	Programme EE 001 is intended to result in a new Water Resources Act; this complementary programme is intended to address the need for legal commentary, under-laws and precedents to the new Act that will shape and arbitrate its enforcement. Inter-alia these will incorporate or address experiences gained while field testing institutional structures and modalities under Programme EE 002		

MIS Links	Cost Calculation :	EE Programme costing.xls	Map :	EE 003 Map.jpg
	Disb't Schedule :	EE Programme costing.xls	Description :	EE 003 PgP.doc

Finance				Funding (%)		Expected by
		Costs	Private	GoB	Beneficiaries	ProgrammeYear
Total Capital ³	120.00 MTk	0%	100%	0%	0%	20
Ultimate Recurring	0.00 MTk/yr	n/a	n/a	n/a	n/a	n/a
Date of Data :	31	07	01	Stacked Cumulative Cash Flow Chart		
	(dd)	(mm)	(yy)			
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
• Comprehensive needs assessment	• Needs assessment reports accepted by GoB	NYD
• Scope and range of documents agreed by GOB	• GoB decision	NYD
• An easily understood legal framework for water sector development and management	• 90% of legal challenges to the Water Resources Act fail	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

Project Preparation Procedures - Guidelines and Manuals

Ref : **EE 004**

Cluster :	Enabling Environment	Region(s) :	All
Focus/Foci :	Regulations, Guidelines and Manuals	Location :	Nationwide
Start Year ¹ :	2003	Duration ² :	15 year(s)
		Agency(s) Responsible :	WARPO (Lead) NGOs (Supporting)
Short Description :	This programme is intended to prepare enforceable guidelines and advisory manuals covering the processes and procedures considered necessary during the preparation of water sector initiatives.		

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

Finance				Funding (%)		Expected by
		Costs	Private	GoB	Beneficiaries	ProgrammeYear
Total Capital ³		160.00 MTk	0%	100%	0%	15
Ultimate Recurring		0.00 MTk/yr	n/a	n/a	n/a	n/a
Date of Data :	31	07	01	Stacked Cumulative Cash Flow Chart		
	(dd)	(mm)	(yy)			
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
• Range of documents agreed by GoB	• Approved reports	NYD
• Scope of documents agreed by GoB	• Approved reports	NYD
• Water sector programme and project preparation regulated by an approved set of guidelines and manuals	• Legal framework ratified and promulgated	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

Regulatory and Economic Instruments

Ref :

EE 005

Cluster :	Enabling Environment	Region(s) :	All
Focus/Foci :	Regulations, Guidelines and Manuals	Location :	Nationwide
Start Year ¹ :	2003	Duration ² :	2 year(s)
		Agency(s) Responsible :	WARPO (Lead) None (Supporting)
Short Description :	This programme is intended to prepare enforceable guidelines and advisory manuals concerning standards, regulation and economic instruments for the water sector.		

MIS Links	Cost Calculation :	EE Programme costing.xls	Map :	EE 005 Map.jpg
	Disb't Schedule :	EE Programme costing.xls	Description :	EE 005 PgP.doc

Finance						
	Costs	Private	Funding (%)	Beneficiaries	Expected by	
	GoB				ProgrammeYear	
Total Capital ³	152.00 MTk	0%	100%	0%	2	
Ultimate Recurring	0.00 MTk/yr	n/a	n/a	n/a	n/a	
Date of Data :	31	07	01	Stacked Cumulative Cash Flow Chart		
	(dd)	(mm)	(yy)			
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
• Options for regulatory and economic instruments studied	• Report approved	NYD
• Manual for Regulatory and Economic Instruments	• Report approved	NYD
• Regulatory and Economic instruments in force	• Legal framework ratified and promulgated	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

Field Testing and Finalisation of the Guidelines for Participatory Water Management

Ref : **EE 006**

Cluster :	Enabling Environment	Region(s) :	All
Focus/Foci :	Regulations, Guidelines and Manuals	Location :	Nationwide
Start Year ¹ :	2004	Duration ² :	10 year(s)
		Agency(s) Responsible :	WARPO (Lead) CBOs, NGOs (Supporting)
Short Description :	A set of Guidelines For Participatory Water Management was issued in February 2001. While the document represents an excellent point of departure, it needs more work if it is to be made consistent with conventional wisdom and international best practice. This programme is intended to finalise the Guidelines via a process of pilot testing and evaluation complemented by further research, international technical assistance and study tours.		

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

Finance					
	Costs	Private	Funding (%) GoB	Beneficiaries	Expected by ProgrammeYear
Total Capital ³	70.00 MTk	0%	100%	0%	10
Ultimate Recurring	0.00 MTk/yr	n/a	n/a	n/a	n/a
Date of Data :	31	07	01	Stacked Cumulative Cash Flow Chart	
	(dd)	(mm)	(yy)		
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
• Guidelines for Participatory Water Management finalised	• The Guidelines	NYD
• Guidelines for Participatory Water Management applied to all relevant programmes and projects	• Project agreements and implementation records	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

NWRD Improved Data Collection and Processing Facilities

Ref : **EE 007**

Cluster :	Enabling Environment	Region(s) :	All
Focus/Foci :	Research and Information Management	Location :	Nationwide
Start Year ¹ :	2001	Duration ² :	2 year(s)
		Agency(s) Responsible :	WARPO (Lead) None (Supporting)
Short Description :	<p>Given that water resource planning and management requires a very wide range of information drawn from myriad institutional sources, this programme is intended to familiarize the many stakeholder institutions with the potential benefits that well organized, accessible data represents and to facilitate the realization of that potential. Beginning with a process of consultations with all stakeholder institutions, principles of common standards; access protocols and data pricing options will be agreed and a proposal written. Other objectives include the establishment of one-stop data retrieval and the availability of all reports in digital format. This programme is relevant to the NWPo as it provides improved, better organised management of information, and is in keeping with the NWPo call for a systematic, comprehensive overhaul of the sector's data systems.</p>		

MIS Links	Cost Calculation :	EE Programme costing.xls	Map :	EE 007 Map.jpg
	Disb't Schedule :	EE Programme costing.xls	Description :	EE 007 PgP.doc

Finance						
		Costs	Private	Funding (%) GoB	Beneficiaries	Expected by ProgrammeYear
Total Capital ³		15.00 MTk	0%	100%	0%	2
Ultimate Recurring		0.00 MTk/yr	n/a	n/a	n/a	n/a
Date of Data :	31 07 01	Stacked Cumulative Cash Flow Chart				
	(dd) (mm) (yy)	<p>Cost (MTk) vs Programme Years</p> <ul style="list-style-type: none"> ● Investment ○ Recurring — Total 				
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
<ul style="list-style-type: none"> • A comprehensive proposal for the rationalisation of Bangladesh's water sector data resources under consideration by NWC • All major databases functionally linked in a manner that avoids system redundancies • All water sector reports archived in digital format and available to all users in hard or soft copies 	<ul style="list-style-type: none"> • Registration of the document by NWC • Proceedings of the NWC • Database architecture • Percentage of reports available in digital format 	<p>NYD</p> <p>NYD</p> <p>NYD</p>

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

Water Resources Management Research and Development Studies

Ref : **EE 008**

Cluster :	Enabling Environment	Region(s) :	All
Focus/Foci :	Research and Information Management	Location :	Nationwide
Start Year ¹ :	2001	Duration ² :	8 year(s)
		Agency(s) Responsible :	WARPO (Lead) None (Supporting)
Short Description :	NWPo §4.15 of the NWPo recognizes the important contribution that well focused and coordinated research can play in facilitating the wise and sustainable use of water resources. In particular, the Policy calls for strengthened research capacity at water resource and agricultural institutions. It also prescribes focused research into important flood control and management; water resources management; sociological and institutional issues. This programme comprises ten specific research programmes that are not contained within any other programmes, and that are not already ongoing.		

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

Finance						
	Costs	Private	Funding (%) GoB	Beneficiaries	Expected by ProgrammeYear	
Total Capital ³	800.00 MTk	0%	100%	0%	8	
Ultimate Recurring	0.00 MTk/yr	n/a	n/a	n/a	n/a	
Date of Data :	31	07	01	Stacked Cumulative Cash Flow Chart		
	(dd)	(mm)	(yy)			
Status :	Identified					
Financial Base Year:	mid-2000					
Planned Expenditure (to date) :	MTk					
Actual Expenditure ⁴ (to date) :	MTk					

Monitoring		
Objective	Indicator	Present Status⁵
• A minimum of ten fully reported, demand driven water sector research studies	• Terms of Reference • Documents	NYD
• Research playing a Key role in quinquennial NWMP updates	• Updated NWMP documents	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

Water Resources Management Long Term Research and Development

Ref : **EE 009**

Cluster :	Enabling Environment	Region(s) :	All
Focus/Foci :	Research and Information Management	Location :	Nationwide
Start Year ¹ :	2009	Duration ² :	17 year(s)
		Agency(s) Responsible :	WARPO (Lead) None (Supporting)
Short Description :	The NWPo recognizes the important contribution that well focused and coordinated research can play in facilitating the wise and sustainable use of water resources. In particular, the Policy calls for strengthened research capacity at water resource and agricultural institutions. This programme simply provides funds for unspecified research in the long term.		

MIS Links	Cost Calculation :	EE Programme costing.xls	Map :	EE 009 Map.jpg
	Disb't Schedule :	EE Programme costing.xls	Description :	EE 009 PgP.doc

Finance				Funding (%)		Expected by
	Costs	Private	GoB	Beneficiaries	Programme	Year
Total Capital ³	1,700.00 MTk	0%	100%	0%		17
Ultimate Recurring	0.00 MTk/yr	n/a	n/a	n/a		n/a
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) :	MTk					
Actual Expenditure ⁴ (to date) :	MTk					

Monitoring		
Objective	Indicator	Present Status⁵
<ul style="list-style-type: none"> Water sector institutions engaged in commissioning or undertaking targeted adaptive research Bangladesh's water sector considered to represent a regional center of research excellence 	<ul style="list-style-type: none"> Institutional work plans and budgets Research reports International Research Collaborations International recruitment or engagement of local researchers Incoming study tours 	<p>NYD</p> <p>NYD</p>

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

Raising Public Awareness in the Wise Use and Management of Water

Ref : **EE 010**

Cluster :	Enabling Environment	Region(s) :	All
Focus/Foci :	Media and Awareness Raising	Location :	Nationwide
Start Year ¹ :	2002	Duration ² :	20 year(s)
		Agency(s) Responsible :	WARPO (Lead) Various (Supporting)
Short Description :	Public awareness campaigns by all relevant agencies in the water sector are to be seen as an important vehicle for the active promotion of all the key components in the NWPo and the NWMP, fostering increased consultation and participation, and increased awareness of all water sector issues at local, regional and national levels. This programme will consider, assess and implement various publicity campaigns around the country to this end, such as radio broadcasts, newspaper articles, cinema advertising, promotional videos, rural trade fairs, extension services, etc.		

MIS Links	Cost Calculation :	EE Programme costing.xls	Map :	EE 010 Map.jpg
	Disb't Schedule :	EE Programme costing.xls	Description :	EE 010 PgP.doc

Finance						
	Costs	Private	Funding (%)	Beneficiaries	Expected by	
			GoB		ProgrammeYear	
Total Capital ³	180.00 MTk	0%	100%	0%	20	
Ultimate Recurring	0.00 MTk/yr	n/a	n/a	n/a	n/a	
Date of Data :	31	07	01	Stacked Cumulative Cash Flow Chart		
	(dd)	(mm)	(yy)			
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
• Dissemination Unit established at WARPO	• Job descriptions • Contracts of employment	NYD
• Sensitisation campaign prepared	• The Plan document	NYD
• Sensitisation campaign agreed by GoB	• Formal agreement	NYD
• Effective public demand for sustainable water resources management	• Knowledge, Attitude and Practices (KAP) surveys	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

Private Sector Participation in Water Management

Ref : **EE 011**

Cluster :	Enabling Environment	Region(s) :	All
Focus/Foci :	Promoting Private Sector Participation	Location :	Nationwide
Start Year ¹ :	2002	Duration ² :	2 year(s)
		Agency(s) Responsible :	WARPO (Lead) None (Supporting)
Short Description :	One of the main objectives of the NWPo is to "...improve the investment climate for the private sector in water development and management" (NWPo §3.01e) To this end, the ongoing Infrastructure Development Company Ltd. (IDCOL) has already been established and provides 'top-up' funds to private led projects. This programme continues in the same vein by promoting the creation of a legal and regulatory framework to aid investor/provider confidence, and also in improving access of the rural and urban poor to adequate credit facilities. Special tax/duty privileges to attract foreign investment to the water sector, and establishment and public awareness raising of consumer rights in relation to private water supply schemes will also be undertaken.		

MIS Links	Cost Calculation :	EE Programme costing.xls	Map :	EE 011 Map.jpg
	Disb't Schedule :	EE Programme costing.xls	Description :	EE 011 PgP.doc

Finance					
	Costs	Private	Funding (%)	Beneficiaries	Expected by ProgrammeYear
Total Capital ³	35.00 MTk	0%	100%	0%	2
Ultimate Recurring	0.00 MTk/yr	n/a	n/a	n/a	n/a
Date of Data :	31 07 01 (dd) (mm) (yy)	Stacked Cumulative Cash Flow Chart			
Status :	Identified	<p>Cost (MTk) vs Programme Years</p> <ul style="list-style-type: none"> ● Investment ○ Recurring — Total 			
Financial Base Year:	mid-2000				
Planned Expenditure (to date) :	0 MTk				
Actual Expenditure ⁴ (to date) :	0 MTk				

Monitoring

Objective	Indicator	Present Status ⁵
• Study of options and opportunities for Private Sector Participation	• Report approved	NYD
• Manual for Private Sector Participation	• Report approved	NYD
• Government acceptance of sectoral reform preconditions necessary to facilitate the private sector's participation	• Relevant Government orders issued	NYD
• Full but regulated access to water sector investment and service delivery opportunities to the private sector	• Legal framework ratified and promulgated Fiscal arrangements promulgated	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

Water and Environment Funds

Ref : **EE 012**

Cluster :	Enabling Environment	Region(s) :	All
Focus/Foci :	Development Finance	Location :	Nationwide
Start Year ¹ :	2004	Duration ² :	2 year(s)
		Agency(s) Responsible :	WARPO (Lead) MoEF (Supporting)
Short Description :	Regulatory and economic instruments are an important part of demand management in a modern decentralized water sector. This programme is intended to broaden the scope and increase the utility and effectiveness of such instruments in Bangladesh particularly those pertaining to the abstraction of both surface and groundwater; arsenic mitigation, effluent scrubbing and cost recovery across the board.		

MIS Links	Cost Calculation :	EE Programme costing.xls	Map :	EE 012 Map.jpg
	Disb't Schedule :	EE Programme costing.xls	Description :	EE 012 PgP.doc

Finance						
	Costs	Private	Funding (%)	Beneficiaries	Expected by	
			GoB		Programme	Year
Total Capital ³	40.00 MTk	0%	100%	0%		2
Ultimate Recurring	0.00 MTk/yr	n/a	n/a	n/a		n/a
Date of Data :	31	07	01	Stacked Cumulative Cash Flow Chart		
	(dd)	(mm)	(yy)			
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
• Studies of options for water and environment funds	• Reports issued	NYD
• Options agreed by Government	• GoB agreement	NYD
• Water and Environment Funds	• The funds themselves	NYD
• Increased pollution clean up and arsenic mitigation catalysed by grants and subsidies	• Impact survey reports	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

Alternative Financing Methods for Water Management

Ref :

EE 013

Cluster :	Enabling Environment	Region(s) :	All
Focus/Foci :	Development Finance	Location :	Nationwide
Start Year ¹ :	2002	Duration ² :	10 year(s)
		Agency(s) Responsible :	WARPO (Lead) None (Supporting)
Short Description :	The availability of and access to adequate financial resources for operations and maintenance; emergency work; rehabilitation; replacement and new development is a major sustainability issue in Bangladesh's water sector. The current trend to decentralise management responsibility is expected to take the pressure off central finances. This programme will study needs and opportunities for alternative financing (such as an independent regulatory framework), and then promote various local and international sources of finance (thirteen different sources have been identified at this stage). The NWPo recognises the importance of promoting alternative financing in such clauses as: "... improve the investment climate for the private sector in water development and management" (NWPo §3.01e), and; "the formulation of options for investment and management" (NWPo §4.051).		

MIS Links	Cost Calculation :	EE Programme costing.xls	Map :	EE 013 Map.jpg
	Disb't Schedule :	EE Programme costing.xls	Description :	EE 013 PgP.doc

Finance					
	Costs	Private	Funding (%) GoB	Beneficiaries	Expected by Programme Year
Total Capital ³	290.00 MTk	0%	100%	0%	10
Ultimate Recurring	0.00 MTk/yr	n/a	n/a	n/a	n/a
Date of Data :	31 (dd)	07 (mm)	01 (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
• Studies of alternative financing models	• Reports issued	NYD
• Increasing use of non-traditional financing for water sector development and management	• Audit reports	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

Main Rivers Studies and Research Programmes

Ref : **MR 001**

Cluster :	Main Rivers	Region(s) :	All
Focus/Foci :	Studies and Research	Location :	Nationwide
Start Year ¹ :	2002	Duration ² :	10 year(s)
		Agency(s) Responsible :	WARPO (Lead) BWDB (Supporting)
Short Description :	This Programme comprises a series of studies to establish a cost-effective approach to long-term development of the river systems for multi-purpose use. The studies will each contribute to the understanding of individual river development prospects as well as to an overall integrated development plan, set within the context of the international water-sharing issues. Topics covered include a regional development plan for the Meghna and Brahmaputra rivers, master planning of major river training and hydro-power development, Brahmaputra Barrage study, and feasibility studies of development of the Ganges Dependent Area.		

MIS Links	Cost Calculation :	MR Programme costing.xls	Map :	MR 001 Map.jpg
	Disb't Schedule :	MR Programme costing.xls	Description :	MR 001 PgP.doc

Finance				Funding (%)	Expected by	
		Costs	Private	GoB	Beneficiaries	ProgrammeYear
Total Capital ³	2,000.00	MTk	0%	100%	0%	10
Ultimate Recurring	0.00	MTk/yr	n/a	n/a	n/a	n/a
Date of Data :	31	07	01	Stacked Cumulative Cash Flow Chart		
	(dd)	(mm)	(yy)	Cost (MTk)	● Investment	○ Recurring
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
• Timely completion of the Programme studies and investigations	• Progress of the work based on regular monitoring	NYD
• A sound basis for strategic decision-making and the planning of future Main River development accepted by the due authorities	• Strategy reports • Formal agreement of the reports	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

Inventory and Asset Management Plan of the Water Supply and Sanitation Sector

Ref : **MC 001**

Cluster :	Major Cities	Region(s) :	All
Focus/Foci :	Water Supplies, Sanitation	Location :	Nationwide
Start Year ¹ :	2001	Duration ² :	2 year(s)
		Agency(s) Responsible :	DPHE (Lead) None (Supporting)
Short Description :	Much of the water supply and sanitation infrastructure in Bangladesh is either poorly maintained due to lack of investment in operation and maintenance or reaching the end of its useful life. However, without a detailed and clear understanding of the existing situation there is little point in carrying out major investment. Before any new investment is made on these rapidly deteriorating systems it is essential to obtain a better understanding of the condition and performance of the existing underground and above ground assets. Such an exercise is commonly referred to as an asset management plan (AMP) and is the intention of this programme.		

MIS Links	Cost Calculation :	MC Programme costing.xls	Map :	MC 001 Map.jpg
	Disb't Schedule :	MC Programme costing.xls	Description :	MC 001 PgP.doc

Finance				Funding (%)		Expected by
		Costs	Private	GoB	Beneficiaries	ProgrammeYear
Total Capital ³	12.50 MTk	0%	100%	0%	0%	2
Ultimate Recurring	0.00 MTk/yr	n/a	n/a	n/a	n/a	n/a
Date of Data :	31	07	01	Stacked Cumulative Cash Flow Chart		
	(dd)	(mm)	(yy)	Cost (MTk) <ul style="list-style-type: none"> ● Investment ○ Recurring — Total 		
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
• Asset management study of the National water supply and sanitation sector	• The study report	NYD
• Technical inventory of the National water supply and sanitation sector	• The study report	NYD
• Detailed development plan for water supply and sanitation facilities in the SMA's	• The planning document	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 Pollution Control Plan

Ref : **EA 001**

Cluster :	Environment and Aquatic Resources	Region(s) :	All
Focus/Foci :	Pollution Clean Up and Control	Location :	Nationwide
Start Year ¹ :	2002	Duration ² :	23 year(s)
		Agency(s) Responsible :	Mol (Lead) DoE, WARPO (Supporting)
Short Description :	NWPO states that "pollution of both surface and groundwater around various industrial centres of the country by untreated effluent discharge into water bodies is a critical water management issue." This programme is intended to result quickly in a widely-agreed and politically-endorsed Pollution Control Plan, with clear, time-bound deliverables based on progressive compliance with anti-pollution regulations, notably the national Water Quality Standards (WQS.) For the short term, the anticipated Plan is expected to concentrate on 'fast-track' pilot clean-up projects for major pollution hot-spots and the establishment of suitable non-regulatory and regulatory instruments to assist the general clean-up process. It will set priority water quality indicators, notably pollutant parameters, for 'clean' and dirty water. The Action Plan and its dependent activities will be reviewed and modified as necessary as an integral part of the five-yearly reformulations of the NWMP and implemented over the medium and long term accordingly.		

MIS Links	Cost Calculation :	EA Programme costing.xls	Map :	EA 001 Map.jpg
	Disb't Schedule :	EA Programme costing.xls	Description :	EA 001 PgP.doc

Finance						
		Costs	Private	Funding (%)	Beneficiaries	Expected by ProgrammeYear
Total Capital ³	1,100.00 MTk	75%	25%	0%	23	
Ultimate Recurring	0.00 MTk/yr	n/a	n/a	n/a	n/a	
Date of Data :	31 07 01	Stacked Cumulative Cash Flow Chart				
	(dd) (mm) (yy)					
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
• National Pollution Control Plan published	• The Plan document	NYD
• Wide stakeholder participation	• Independent evaluation reports	NYD
• National Pollution Control Plan agreed	• Ratification by stakeholder agencies	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 Clean-up of Existing Industrial Pollution

Ref :

EA 002

Cluster :	Environment and Aquatic Resources	Region(s) :	All
Focus/Foci :	Pollution Clean Up and Control	Location :	Nationwide
Start Year ¹ :	2004	Duration ² :	25 year(s)
		Agency(s) Responsible :	Mol (Lead) DoE, WARPO (Supporting)
Short Description :	NWPo states that "pollution of both surface and groundwater around various industrial centres of the country by untreated effluent discharge into water bodies is a critical water management issue." Furthermore, "Industrial polluters will be required under law to pay for the cleanup of water-body polluted by them." (NWPo §4.8.d). Based on the National Pollution Control Plan (Programme EA 001), this programme will address directly the clean-up of existing pollution black spots and the enforcement of the polluter-pays principle.		

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

Finance					
	Costs	Private	Funding (%)	Beneficiaries	Expected by ProgrammeYear
Total Capital ³	4,500.00 MTk	75%	25%	0%	25
Ultimate Recurring	0.00 MTk/yr	n/a	n/a	n/a	n/a
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
• GoB legally and politically committed to a clean aquatic environment	• Number of non-regulatory measures satisfactorily operating	NYD
• Public demand for aquatic pollution control	• Number of prosecutions under the revised regulations	NYD
• Demand driven voluntary maintenance of favourable water quality	• Number of public inspired actions	NYD
• Multi-purpose water use not constrained by quality considerations	• Media reports	NYD
	• Reducing prosecutions with no deterioration in water quality	NYD
	• Number of key concentrations below water quality standard thresholds	NYD
	• Status of indicator species ¹	
	• Human health statistics ¹	

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 Quality Monitoring

Ref :

EA 003

Cluster :	Environment and Aquatic Resources	Region(s) :	All
Focus/Foci :	Pollution Clean Up and Control	Location :	Nationwide
Start Year ¹ :	2001	Duration ² :	24 year(s)
		Agency(s) Responsible :	DoE (Lead) None (Supporting)
Short Description :	This programme is intended to spread the water quality monitoring effort away from known pollution black-spots towards prevention of pollution of clean and relatively clean water. This approach is justified because time and resources are better spent providing an early warning of pollution problems at vulnerable sites where remedial action is possible before ecological damage becomes irreversible. Prime targets for this water quality monitoring will be water sources with potential for supplying large scale potable water supply and ecologically sensitive areas.		

MIS Links	Cost Calculation :	EA Programme costing.xls	Map :	EA 003 Map.jpg
	Disb't Schedule :	EA Programme costing.xls	Description :	EA 003 PgP.doc

Finance				Funding (%)		Expected by
		Costs	Private	GoB	Beneficiaries	ProgrammeYear
Total Capital ³	6,225.40 MTk	0%	100%	0%		24
Ultimate Recurring	27.50 MTk/yr	n/a	100%	0%		25
Date of Data :	31	07	01	Stacked Cumulative Cash Flow Chart		
	(dd)	(mm)	(yy)			
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
• Water quality monitoring capacity strengthened technically and geographically	• Number of accredited institutions participating	NYD
• Quality assured water quality data available to all stakeholder	• Number of stakeholders requesting data	NYD
• Reduction of gross/persistent pollution	• Number of pollution sources cleaned up	NYD
	• Spot checks	

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 Fisheries Master Plan

Ref :

EA 004

Cluster :	Environment and Aquatic Resources	Region(s) :	All
Focus/Foci :	Water Management for Fisheries	Location :	Nationwide
Start Year ¹ :	2002	Duration ² :	3 year(s)
		Agency(s) Responsible :	DoFish (Lead) None (Supporting)
Short Description :	The country's inland fisheries, which provide employment for some 2M full-time and 12M part-time fishermen, account for 3% of total GDP and 60% of the animal protein intake. Following the 1999 National Fisheries Policy, a national fisheries strategy and sector development programme are urgently required to address the threats to the fisheries industry including such problems as fragmentation and reduced water availability for natural water bodies, disrupted hydraulic connections between them and physical structures that constrain fish movements. The purpose of this programme is to develop a fisheries development plan which will include provisions for protection of fish stocks, and of other important aquatic species, and for prevention or mitigation of the above negative impacts.		

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

Finance						
		Costs	Private	Funding (%) GoB	Beneficiaries	Expected by ProgrammeYear
Total Capital ³	300.00 MTk	0%	100%	0%	3	
Ultimate Recurring	0.00 MTk/yr	n/a	n/a	n/a	n/a	
Date of Data :	31	07	01	Stacked Cumulative Cash Flow Chart		
	(dd)	(mm)	(yy)			
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
• Fisheries Master Plan published	• The Plan document	NYD
• Sustainable and productive inland fisheries	• Catch statistics (provided that impact of water sector measures can be distinguished from other impacts)	NYD
• Wild fish stocks conserved or increasing	• Status of indicator species (provided that impact of water sector measures can be distinguished from other impacts)	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

Public Awareness Raising and Empowerment in respect of Environmental Issues

Ref : **EA 010**

Cluster :	Environment and Aquatic Resources	Region(s) :	All
Focus/Foci :	General Environmental Responsibilities	Location :	Nationwide
Start Year ¹ :	2002	Duration ² :	23 year(s)
		Agency(s) Responsible :	DoE (Lead) NGOs, WARPO (Supporting)
Short Description :	The NWPo states that "Protection and preservation of the natural environment is essential for sustainable development." (NWPo §4.12). However, despite the existing support of environmentally concerned organisations, NGO's and individuals within Bangladesh, any actions are unlikely to be successful without considerably increased public awareness of the environmental issues and how the affect on their own lives. This programme will therefore involve both government and NGO's and will include wide-ranging dissemination of information and strengthening of environmental NGOs. Means to ensure access of people to effective remedies (eg. Environmental law and effective courts) will also be established.		

MIS Links	Cost Calculation :	EA Programme costing.xls	Map :	EA 010 Map.jpg
	Disb't Schedule :	EA Programme costing.xls	Description :	EA 010 PgP.doc

Finance				Funding (%)		Expected by
	Costs	Private	GoB	Beneficiaries	Programme	Year
Total Capital ³	930.00 MTk	0%	100%	0%		23
Ultimate Recurring	2.00 MTk/yr	n/a	100%	0%		24
Date of Data :	31	07	01	Stacked Cumulative Cash Flow Chart		
	(dd)	(mm)	(yy)			
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
• National Plan for informing and mobilising public opinion	• The Plan document	NYD
• 8 pilot projects (one per region) completed and evaluated	• Project evaluation reports	NYD
• Effective public demand for sustainable environmental stewardship	• Number of local water resource protection agreements	NYD
	• Number of polluters and agreement transgressors dealt with at the request of the of general public	

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