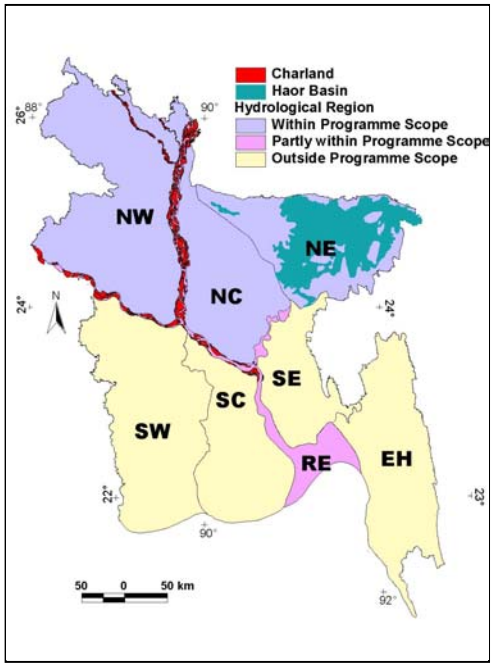
Flood Proofing in the Charlands and Haor Basin Ref: **DM 003**

Basic Data

NWMP Sub-sector **Disaster Management**

Region(s) **Mainly North West, North Central and North East**



Relevance to NWPo

Article 4.02(o) requires the Government, through its responsible agencies, to develop flood proofing systems to cope with natural disasters, and Article 4.2(p) requires that appropriate measures are provided, in designated flood risk zones, to protect life, property and vital infrastructure etc. Equally, the same Article requires that, with the exception of those already covered by existing flood control infrastructure, the people will be motivated to develop flood proofing measures.

Purpose of Programme

A basic theme of the NWPo concerns the desirability of coping with inland floods rather than managing them. In recent years populations at risk have come to place greater reliance on embankments and drainage schemes which were designed for agriculture and not human habitation and the like. Flood proofing involves a return to more traditional practices such as building houses on higher ground or stilts and the raising of public infrastructure such as roads, shared areas and water supply/sanitation facilities. The NWMP has three programmes addressing inland flood proofing (DM 003 to 005). This Programme DM 003 is concerned with providing proven, cost-effective, technologies in the form of raised households and communal flood to some 3M people in the main river charlands and some 0.5M people in the Haor Basin of North East Region.

Programme Outline

Structural flood proofing is an age-old practice in Bangladesh, whereby houses and homesteads in flood-prone areas are normally raised above flood level. Not all households have the resources to do this, however, especially in the unprotected char areas near the major river channels. Flooding incidence in these areas is high and incomes are low.

Until recently, structural flood proofing has received only limited attention from donors or GoB, but NGOs have been active in this field. Efforts have been concentrated in the charlands of the Brahmaputra and Ganges (the RE Region) and the Haor Basin. The major ongoing public sector project is the USAID – funded Flood Proofing Project, which started in 1999 and is being implemented by CARE and LGED. At a cost of some US$27M (Tk1,380M) over five years, it is flood-proofing about 1,025 villages in 20 Upazilas in the Brahmaputra and Padma charlands, the Haor Basin and Bhola Island, in SC Region. A Japanese-funded study of flood proofing in four

Districts in the Brahmaputra charlands and four Districts of the Haor Basin is currently in progress.

The NWMPP evaluation carried out of its predecessor, the Flood Proofing Pilot Project, showed that this type of intervention, involving mainly the raising of house plinths and the provision of communal flood shelters, is highly cost-effective and socially beneficial. There are no significant adverse environmental impacts. Sustainability is likely to be high, because of its heavy emphasis on community participation. Including all overhead costs, the capital costs per person, excluding the value of beneficiaries' labour inputs, were estimated to be Tk560-670 at 1998 prices. For the homestead (plinth) raising the beneficiaries contributed about 36% of the base cost, as labour. For the community shelters the only local contribution was the land, although under the project conditions the community was supposed to contribute 5 – 10% of the earthmoving work.

Remaining rural areas considered to need structural flood proofing on a large scale are the Brahmaputra and Padma charlands in Districts left out of the FPP, the Padma right bank, the Ganges charlands and the Haor Basin (there may be some 1,000 villages there, in 22 Upazilas). The distribution of the estimated 3.5M people requiring structural flood proofing by 2025 is as follows:

Area	2025 population requiring flood proofing (000)
1. Main River Charland Flood Proofing	
Brahmaputra (Kurigram, Gaibandha, Jamalpur, Bogra, Sirajganj, Tangail, Pabna and Pabna Dts)	1,921
Ganges (Rajshahi, Kushtia, Natore, Pabna and Rajbari Dts)	496
Padma (Manikganj, Faridpur, Dhaka, Madaripur, Munshiganj and Shariatpur Dts)	582
Total	**3,000**
2. Haor Basin	
1,000 villages with an average population of 500	500
3. Total	**3,500**

At an average cost of Tk650/head for the charlands and Tk1,300/head for the Haor Basin, the total capital cost will be Tk2,600M at mid-2000 prices. The approximate breakdown of this cost by region is as follows:-

NW	NC	NE	SW	SE	Total
1,040	520	650	200	190	2,600

Financing Arrangements

Capital costs will be funded by GoB, probably with donor assistance. Maintenance will be the responsibility of the beneficiaries, as at present.

Objectives and Indicators

Objective	Suffix	Indicators/Means of Verification	Due
• Quantitative needs assessment	I1	• Needs assessment reports	2005
• Modalities accepted	I2	• Signed agreements	2005
• Programme documents prepared	I3	• Programme documents	2005
• Programmes underway	I4	• Signed contracts/work orders	2006
• 3,500,000 charland and haor basin inhabitants in flood proofed dwellings	K	• Actual number of charland and haor basin inhabitants in flood proofed dwellings	2012
• Lives and national infrastructure protected against inundation damage	D	• Risk of loss of life (human and livestock) as estimated actuarially • Risk of income disruption as estimated actuarially • Risk of damage as estimated actuarially	2027

Institutional Arrangements

The present arrangement whereby the flood proofing programme is being successfully implemented by major NGOs and LGED should be continued in the future.

Existing Documentation

NWMP DSR Sections 9.3 and 9.8, the National Water Resources Database (NWRD), the Flood Action Plan (FAP) 14 and 23 studies, and reports of the on-going Flood Proofing Project.

Linkages

There is little direct linkage with other NWMP Programmes. Main River (MR) development activities could, however, affect flooding conditions in the charlands.

Risks and Assumptions

Experience with current flood proofing programmes indicates that institutional risks will be less than with many NWMP Programmes, because of the small scale of works involved and the high level of community participation. The main risks are technical in nature. In the charlands the migration of river charlands can result in erosion of house and shelter platforms. In the Haor Basin the strong wave action resulting from the long fetch in many areas can cause severe erosion of village land.

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

	Costs		Private	Funding (%) GoB	Beneficiaries	Expected by 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** (dd) **07** (mm) **01** (yy)

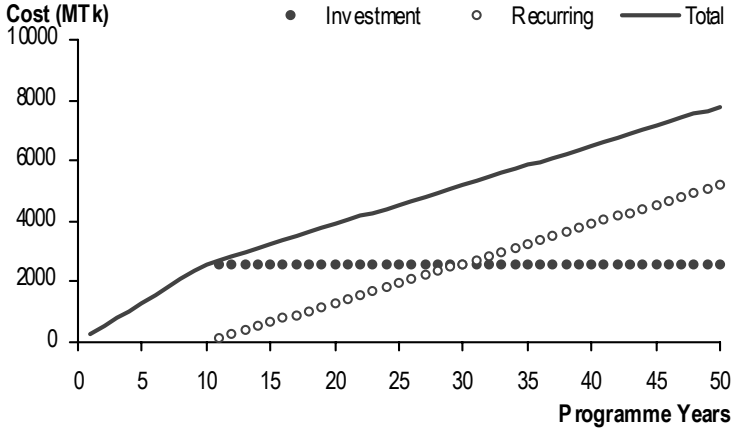
Status : **Identified**

Financial Base Year: **mid-2000**

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

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

Stacked Cumulative Cash Flow Chart



Monitoring

Objective	Indicator	Present Status[5]
• Quantitative needs assessment	• Needs assessment reports	NYD
• Modalities accepted	• Signed agreements	NYD
• Programme documents prepared • Programmes underway	• Programme documents • 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 Water Management Plan

Programme Costing Sheet

Programme Ref	**DM 003**
Title	**Flood Proofing in the Charlands and Haor Basin**

Assumptions:

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

Item	Unit	Quantity	Rate US$	Rate Tk'000	Amount TkM	O&M %	O&M/yr TkM
Technical Assistance							
Expatriate consultants (all-in rate)	p-m	-	20,000		-		
Senior National consultants (all-in rate)	p-m	-		150	-	*0.0%*	-
Mid-level National consultants (all-in rate)	p-m	-		90	-	*0.0%*	-
Sub-totals					-		-
Other general TA programme costs		*25%*			-		-
Specific other TA programme costs					-	*0.0%*	-
Total TA Costs					-		-
Other Programme Costs							
1. Main River Charland Flood Proofing					1,949.4	*5.0%*	97.5
2. Haor Basin Flood Proofing					650.0	*5.0%*	32.5
3.					-	*0.0%*	-
4.					-	*0.0%*	-
5.					-	*0.0%*	-
6.					-	*0.0%*	-
7.					-	*0.0%*	-
8.					-	*0.0%*	-
9.					-	*0.0%*	-
10.					-	*0.0%*	-
Total Other Programme Costs					2,599.4		130.0
Overall Programme Costs					**2,599.4**		**130.0**

	Population	Rate (Tk)	Amount TkM
Main River Charland Flood Proofing			
Brahmaputra	1,921,000	650	1,248.7
Ganges	496,000	650	322.4
Padma	582,000	650	378.3
	2,999,000		1,949
Haor Basin Flood Proofing			
Estimated 1,000 villages at 500 each	500,000	1,300	650.0
Totals	**3,499,000**		**2,599.4**